


**Town of Aurora**  
**DRAFT 2023 Energy and Environment Progress Report**



*Aurora Town Council declared a Climate Emergency in 2019, recognizing the urgent need for action to address climate change impacts and committing to an 80% reduction of greenhouse gas emissions by 2050.*

## **INTRODUCTION**

Since the development of the Town's first Corporate Environmental Action Plan (CEAP) in 2010, climate science, regulations, guidelines, and policies have evolved calling for additional and more specific action to mitigate and adapt to climate change.

This report summarizes progress made towards achieving the various environmental goals detailed in the Town's environmental strategic plans with consultation from all Town Divisions over the past year. This update covers actions from the following plans:

- Official Plan
- Town's Strategic Plan
- Corporate Environmental Action Plan
- Community Energy Plan
- Climate Change Adaptation Plan
- Stream Management Master Plan
- Tannery Creek Flood Relief Study
- Energy Conservation and Demand Management Plan
- Green Fleet Action Plan

The actions are summarized under the following environmental themes:

- Climate Resiliency
- Energy and Greenhouse Gas Emissions
- Waste Reduction and Diversion
- Natural Heritage and Biodiversity
- Water Conservation

The annual Progress Report is presented to the Environmental Advisory Committee (EAC), Town Council and shared with the public through social media and on the Town's website. The reporting has a one-year lag due to the timing of key energy and emissions data being released by external groups in late fall, and allowing time for staff to collect, verify and analyze all the data needed for tracking and reporting purposes.

## CLIMATE CHANGE ADAPTATION

Adaptation is building resilience so that we can better prepare for the impacts of climate change such as extreme weather, drought and flooding. The Town is taking steps to reduce climate risks by including measures into asset management planning and operation and maintenance procedures and investing in projects that improve climate resiliency.

### Climate Projections for Aurora (2021-2050)<sup>1</sup>:

- *Temperatures and extreme heat*: Mean summer maximum temperatures expected to increase by 9%, annual number of heatwaves by 200%, cooling demand by 86%.
- *Precipitation and flooding*: annual precipitation is projected to increase by 6% and extreme precipitation for the 1 in 100-year storm event by 18%.
- *Extreme weather*: days with wind over 100 km/h is expected to increase by 30%, lightning strikes increase by 12% per 1°C in mean temperature rise and changes freeze-thaw cycles.

### Town Action in 2023:

- Climate considerations are included at early stages of infrastructure project planning and during design phase, resulting in added resiliency measures like stream bank improvements or invasive species mitigation.
- Completed creek rehabilitation and flood control projects at Murray Drive, Willow Farm, Devlin Place and Jones Court improving natural flow and flood mitigation.
- Watermain rehabilitation at Heathwood Heights Drive improved the lifecycle of the asset, reducing probability of failure during extreme weather events and improving reliability.
- Structural relining of the stormwater culvert on Yonge Street improved the system resiliency during large weather events.
- Continuation of the stormwater pond inspections and maintenance of all 64 ponds in partnership with the Lake Simcoe Region Conservation Authority to maintain system reliance.

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<sup>1</sup> Based on the 2022 Aurora Climate Change Adaptation Plan.

## COMMUNITY ENERGY AND GREENHOUSE GAS EMISSIONS

The Town set an ambitious community emission reduction target of 80% from 2018 by 2050. The medium-term target is 22% reduction by 2030.

### 2023 Insights<sup>2</sup>

- Community-wide emissions have returned to pre-pandemic levels, with emissions at 308,415 tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e), a 1% decrease from 2022. Per Capita emissions were the lowest in the GTA at 4.81 tCO<sub>2</sub>e per capita.
- The largest emission contributions are natural gas usage (46%) and transportation fuels, like gasoline and diesel (40%).
- Natural gas usage decreased by 7% compared to 2022, mainly due to a warmer winter in 2023. Emissions from electricity increased by 30% compared to 2022, largely due to the increased carbon intensity of the Ontario grid.
- Emissions from curbside solid waste declined 14% compared to 2018, due to climbing diversion rates.
- Electric vehicle and hybrid purchases in Aurora doubled compared to 2022, making up 3% of total registered vehicles. Usage from the Town-owned public electric vehicle chargers increased by 33% compared to 2022.

### Town Actions in 2023:

- The Town hosted its second “EV Showcase”, a public awareness campaign on EVs.
- The annual “Aurora Idle-Free Campaign” continued to target school zones using mobile signs and Town By-Law officers providing education.
- Continued maintenance and expansion of the active transportation network: resurfacing of the multi-use path on Bayview Avenue and replacement of 600 meters of sidewalk.
- The Town’s Green Development Standard (GDS) received 20 new development applications in its first year. The GDS sets minimum design requirements that improve environmental performance for new buildings and lands, such as: EV and solar ready infrastructure, energy modelling and on-site/district energy assessment.
- Staff received the Green Municipal Fund Community Efficiency Financing grant to assess the feasibility of a residential home energy retrofit program (start 2024).
- Annual Town-run waste diversion events supported community education and awareness.
- The Town’s Alternative Work Arrangements policy provided telecommuting options to Town employees and reduced personal vehicle emissions in the community.

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<sup>2</sup> Based on 2024 Toronto Atmospheric Fund (TAF) data and Town Operation from 2023.

## CORPORATE ENERGY AND GREENHOUSE GAS EMISSIONS

The Corporate emissions target is 16% below 2018 levels by 2023 for Town-owned facilities and fleet.

### 2023 Insights

- Overall emissions increased by 16% compared to 2018. There are two factors that negatively impacted the Town's ability to meet the 2023 target:
  - The carbon-intensity of the Ontario electrical grid increased by 200% compared to 2018 (expected to peak in 2026), increasing emissions.
  - Town buildings undergoing major reconstruction increased emissions (mainly Aurora Town Square). The growth in energy use highlights the need for a high-performance building standard for new builds and major reconstruction initiatives.
- Excluding buildings that underwent major reconstruction, overall energy usage was reduced by 5% compared to 2018, avoiding \$55,000 in utility costs annually.
- Emissions from fleet operations fell by 6% from 2022 but up 4% compared to 2018. Gasoline use dropped by 12% from 2022, while biodiesel use remained the same.
- 640 MWh of electricity was generated from solar panels at Town-owned facilities.

### Town Action in 2023:

- Facilities Retrofits:
  - *Town Hall*: LED lighting, occupancy sensors and roof improvements
  - *Aurora Public Library*: demand control ventilation measures, installation of occupancy sensors and building system optimization
  - *Aurora Family Leisure Complex*: HVAC upgrade in the arena and pool boiler replacement
  - *Stronach Aurora Recreation Complex*: an upgraded cooling evaporator tower, window sealant, low-E ceiling for the arenas and ice plant arena rehabilitation
  - *Aurora Community Centre*: resealed exterior windows, replaced thermoplastic membrane roofing, replacement of the ice resurfacer room heater
- LED sports light conversion study was completed for all sports fields and courts.
- Since 2018, Town fleet switched to Ethanol 10 and Biodiesel 5 fuel blends, reducing the carbon intensity of the fuel by 6% and 9% respectively.
- Fleet decarbonizing: five hybrid vehicles were purchased and small electric equipment like push mowers, pole saws, and handheld blowers are being piloted.
- Switched from propane to fully electric ice resurfacers at the SARC replacing aging machines, resulting in zero emissions, cost savings, and improved air quality.

## WASTE REDUCTION AND DIVERSION

The target was a 5% reduction of community curbside solid waste generation compared to 2018 by 2030 and a 10% per capita waste generation reduction by 2050. The target for solid waste diversion by 2030 is 80% and 90% by 2050. There are no reduction targets set for solid waste from corporate sources at this time (expected in 2025).

### 2023 Insights:

- Per capita waste generation was 19% less compared to 2018, both surpassing 2030 and 2050 targets.
- Community solid waste diversion rates have improved by 5% since 2018.

### Town Action in 2023:

- The Town's second year of the Bag Tag Program supported both diversion rates and waste generation reduction efforts with 2,219 tags sold.
- Annual Town-run waste collection events diverted 38,704 lbs of electronic waste and 1,433 lbs of batteries from landfill.
- Bins throughout the Town that collect textile waste diverted 74,359 lbs from landfill and an additional 4,767 lbs of miscellaneous items recycled.
- Other successful waste diverting events in 2023 included the Community Garage Sale, Community Cleanup Day and the Curbside Giveaway Day.
- The Dog Waste Diversion Project at Town parks successfully diverted 8,370 lbs of pet waste from landfill and was sent for composting (while also reducing contamination rates in the recycling stream).

## NATURAL CAPITAL ASSETS AND BIODIVERSITY

Protection and enhancing natural capital, such as forests, wetlands and open spaces, plays a critical role in both the mitigation and adaptation to climate change. Natural capital provides vital community services, like carbon storage and sequestration, flood mitigation, stabilize water flows, minimizing drought impacts, and supporting and protecting biodiversity, all the while providing social benefits like recreational spaces, air purification and clean water supply.

### 2023 Insights:

- The Town owns and maintains 429 hectares of natural areas (open spaces, forests and wetlands) as well as 125 hectares of urban parkland.
- 64 Town-owned parks and one community gardens (a second garden being completed in 2024). 62 km of trail system, 41 km of which run through town-owned and town-maintained land.
- The Town maintains a total of 26,435 street and park trees.
- 505 news trees and shrubs were planted, and 333 urban trees were replaced.

### Town Action in 2023:

- Construction started at the Non-Programmed Park in 2C lands (now John Abel Park) adding 1.6 hectares of public space, with park design including a natural themed playground, community garden, shade shelter, small amphitheater, and welcoming centre/trail head (completion in 2024).
- Continued implementation of the Wildlife Park Master Plan, including the wetland component, additional trails/boardwalk and interpretive signage.
- The Pet Cemetery Restoration project began in 2023, adding 2,400 square metres of green space to the Town's inventory. The project involves restoring the pathways and cemetery, opening the space to the public in the future.
- The newly implemented Green Development Standard includes minimum ecological protection and enhancement requirements for new development, including: native plant species usage, enhanced tree planting requirements along streets, enhanced tree planting technologies and carbon considerations.
- Invasive species: Emerald Ash Borer/Phragmites implementation of a long-term emerald ash borer management plan involving the continued treatment of approximately 2,200 ash trees on municipal streets and in parks. This project mitigates the risk associated with trees in decline and includes replanting to ensure the Town canopy cover remains intact. A new Council endorsed initiative got underway to treat phragmites (reed grass) in sensitive naturalized areas, including the David Tomlinson Nature Reserve, Aurora Community Arboretum and McKenzie Marsh.

## WATER CONSERVATION

Municipalities face increasing pressure to conserve and protect water resources with increasing demand from population growth and pressures from climate change. Implementation of the Town's water loss reduction strategies is a priority while promoting efficient usage for businesses and residents. The Town, in partnership with other local municipalities and York Region, developed its first Inflow and infiltration (I&I) Reduction Strategy in 2011, setting a target to reduce 40 million litres per day (MLD) of I&I in the sewer system by 2031. I&I occurs when groundwater, stormwater or snowmelt enter the sanitary sewage system which can lead to basement flooding, less efficient sewage treatment, overflows into the environment and reduced life expectancy of infrastructure.

### **Town Action in 2023:**

- Continued condition assessment of all sanitary and storm sewer infrastructure where 10% of the infrastructure is assessed each year for defects and any irregularities that may lead to major failures. The program also supports York Region's I&I reduction program.
- 2,000 water meters were replaced as part of the Town's water loss reduction strategy, exceeding the 1,500 per year target. Approximately 55% of meters have been replaced to date.
- Operations performed 11 oil grit separator cleanouts and 1,296 catchbasin cleanouts, an important maintenance activity that removes pollutants like oil and sediment from entering the stormwater system and reduces contamination in local waterways. This activity removed 508 tonnes of waste from the system.
- Salt Management Plan strategy aims to manage the use of road salt in a way that balances environmental protection with the need to keep roads and sidewalks safe.
- Backflow preventors were installed at the Aurora Public Library, Aurora Community Centre & Aurora Family Leisure Complex, protecting the water supply from contamination during system pressure changes.