

Information Report



Service Area	Infrastructure, Development and Enterprise Services
Date	Friday, June 10, 2022
Subject	Cities Race-to-Zero Four-Year Interim Targets

Executive Summary

Purpose of Report

Define four-year interim greenhouse gas (GHG) emissions reduction targets for 2026 and 2030 in alignment with the Cities Race-to-Zero program.

Key Findings

The Cities Race-to-Zero program sets the 2030 fair-share interim target to reduce per capita carbon emissions by 63% against the 2018 baseline. 2020 Community and Corporate GHG emissions have declined compared to the 2018 baseline. Corporate GHG emissions contribute less than 3% of the total Community GHG emissions.

The role of the Corporation is to:

1. Lead by example, by meeting Corporate energy and climate change targets to further reduce Corporate GHG emissions, and to
2. Facilitate the reduction of Community GHG emissions for the different sectors.

Financial Implications

Capital and operating investments are required to reduce Corporate GHG emissions and support the reduction of Community GHG emissions. Near-term investments to progress towards emissions targets are included in approved 2022 and 2023 budgets. Capital forecasts will be updated to include longer-term initiatives to ensure Race-to-Zero priority projects are properly planned for.

Report

On December 20, 2021, Council confirmed the City of Guelph's commitment to the Cities Race-to-Zero as part of the United Nation's Race-to-Zero campaign and the associated 2030 fair-share interim target to reduce per capita carbon emissions by 63% against the 2018 baseline. Within the confirmation, Council passed the [motion](#) for the City of Guelph to create four-year interim climate change targets that fall within each City Council's term of office.

An [information report](#) was shared with Council providing background on the Cities-Race-Zero program.

Community GHG Emissions

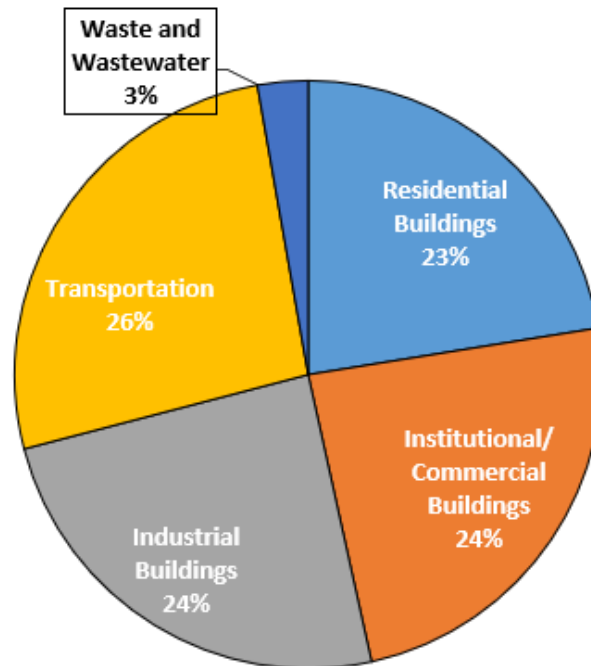
Cities Race-to-Zero considers the overall Community greenhouse gas (GHG) emissions. This includes all GHG emissions within the boundaries of the city of Guelph, including Corporate operations.

Table 1: Total and per capita Community GHG emissions

Year ¹	2018	2019	2020
Total Community GHG emissions [tonnes CO₂ equivalent]	929,859	939,014	775,887
Per capita Community GHG emissions [tonnes CO₂ equivalent/person]	6.58	6.55	5.35
Per capita Community GHG emissions percent reduction [% against 2018 baseline]	-	0.4%	18.6%

There have been noticeable Community GHG emissions reductions in 2020 and have been influenced by COVID-19 impacts.

Figure 1: Total 2020 Community GHG emissions categorized by sector

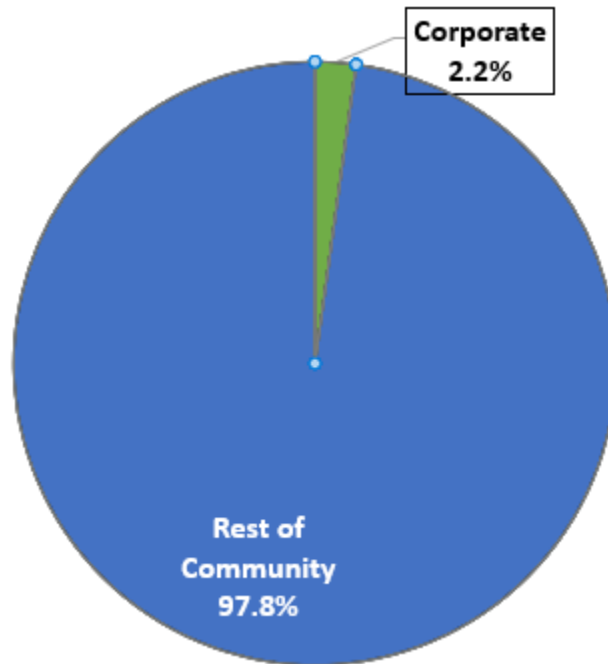


Note: 2020 Total Community GHG emissions = 775,887 tonnes CO₂ equivalent

¹ 2021 data requests have been submitted to utility companies (Alectra Utilities and Enbridge) in 2022 Q1. The data was not available at the time of report writing.

The following figure reorganizes the total 2020 Community emissions and separates GHG emissions from Corporate operations and GHG emissions from the rest of the Community.

Figure 2: Community GHG (tonnes CO₂e)

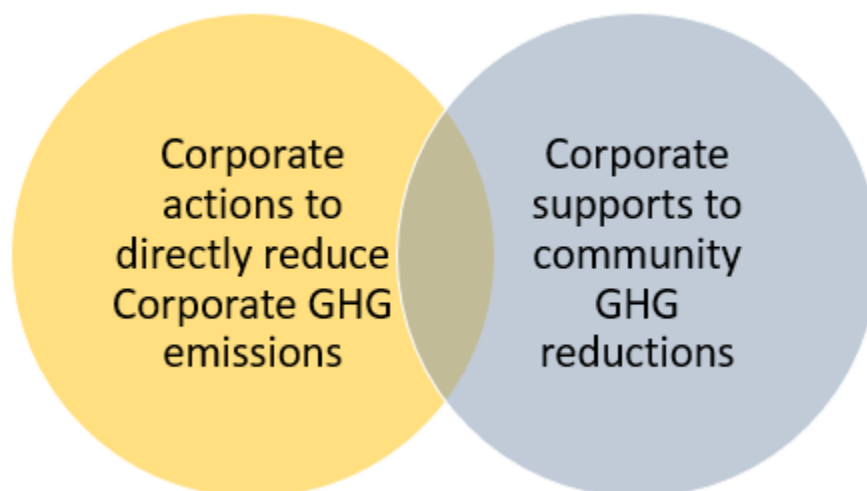


Note: 2020 Total Community GHG emissions = 775,887 tonnes CO₂ equivalent

It is observed that in 2020, the Corporation contributed less than 3% of the total Community GHG emissions. Although Corporate GHG emissions are a relatively small portion, given the position of the Corporation within the Community, there remains an important role for the Corporation to:

- Lead by example, by meeting Corporate energy and climate change targets to further reduce Corporate GHG emissions
- Facilitate the reduction of Community GHG emissions for the different sectors

Figure 3: Based on the above, actions can be separated in the following categories:



Corporate Actions to Directly Reduce Corporate GHG Emissions

Table 2: 2018 to 2021 Corporate GHG emissions with targets for 2026 and 2030 operating years

Year	2018	2019	2020	2021	2026	2030
Total Corporate GHG emissions [tonnes CO₂ equivalent]	19,501	19,644	16,966	17,574	15,037	7,225
Total Corporate GHG emissions percent reduction [% against 2018 baseline]	-	-0.7%	13.0%	9.9%	25%	63%

The 2026 and 2030 targets are informed by a diverse set of projects that are underway and forecasted. The main project categories include:

- **Facility Energy Retrofits** – Corporate facilities represent approximately 40% of the total Corporate GHG emissions. Building envelope enhancements, as well as energy efficiency and electrification of heating and cooling equipment are relatively cost-effective methods to reduce facility GHG emissions. Implementing energy retrofits in alignment with equipment lifecycle replacement further reduces cost impacts and rework.
- **Sustainable New Construction** – Adding new facilities to the Corporate facilities portfolio increases energy consumption and GHG emissions. New facilities must meet stringent sustainable design standards to curtail ongoing GHG emissions throughout the life of the facility.
- **Process and Infrastructure Upgrades** – Process equipment for critical operations use significant amounts of energy and can greatly reduce GHG emissions once energy management and resource recovery practices are applied. A strong example is the Organic Waste Processing Facility (OWPF)

which currently reduces GHG emissions by composting organic waste and diverting it from landfill. Further GHG emissions reduction of nearly 3,000 tonnes of CO2 equivalent per year can potentially be achieved by upgrading the OWPF to add anaerobic digestion to the existing composting process. This is approximately 30% of the GHG emissions reduction needed to achieve the 2030 target. In addition, this infrastructure upgrade would increase the organics processing capacity of the facility to serve Community growth and regional support. Staff will study the potential opportunities of process and infrastructure upgrades to determine associated requirements and plan accordingly through the capital budget process.

- **Low/Zero Emissions Fleet Vehicles** – Efforts to electrify fleet vehicles are currently underway. Guelph Transit is currently in the pilot stages of transitioning to electric buses. Replacing sixty-five diesel buses with battery electric buses reduces GHG emissions by approximately 5,850 tonnes of CO2 equivalent per year.
- **Renewable Generation** – As electrification increases, so will demand on the electrical utility grid. Continuing to leverage municipal assets to generate renewable energy supports the utility grid and supplies clean energy for Corporate energy use.

Corporate Supports to Community GHG Reductions

The Corporation is responsible for developing plans and policies, as well as building, operating, and maintaining City infrastructure that supports the rest of the Community. Through these responsibilities, the Corporation can enable the broader Community stakeholders to enact environmental stewardship and reduce Community GHG emissions. Due to the scale and diversity of Community GHG emissions, precise measurement of the impacts to Community GHG emissions are complex and may not appropriately fit into conventional GHG measurement methodologies. However, it is well established that environmental stewardship contributes to mitigating the impacts of climate change. Therefore, four-year interim Corporate supports to Community GHG reduction targets have been listed below. The targets listed are in alignment with masterplans and programs.

Table 3: Four-Year Interim Corporate Supports to Community GHG Reduction Targets

Corporate supported Community initiative	Target (2026)	Target (2030)	Reference document alignment
Urban forest management	<ul style="list-style-type: none"> • To be defined through the upcoming One Canopy Tree Planting Strategy 	<ul style="list-style-type: none"> • To be defined through the upcoming One Canopy Tree Planting Strategy 	Urban Forest Management Plan

Corporate supported Community initiative	Target (2026)	Target (2030)	Reference document alignment
Sustainable transportation	<ul style="list-style-type: none"> Construct 10.5 kms of protected cycling infrastructure 	<ul style="list-style-type: none"> (2031) Mode share shifts to: <ul style="list-style-type: none"> Cars – 72% Transit – 13% Cycling – 5% Walking – 10% 	Moving Guelph Forward – Transportation Master Plan Update
Water use and efficiency	<ul style="list-style-type: none"> Total water² used by the community - 332 litres per person per day 	<ul style="list-style-type: none"> Total water² used by the community - 329 litres per person per day 	Water Supply Master Plan
Wastewater management	<ul style="list-style-type: none"> Reduction of total energy use (kWh equivalent) per collected and treated wastewater (m³) <ul style="list-style-type: none"> Target - 0.85 kWh/m³ Current - 0.97 kWh/m³ 	<ul style="list-style-type: none"> Target total energy use (kWh equivalent) per collected and treated wastewater (m³) to be determined following new baseline definition 	Wastewater Treatment and Biosolids Management Master Plan
Waste reduction	<ul style="list-style-type: none"> Implement the Solid Waste Management Master Plan 	<ul style="list-style-type: none"> Reduce waste disposal rate to 250 kg per household by 2030 	Solid Waste Management Master Plan – Give Waste a New Life
Community energy	<ul style="list-style-type: none"> 300 residential energy retrofit projects Report annual GHG emissions for the entire City of Guelph and the Corporation 	<ul style="list-style-type: none"> 600 residential energy retrofit projects Report annual GHG emissions for the entire City of Guelph and the Corporation 	Property Assessed Clean Energy Program

² Total water is all water used by residents, businesses, institutions, industry, and water lost through leaks, unaccounted for or not billed, divided by number of people living in Guelph

Financial Implications

Capital and operating investments are required to reduce Corporate GHG emissions and support the reduction of Community GHG emissions. Near-term investments to progress towards emissions targets are included in approved 2022 and 2023 budgets. Capital forecasts will be updated to include longer-term initiatives to ensure Race-to-Zero priority projects are properly planned for.

Consultations

Committees and departments that were consulted and provided information, review and insight include:

- Capital Steering Committee
- Engineering and Transportation Services
- Environmental Services
- Facilities and Energy Management
- Finance
- Parks

Strategic Plan Alignment

This report defines interim GHG emissions reduction targets and is directly aligned with the Sustaining our Future pillar of the City's Strategic Plan.

Attachments

None

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