

Region of Waterloo
Planning, Development, and Legislative Services
Community Planning

To: Planning and Works Committee
Meeting Date: April 4, 2023
Report Title: Corporate GHG Emissions Inventory for Region of Waterloo

1. Recommendation

For information

2. Purpose / Issue:

To update Council on the greenhouse gas (GHG) emissions produced by our corporate operations in 2021. The Region reports corporate emissions annually, with a 1-year delay due to data constraints, as a member of SustainableWR's Regional Sustainability Initiative (RSI).

3. Strategic Plan:

Transformational climate action addresses all of the Strategic Focus Areas of the Strategic Plan, including Sustainable Transportation, Thriving Economy, and Healthy, and Safe and Inclusive Communities. Reducing GHG emissions is a key component of the Region's Strategic Imperative of Climate Action, and is directly addressed by Strategic Objective 3.1: Reduce greenhouse gas emissions.

4. Report Highlights:

- The Region's corporate GHG emissions in 2021 were approximately 101,346 tonnes CO₂e, which is 34% lower than the 2009 baseline year. Between 2009 and 2021, the Region has emitted approximately 1.65 million tonnes of greenhouse gases, or the equivalent of emissions from using about 3.58 million barrels of oil.
- The impacts of the COVID-19 pandemic were felt in 2021 with a continued downward trend in emissions relative to 2019 associated with staff travel and remote work patterns.
- Waste Management and the corporate fleet (including GRT) together represent the largest portion of corporate emissions, generating 47% and 33% of the total 2021 emissions, respectively.

- Over the next year, Regional staff will continue to develop a Corporate Climate Transition Strategy. The Strategy will outline the corporate actions needed to implement both TransformWR and the Community Climate Adaptation Plan for Waterloo Region, and will chart a detailed path to achieving the following outcomes by 2050:
 - Fossil fuel use has been eliminated in all corporate operations and services
 - Local energy generation, storage, and use has been optimized
 - Community modal shift to active transportation has been enabled by an equitable, efficient, low-carbon transportation system
 - Methane emissions related to biosolids and landfill waste have been minimized
 - Essential programs and services are resilient to a changing climate
 - Risks to infrastructure have been reduced through asset management
- A Corporate Carbon Budget will directly inform the decarbonisation actions that will be established in the Strategy. The Corporate Carbon Budget will define the finite amount of greenhouse gases (GHG) emissions the corporation can generate while transitioning off fossil fuels by 2050. The amount is calculated as the equitable portion of remaining global (GHG) emissions for a specific geographic population. A staff report detailing the phase 1 results of the carbon budget analysis will be brought forward to Council in the fall of 2023.
- Together with the ClimateActionWR partners, the Region has committed to reducing *community* emissions by 50% by 2030, and 80% by 2050, below 2010 levels. Through the development of the Corporate Climate Transition Strategy and Corporate Carbon Budget, Regional staff will prepare a recommended *corporate* decarbonization pathway as well as an ambitious *corporate* GHG emissions reduction target, both of which will allow the Region to monitor ongoing progress towards decarbonisation.
- To clearly connect our climate action ambitions to day-to-day decisions, staff will establish a dedicated ‘climate implications’ section in future Council reports that will be informed by new and existing decision-support tools, including the Climate Implications Tool and the Corporate Carbon Budget.

5. Background:

The Region has committed to taking bold and immediate action to address climate change at both a corporate and community scale (PDL-CPL-21-30). Work is underway across divisions and departments to develop a Corporate Climate Transition Strategy in order to implement the Region’s contributions to the *TransformWR* community climate action strategy (PDL-CPL-21-30) and the Community Climate Adaptation Plan for

Waterloo Region.

Regional staff is currently developing a Corporate Carbon Budget that will directly inform the decarbonisation components of the Strategy and support efforts to measure and report on progress toward climate action goals. In the coming months, staff will also develop a performance monitoring dashboard that will support transparency and accountability related to carbon budget performance specifically, and climate action generally.

What is a carbon budget?

A carbon budget can be defined as the equitable portion of remaining global emissions that the corporation may generate while transitioning off fossil fuels by 2050. Emissions measured include: Scope 1 emissions, which are produced by sources that are owned or directly controlled by the Region (e.g. gases emitted from the combustion of fuels in corporately owned vehicles or buildings); Scope 2 emissions, which are those generated indirectly from the consumption of purchased energy; and, where possible, Scope 3 emissions, which are also indirect emissions that occur because of the Region's operations, but these are generated by sources not owned or directly controlled by the Region (e.g. purchased goods and services).

A carbon budget can be divided into distinct periods or years, so that carbon spending for each fiscal year can be planned and monitored as part of the budget process. Central to this concept is a recognition that any carbon "spending" that is over budget must be made up in subsequent years.

How is carbon measured?

Currently, only Scope 1 and 2 emissions are included in the corporate inventory. As the Carbon Budget is developed, staff will explore opportunities to enhance the corporate GHG emissions inventory to better account for Scope 3 emissions associated with the Region's activities.

How much carbon is the Region currently emitting?

The Region of Waterloo as a corporate entity emitted approximately 1.65 million tonnes of GHGs directly from its operations from 2009 to 2021 (Appendix A). According to the US Environmental Protection Agency, this amount is the carbon equivalent to about 3.5 million barrels of oil or 703 million litres of gasoline.

In 2021, COVID-19 pandemic protocols maintained downward pressure on corporate emissions. Remote work policies supported a decrease in emissions associated with staff travel by 71% in 2021 from 2019 levels. The increase in remote work by staff also led to an emissions reduction of 18% from 2019 levels associated with natural gas combustion for heating and cooling, likely due to a decrease in occupancy loads, as well

as a relatively warm winter.

As reported in PDL-CPL-22-16, methane emissions are and will remain the most significant source of corporate emissions (Figure 1). In 2020, Water Services made significant program changes to reduce methane emissions from biosolids, subsequently reducing emissions to approximately 1% of the corporate total. Landfills are the largest source of methane emissions. Most of the current landfill emissions are from methane produced by older organic waste that has been landfilled in the past and that continues to decay. While the Region has a leading-edge landfill gas collection system, 20% to 30% of landfill gas cannot be collected, and a full technical solution is not anticipated in the near future. It will be essential to continue to divert organic waste from our landfills to prevent a further increase in emissions.

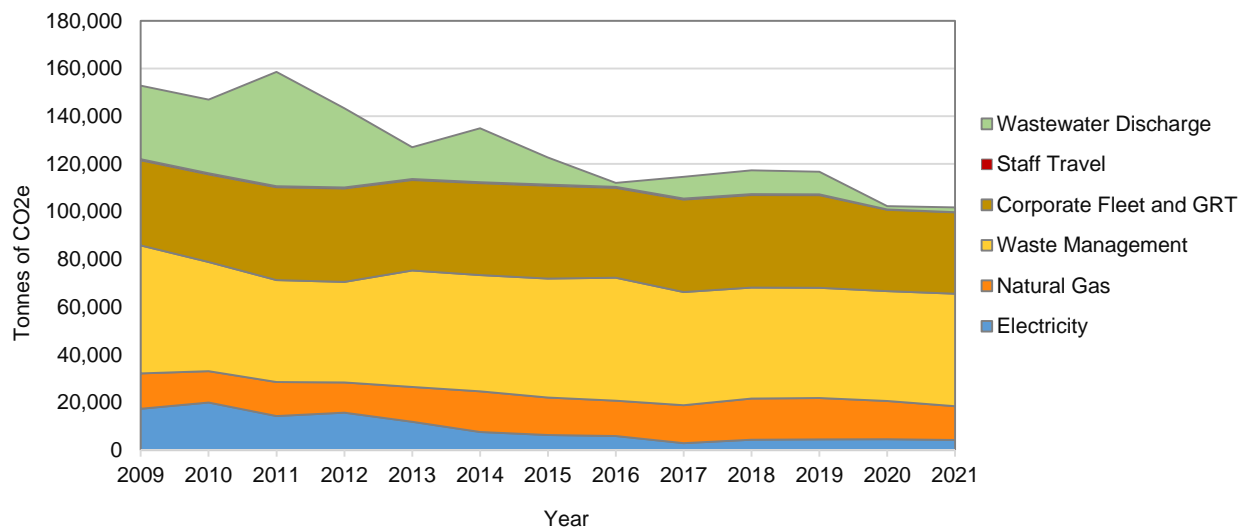


Figure 1: Tonnes of CO2e emitted by Region of Waterloo operations between 2009 and 2021

The corporate and Grand River Transit fleets are the largest source of energy-related emissions, both of which have significant opportunities to reduce emissions through conversion to zero-emission vehicles in the next several years. Please see PDL-CPL-22-16 for a comprehensive review of emissions reduction opportunities for the Region.

6. Area Municipality Communication and Public/Stakeholder Engagement:

Public/Stakeholder Engagement:

The emissions results have been reported to Sustainable Waterloo Region as part of the Region’s membership in the Regional Sustainability Initiative. The Region collaborates with Area Municipalities, local utilities, and the public on transformational climate action and energy transition initiatives through the ClimateActionWR collaborative and WR Community Energy; the Region funds both initiatives jointly with Area Municipal and utility capacity-holders. The Region will engage with both networks during the development of the Corporate Climate Transition Strategy.

7. Financial Implications:

Nil

8. Conclusion / Next Steps:

Staff have recently launched an interdepartmental climate and energy transition governance structure to facilitate collaborative planning, knowledge exchange, and performance monitoring. Through this structure, staff will continue develop the Region's corporate Climate Transition Strategy, as well as the Corporate Carbon Budget that will be integrated with the financial budget process. A detailed update on both initiatives will be provided to Council in the fall of 2023.

9. Attachments:

Appendix A: Corporate GHG emissions inventory for the Region of Waterloo in tonnes CO₂E, revised 2021.

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