Report

Subject:	**Greenhouse Gas (GHG) Emissions Inventory and Reduction Targets**
Department:	**Infrastructure Services**
Division:	**Environment**
Report #:	**INS-2021-031**
Meeting Date:	**2021-05-10**

Recommendations

That report INS-2021-031, Greenhouse Gas (GHG) Emissions Inventory and Reduction Targets be received;

And that the Town adopt a community GHG emissions reduction target of net zero by 2050 in alignment with the ambitiousness of the Paris Agreement;

And that staff develop and set an interim community emissions reduction target once specific mitigation actions are prioritized dependent on level of impact, available resources, and support.

Background and Analysis

The Town has recognized the importance of reducing local greenhouse gas (GHG) emissions through its commitments to the Partners for Climate Protection (PCP) program and the Global Covenant of Mayors for Climate and Energy (GCoM). Additionally, the endorsement of the Town's Sustainable Neighbourhood Action Plan (SNAP) committed to encouraging emission reductions across the corporation and community.

The PCP program supports and guides municipalities in reducing GHG emissions through a Milestone Framework to achieve each of the required deliverables. In order to track these commitments, measure future progress and limit local contributions to climate change, the Town must identify a baseline year for their GHG emissions inventory.

This report provides the Town's first complete GHG emissions inventory for the baseline year of 2016 and proposes a net zero GHG target by 2050 in order to remain within 1.5°C of global warming to prevent catastrophic impacts from climate change.

By collecting data and developing an inventory of community GHG emissions, the Town of Orangeville has successfully completed Milestone One of the PCP program and their first badge of the GCoM. The GHG inventory reveals sources of emissions and tracks energy usage by sector. It is an important first step that will help the Town take action to reduce both energy use and local GHG emissions.

Baseline Inventory:

In 2016, the Town of Orangeville emitted a total of 223,974 tonnes of carbon dioxide equivalent (tCO_2e), resulting in a per-capita emissions value of 7.75 tCO_2e/person. The baseline inventory revealed the following sources of emissions:

- The Residential Sector emitted 39,209 tCO_2e accounting for 17.5% of total community emissions;
- The Commercial and Institutional Sector emitted 23,558 tCO_2e accounting for 10.5% of total emissions;
- The Industrial Sector emitted 7,179 tCO_2e accounting for roughly 3.2% of total emissions;
- Transportation including on-road and off-road modes, emitted 148,673 tCO_2e accounting for 66.4% of total emissions;
- The Waste Sector emitted 4,427 tCO_2e accounting for 2.0% of Orangeville's total emissions; and
- Fugitive emissions from natural gas use account for the remaining 0.4% or 928 tCO_2e.

By understanding the sources of local GHG emissions, the Town can identify and implement measures to improve energy efficiency and reduce Orangeville's contribution to climate change. The inventory also provides a valuable reference point for setting emissions reduction targets, and for forecasting and tracking progress over time.

As noted above, the Intergovernmental Panel on Climate Change (IPCC) indicates that global emissions must reach net zero by 2050 in order to remain within 1.5°C warming to prevent catastrophic impacts from climate change. Under a business-as-usual scenario, the Town's trajectory of emissions overtime are projected to rise by 130%, increasing to 290,300 tCO_2e annually by 2030. This translates to a 10 tCO_2e per capita rate for the Town. In order to effectively reach net zero emissions by 2050 as recommended by the IPCC, a per capita emissions rate of 3.2 tCO_2e per person should be achieved by 2030, decreasing to 0 tCO_2e per person by 2050.

Municipalities have control over much of the GHG emission in their jurisdiction, through land use planning, development oversight, transportation planning, waste services, and economic development. However, support from provincial and federal governments and participation from the community will be imperative to meet the net zero target successfully.

Both the federal and provincial governments have set a short-term target of 40% and 30% below 2005 emissions levels by 2030 respectively, and the federal government has set a long-term target of net zero emissions by 2050. It was found in a community survey conducted by the Town that over 80% of respondents feel that Orangeville's GHG reduction targets should be ambitious, either matching or going beyond provincial and federal targets. Examples of targets set by other municipal governments include the following:

Municipality	Community GHG Reduction Targets
City of Burlington	49% below 2016 by 2030 84% below 2016 by 2040 90% below 2016 by 2050
City of Kawartha Lakes	20% below 2015 by 2030
Town of Oakville	50% below 2016 by 2041
City of Windsor	40% below 2014 by 2041
Town of Caledon	Net Zero by 2050
Dufferin County	10% below 2016 levels by 2030 40% below 2016 levels by 2040 Net Zero by 2050

The Town has already identified and started implementing a range of actions that will reduce community and corporate GHG emissions through the SNAP, Corporate Energy Conservation and Demand Management Plan and the recently adopted Corporate Climate Change Adaptation Plan. Additionally, the update of the Official Plan review will include climate considerations, working to limit emissions from future growth and development.

The sectors with the greatest reduction potential include on-road transportation and residential and commercial buildings. Keeping this in mind, Attachment 2 summarizes actions and measures found in existing Town plans and strategies that will contribute to local emissions reduction.

In alignment with the ambitiousness of the Paris Agreement and current scientific evidence, it is recommended that the Town adopt an ambitious target of net zero emissions by 2050. This target will reflect the Town's commitment to reducing local GHG emissions where possible, with sequestration options used as a complimentary action.

Due to the extensive and immediate level of effort that is needed, it is also recommended that the Town adopt an interim target, using the 2016 inventory as a baseline. This target should reflect existing commitments and actions being taken at the Town, as well as additional mitigative actions to be implemented. The interim target will be developed through the next phase of the project once actions have been assessed and prioritized by staff.

Strategic Alignment

Orangeville Forward – Strategic Plan

Priority Area: Sustainable Infrastructure

Objective: Support Innovation

Sustainable Neighbourhood Action Plan

Theme: Energy and Climate Change

Strategy: Encourage emission reductions through energy efficiency, conservation and renewable energy generation

Notice Provisions

None.

Financial Impact

There is no financial impact as a result of this report.

Respectfully submitted
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Attachments:

1. Town of Orangeville's Community Greenhouse Gas Inventory (2016)
2. Existing Mitigation Efforts