

# Guelph's Race To Zero Community GHG Emissions



- Guelph is part of the United Nations' Race To Zero campaign for the whole community to reduce greenhouse gas (GHG) emissions:
- Reduce community per capita GHG emissions by 63 per cent against the 2018 baseline by 2030
  - Work together to become a net zero carbon community by 2050

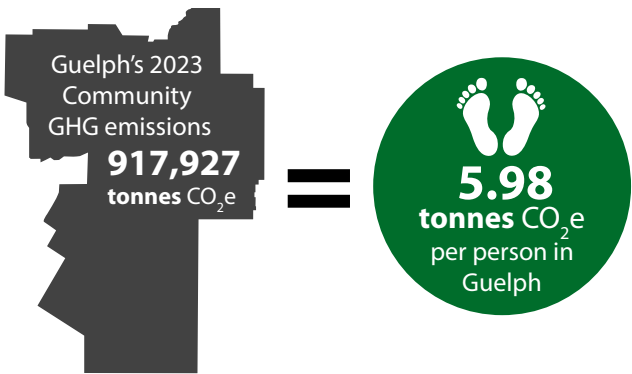
**Large community targets like these mean that this isn't just the responsibility of municipalities and utility companies—we all need to be part of the solution to fight climate change!**

- Year in review:
- Community GHG emissions are rising and going in the wrong direction! Collective action from all sectors is needed to reduce emissions!
  - 2023 GHG emissions are nearly back up to 2018 baseline levels. This is an increase in total emissions by nearly 2% (17,000 tonnes CO<sub>2</sub>e) and an increase in per capita emissions by 0.5% when compared to 2022.
  - Households are making progress: Energy usage and emissions are lower than in 2022, with a reduction of more than 3%.
  - Industrial, commercial and institutional sector emissions are the highest they have been since the 2018 baseline:
    - » Institutional and commercial emissions are up 0.3%.
    - » Industrial sector emissions are up more than 4%.
  - Transportation remains the largest emitter: Vehicle emissions have gone up for the third straight year and is up by nearly 6%.

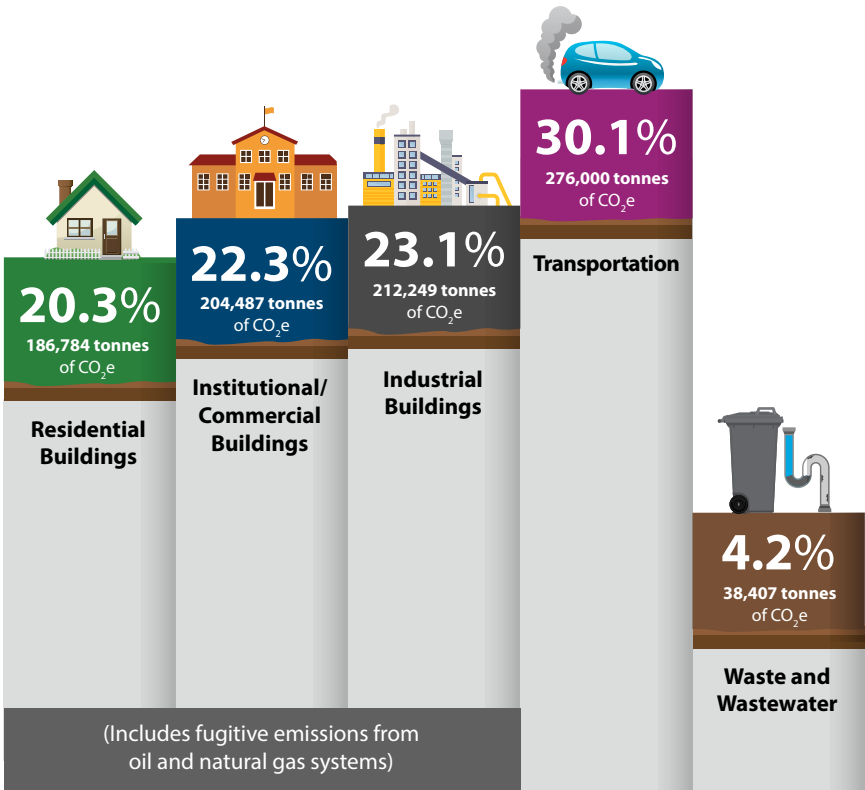
**The City of Guelph incorporates environmental stewardship in all municipal operations and services to support the Race To Zero targets by:**

- Reducing GHG emissions from municipal operations (Energy and Climate Change)
- Supporting and encouraging walking, cycling, carpooling, car-sharing and transit-use within Guelph (Sustainable Transportation)
- Leading in sustainable waste management (Solid Waste Resources)
- Protecting Guelph's natural heritage system and urban forest (Urban Forest and Natural Heritage)
- Restoring clean water (Wastewater Services)
- Efficiently supplying high quality drinking water (Water Services)
- Building and maintaining infrastructure to be resilient against a changing climate (Corporate Asset Management)

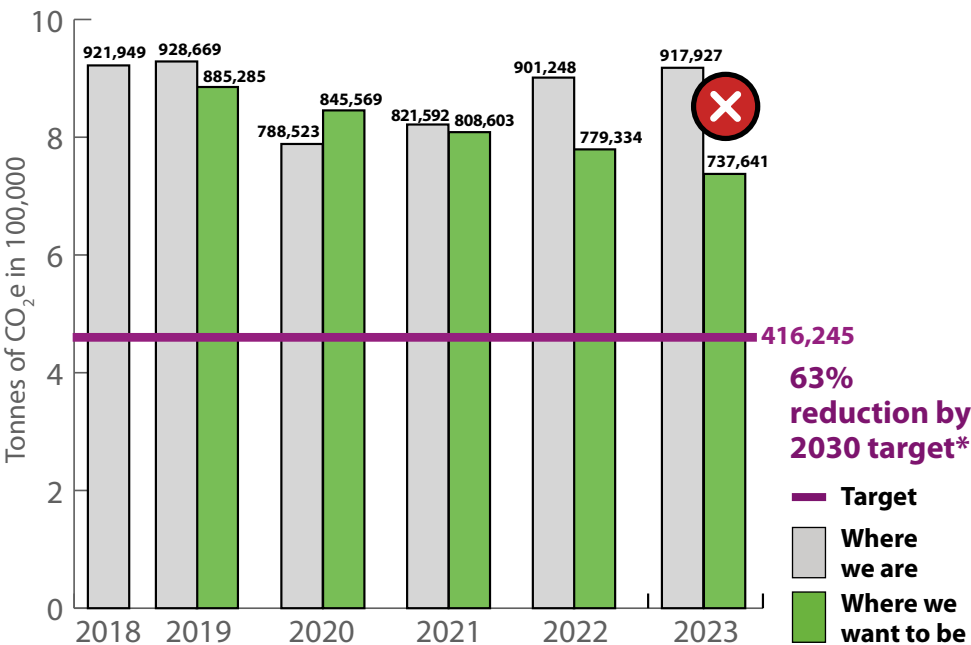
## The amount of GHG emissions the community emitted each year



## Where in the community GHG emissions are coming from



## Yearly community GHG emissions



\*63 per cent reduction by 2030 target applies to per capita emissions. Target line depicts GHG reduction based on population data and projections.  
All data and analysis are based on current information at the time this report was prepared. This information is subject to be updated from time to time.  
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# Energy and Climate Change

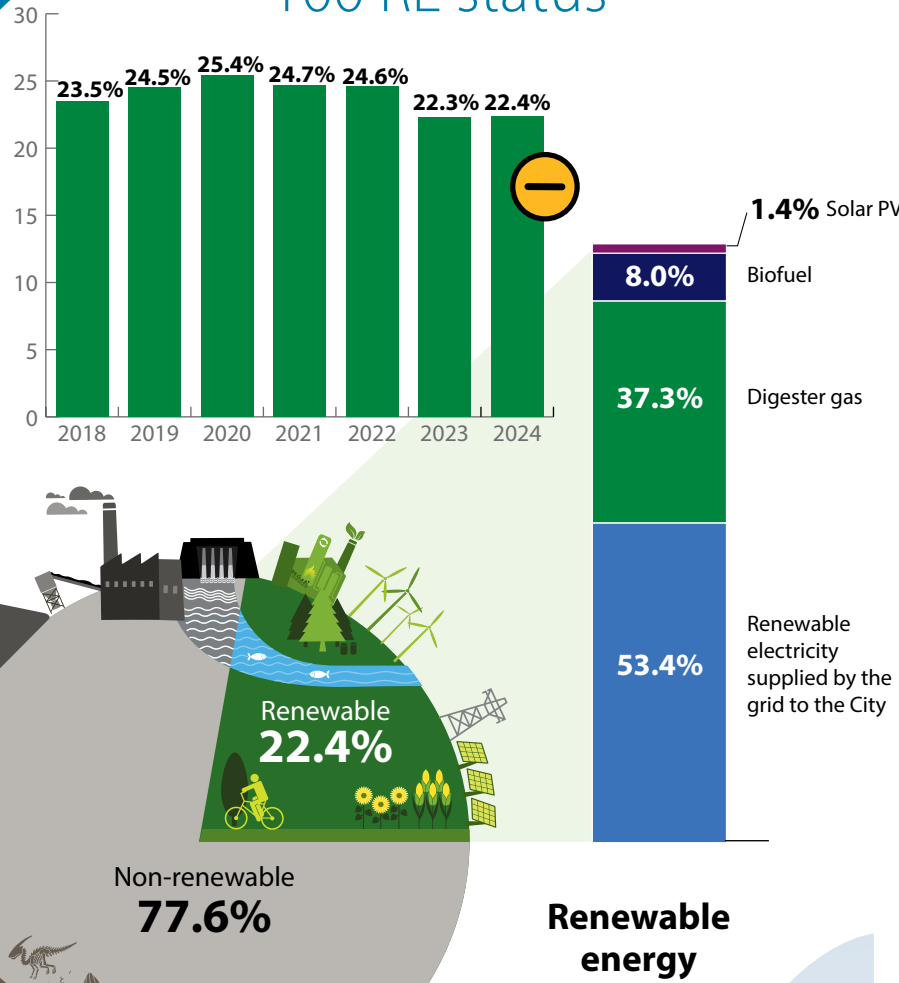
The City is taking an energy conservation and greenhouse gas (GHG) emissions reduction approach to reach our goal of having City facilities and operations using 100 per cent renewable energy (100RE) sources by 2050. This supports Guelph's Race To Zero commitments to reduce per capita emissions by 63% by 2030 and be a net zero carbon community by 2050.

## 2024 year in review

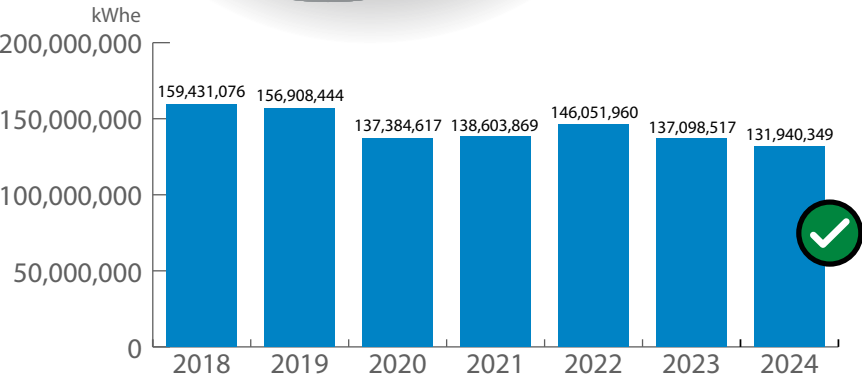
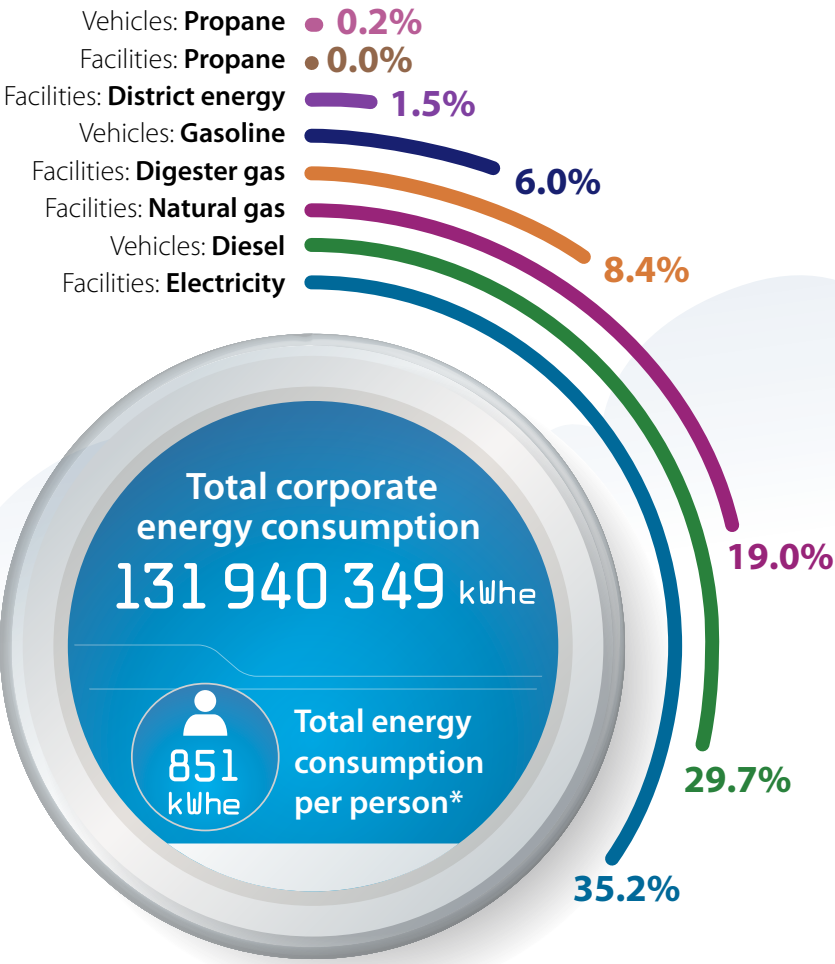
The City continues efforts to drive down GHG emissions and energy consumption:

- How low can we go?! Energy consumption went down another 5% and hit the lowest level again, for the second straight year since setting the 2018 baseline!
- Despite Ontario using more natural gas to generate electricity, the City was still able to reduce GHG emissions compared to last year by conserving energy.
- Facility natural gas use dropped by 14% and reduced emissions by more than 700 tCO<sub>2</sub>e when compared to 2023.
- Solar capacity grew and generated 48% more electricity than last year. This renewable energy generation could power more than 40 homes for a year.
- Fleet vehicles traveled longer distances, but fleet emissions remained at similar levels to last year. This shows that right-sizing and electrifying vehicles continues to play a key role in emissions reduction and that more work is still needed.

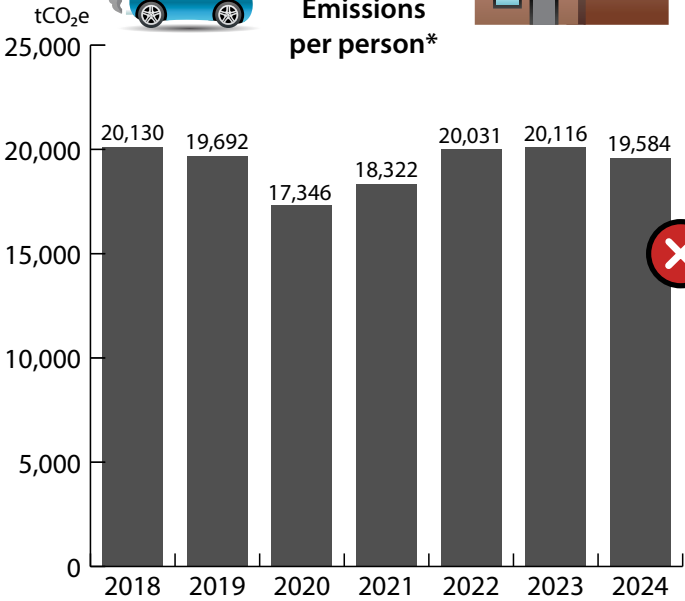
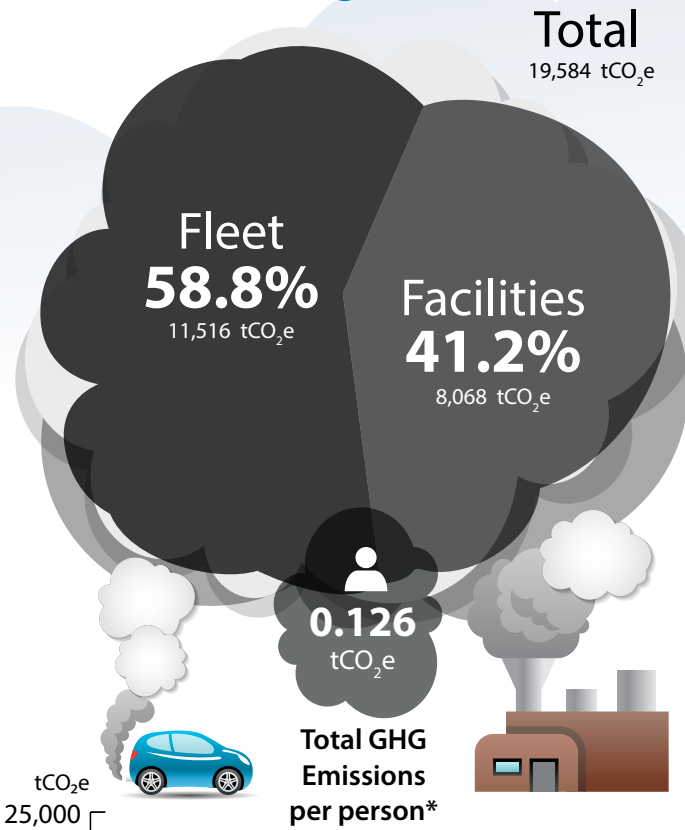
## 100 RE status



## Total corporate energy consumption



## Greenhouse gas emissions



Reported GHG emissions exclude biogenic CO<sub>2</sub> emissions.

\*based on 2024 City of Guelph population data and projections.

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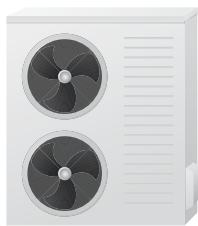
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- ✓ Good progress, keep it going
- ⚡ Some progress, more action needed
- ✗ No progress, much more action needed

# What we've done

## 2024 key project highlights

- Electricity savings
- Natural gas savings
- Other fuel savings
- Water savings
- Greenhouse gas emissions reduction
- Energy cost savings/year
- Project cost
- Project status



### Fire Hall heat pump

A lot of GHG emissions come from burning natural gas to heat our buildings. That's why the natural gas-fired furnace at the Speedvale Fire Hall was replaced with an energy efficient heat pump. What an energy efficient way to put out fires!

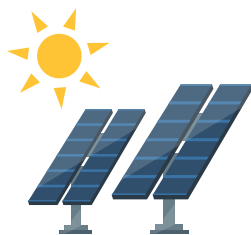
- 1,000 kWh/yr**
- 3,550 m³/yr**
- 6,900 kgCO<sub>2</sub>e/yr**
- \$2,000/yr**
- \$19,000**
- Complete**



### More lighting upgrades - multiple locations

LED lighting upgrades were completed at locations including Eastview Park, Organic Waste Processing Facility, Downtown streetlights and more. This improves lighting conditions and helps light up the town!

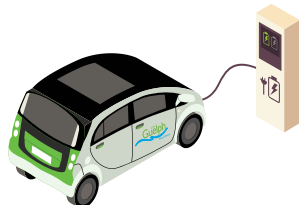
- 115,000 kWh/yr**
- 8,100 kgCO<sub>2</sub>e/yr**
- \$16,000/yr**
- \$253,000**
- Complete**



### River Run solar PV expansion

Here's to sunny days at the River Run Centre! Construction is complete and now we have more solar panels on the roof that will produce more renewable energy for those shows that get the crowds charged up!

- 215,000 kWh/yr**
- 15,300 kgCO<sub>2</sub>e/yr**
- \$30,000**
- \$410,000**
- Complete**



### More fleet EVs and chargers

15 gas powered fleet vehicles were replaced with electric vehicles with charging equipment installed to keep them going. Let the fuel savings and GHG emissions reduction keep rolling in!

- 72,000 kWh/yr**
- 54,000 L/yr gasoline**
- 127,800 kgCO<sub>2</sub>e/yr**
- \$71,000/yr**
- \$1,075,000**
- Complete**



### Lawn Bowling heat pump

The Lawn Bowling Club is one of the oldest recreational sports clubs in town, and it just got a brand new heat pump. So after a full day of bowling, each side can have a comfy place to rest up and strategize for the next end.

- 1,000 kWh/yr**
- 100 kgCO<sub>2</sub>e/yr**
- \$100/yr**
- \$20,000**
- Complete**



### Electric buses and fast chargers

7 more electric buses are out in the city getting people to where they need to go, and they're doing it smoothly, quietly, efficiently and with a lot less emissions! And after a full day of operation, the buses can get a boost from the fast chargers installed at the bus depot.

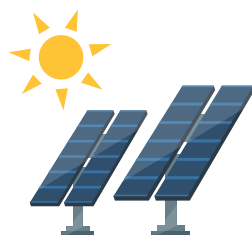
- 974,000 kWh/yr**
- 230,000 L/yr diesel**
- 630,000 kgCO<sub>2</sub>e/yr**
- \$210,000/yr**
- \$9,520,000**
- Complete**



### River Run recommissioning

The stage has been set at the River Run Centre by recommissioning the heating and cooling hydronic systems so we can save energy while the performances keep bringing the house down!

- 48,000 kWh/yr**
- 10,900 m³/yr**
- 24,300 kgCO<sub>2</sub>e/yr**
- \$11,000/yr**
- \$35,000**
- Complete**



### Guelph Sports Dome solar PV

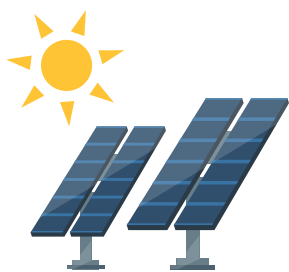
We added solar panels at the Sports Dome to help energize the place. Combined with the heat pump installed the year before and you got an unbeatable team to take on climate change!

- 11,000 kWh/yr**
- 800 kgCO<sub>2</sub>e/yr**
- \$2,000**
- \$35,000**
- Complete**

# What we're planning

## 2025 key prospect highlights

-  Electricity savings
-  Natural gas savings
-  Other fuel savings
-  Water savings
-  Greenhouse gas emissions reduction
-  Energy cost savings/year
-  Project cost
-  Project status



### Emergency Services Centre solar PV

The Emergency Services Centre on Clair Road is getting solar panels. On top of saving lives and fighting fires, you can add saving energy and fighting climate change!

-  **109,000 kWh/yr**
-  **7,700 kgCO<sub>2</sub>e/yr**
-  **\$15,000/yr**



### More electric buses




Let's rev up the savings with 8 more electric buses. These are a smooth ride to reducing diesel usage and tailpipe emissions.

-  **-1,114,000 kWh/yr**
-  **264,000 L/yr diesel**
-  **720,000 kgCO<sub>2</sub>e/yr**
-  **\$240,000/yr**



### Exhibition electric water heater


We're doing updates at Exhibition Arena by replacing an old natural gas boiler with an electric so we can use cleaner energy to heat things up.

-  **-48,000 kWh/yr**
-  **6,300 m<sup>3</sup>/yr**
-  **8,800 kgCO<sub>2</sub>e/yr**



### More lighting upgrades—multiple locations





LED lighting upgrades are planned for locations including the Guelph Sports Dome (administration area), Fire Halls, and streetlights. This will improve lighting conditions and brighten up those energy savings!

-  **148,000 kWh/yr**
-  **10,500 kgCO<sub>2</sub>e/yr**
-  **\$21,000**



### Guelph Central Library—Zero Carbon Building

Construction continues for the new Guelph Central Library. This project is meeting the Zero Carbon Building design standard and will be a low carbon destination for the community to create, innovate, congregate and enjoy.

-  **-122,000 kWh/yr**
-  **36,200 m<sup>3</sup>/yr**
-  **64,700 kgCO<sub>2</sub>e/yr**
-  **-\$3,000/yr**



### South End Community Centre—Zero Carbon Building

Construction of the new South End Community Centre continues and will meet the Zero Carbon Building design standard. Design elements have been included to make this a low carbon, high performance building, so instead of wasting building energy, we can use our energy towards things that count like having fun skating and playing pickleball!

-  **-1,290,300 kWh/yr**
-  **-42,300 kgCO<sub>2</sub>e/yr**
-  **-\$182,000**



# Guelph's Climate Adaptation Plan (CAP) Annual Progress Update

The City of Guelph developed the Climate Adaptation Plan in 2023 as a comprehensive strategy to outline how the City will implement actions internally to manage and reduce the risk of climate change impacts on Guelph, its infrastructure and the community.

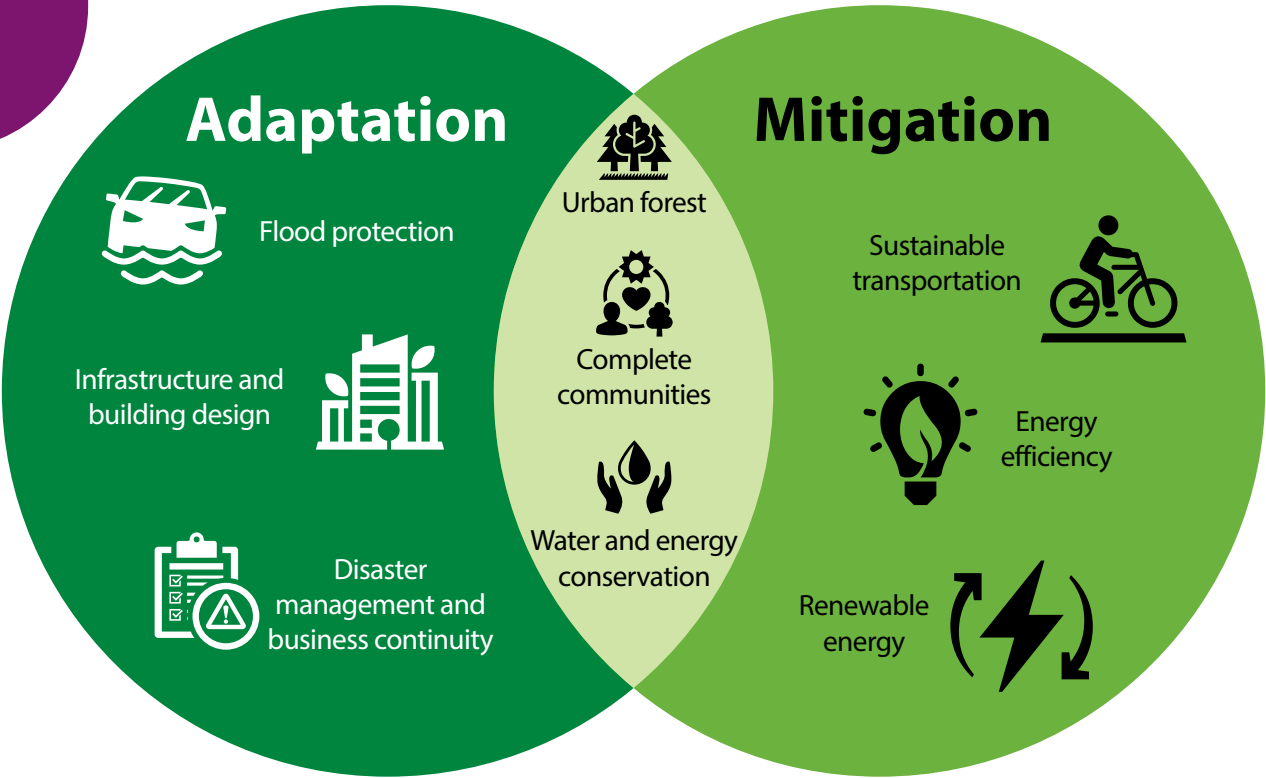
## The Climate Adaptation Plan's vision:

Guelph is adaptable and resilient in the face of a changing climate. We are leaders in environment and sustainability. We protect City assets and sustain what we have for an equitable, strong, healthy, vibrant, and safe community. We are future ready.

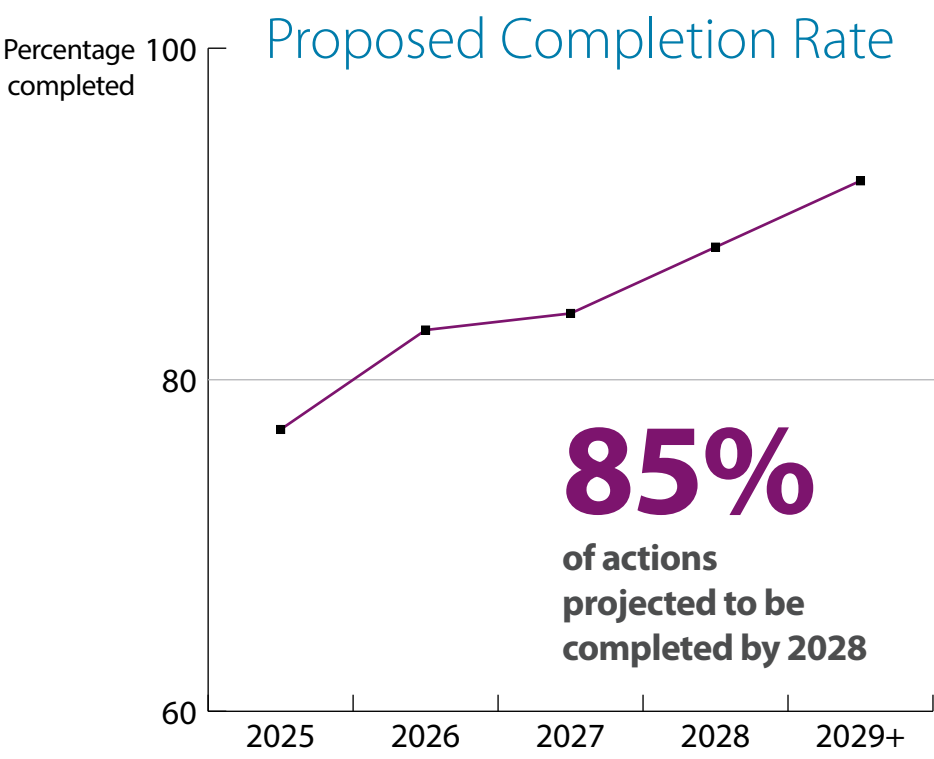
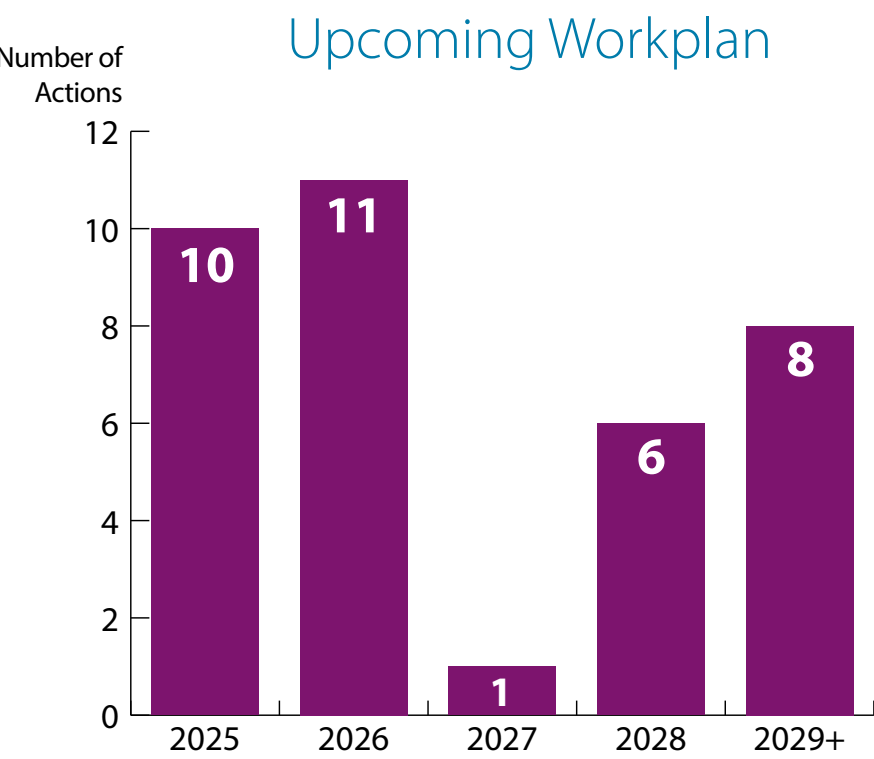
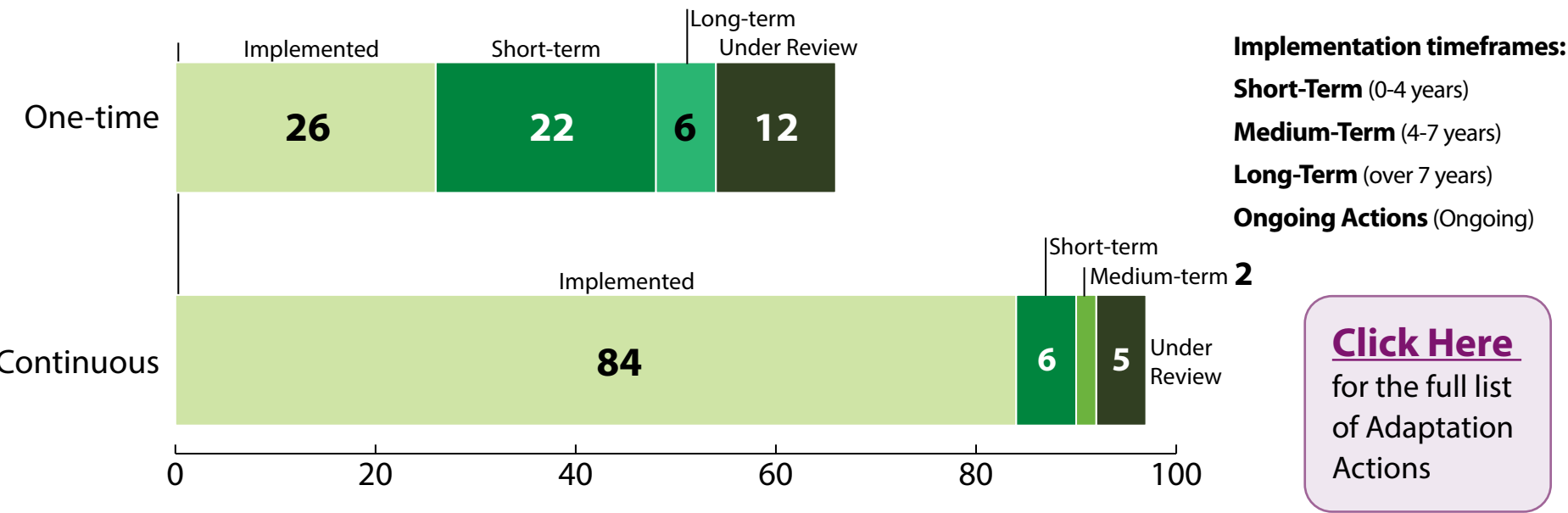


## Overarching responses—Mitigation, Adaptation and Co-benefits

- Mitigation means taking steps to reduce greenhouse gas (GHG) emissions that contribute to climate change.
- Adaptation involves actions that help manage and lessen the effects of climate change.
- Co-Benefits are the positive results that come from both mitigation and adaptation, improving the environment, biodiversity, and overall well-being.



## 163 Climate Adaptation Actions were identified to measure the City's progress



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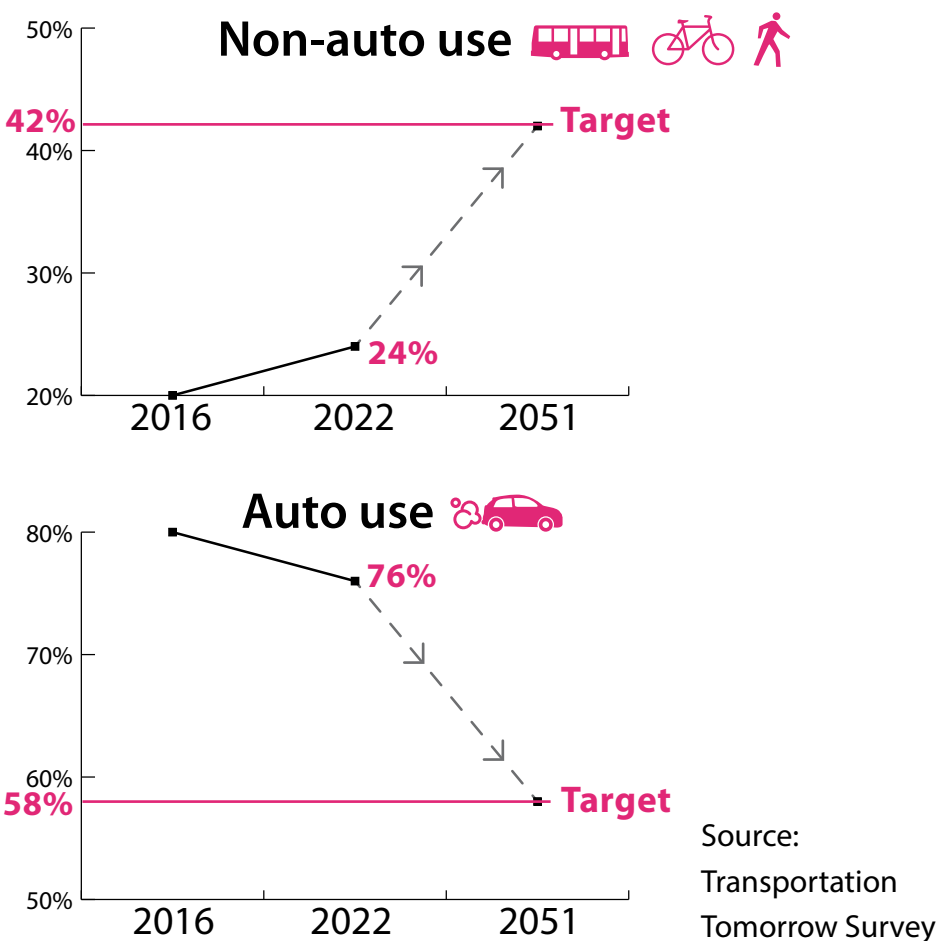
# Sustainable Transportation

Sustainable Transportation supports the development and implementation of programs, policies and infrastructure to support walking, cycling, carpooling, car-sharing and transit-use within Guelph.

The goal of the Sustainable Transportation program is to increase the daily trips made by non-auto modes of transportation.

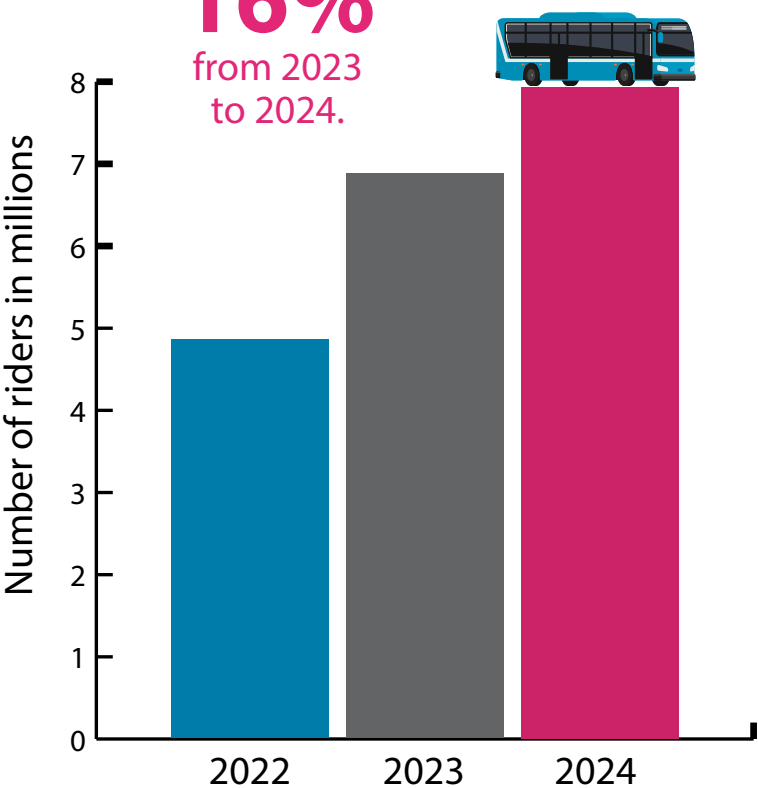
## Shaping the future of transportation in Guelph

The 2022 Transportation Master Plan lays out how residents and visitors will move through the city over the next three decades. It sets a mode share target of 42 per cent non-auto trips and will contribute toward an estimated 23 per cent reduction in greenhouse gas emissions by 2051.



## Growing transit ridership

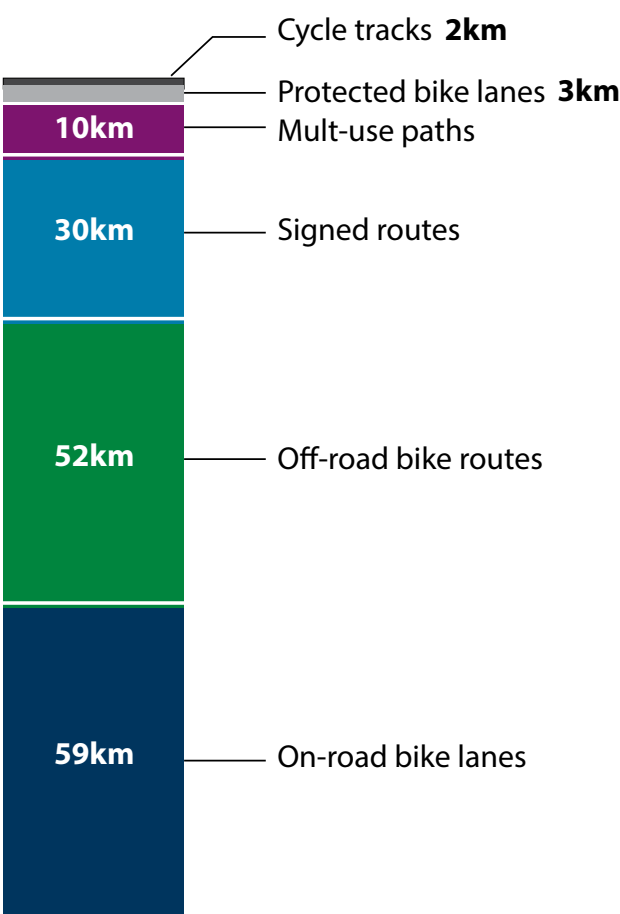
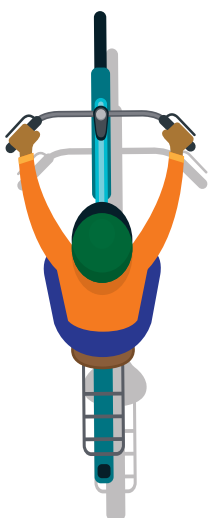
Transit ridership increased **16%** from 2023 to 2024.



## Expanding the cycling network

**2% ↑**  
**156 km**  
in 2024

**153 km**  
existing  
in 2023



## Measuring active transportation

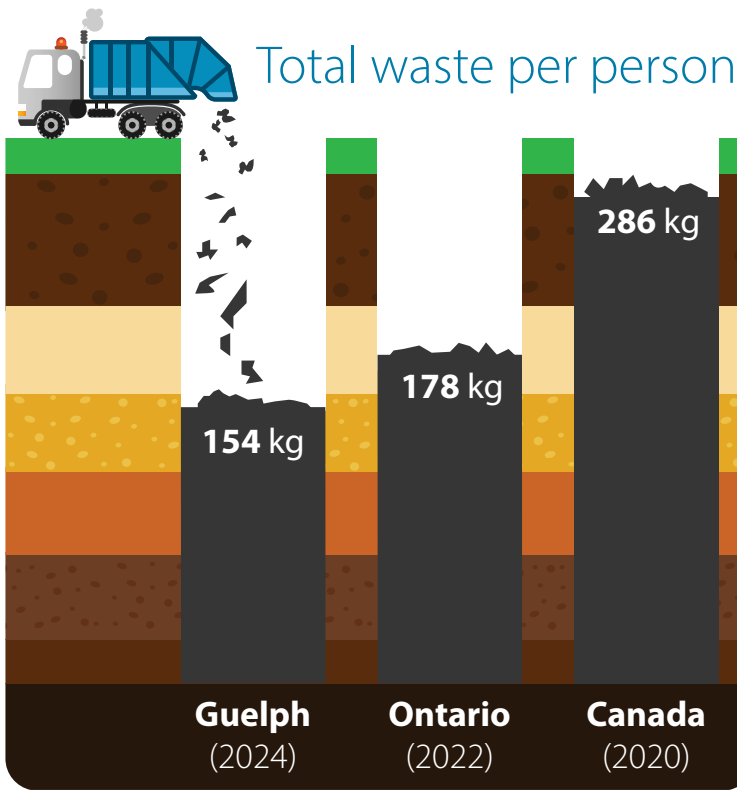


The City gathered continuous pedestrian and cyclist count data at 42 intersections across the city. We use the data to help us make informed decisions about future sustainable transportation projects.

# Solid Waste Resources

In 2024, the City continued to build on Guelph's leadership in sustainable waste management.

- In 2024...
- Guelph residents disposed of about 132 kg less waste per person compared to the national average.
  - Guelph residents diverted 55 per cent of their waste away from landfill through proper sorting. Enhanced communications to households through promotion and education tactics will help improve sorting and the City's curbside diversion rate.
  - The City's organic waste processing facility diverted 30,505 tonnes of organics from landfill, which was converted into 5,652 tonnes of finished compost. The 2024 tonnage does not include yard waste that is received for composting off site.
  - Each household in Guelph disposed an average of 283 kg of waste in 2024. More work needs to be done for the City to reach its 2030 target of 250 kg of waste per household.

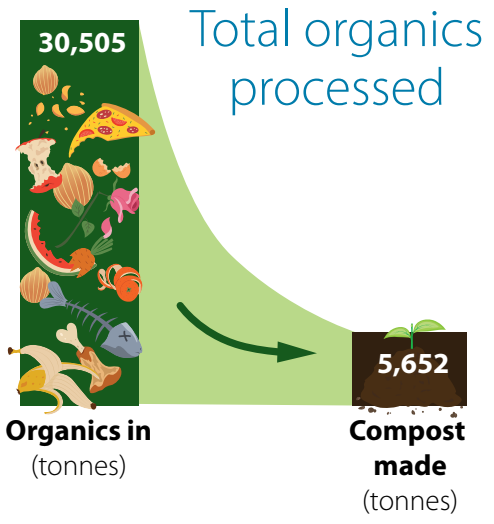


**21,348** (2024)  
**tonnes of CO<sub>2</sub>e**  
emissions was reduced by capturing landfill gas used to generate electricity and is equivalent to taking 6,540 cars off the road for a year per Natural Resources Canada's Greenhouse Gas Equivalencies Calculator.

## Total residential waste collected at the curb (tonnes)



**7,237** (2024)  
**tonnes of CO<sub>2</sub>e**  
emissions was reduced by capturing organics gas used to generate electricity and is equivalent to taking 2,217 cars off the road for a year per Natural Resources Canada's Greenhouse Gas Equivalencies Calculator.



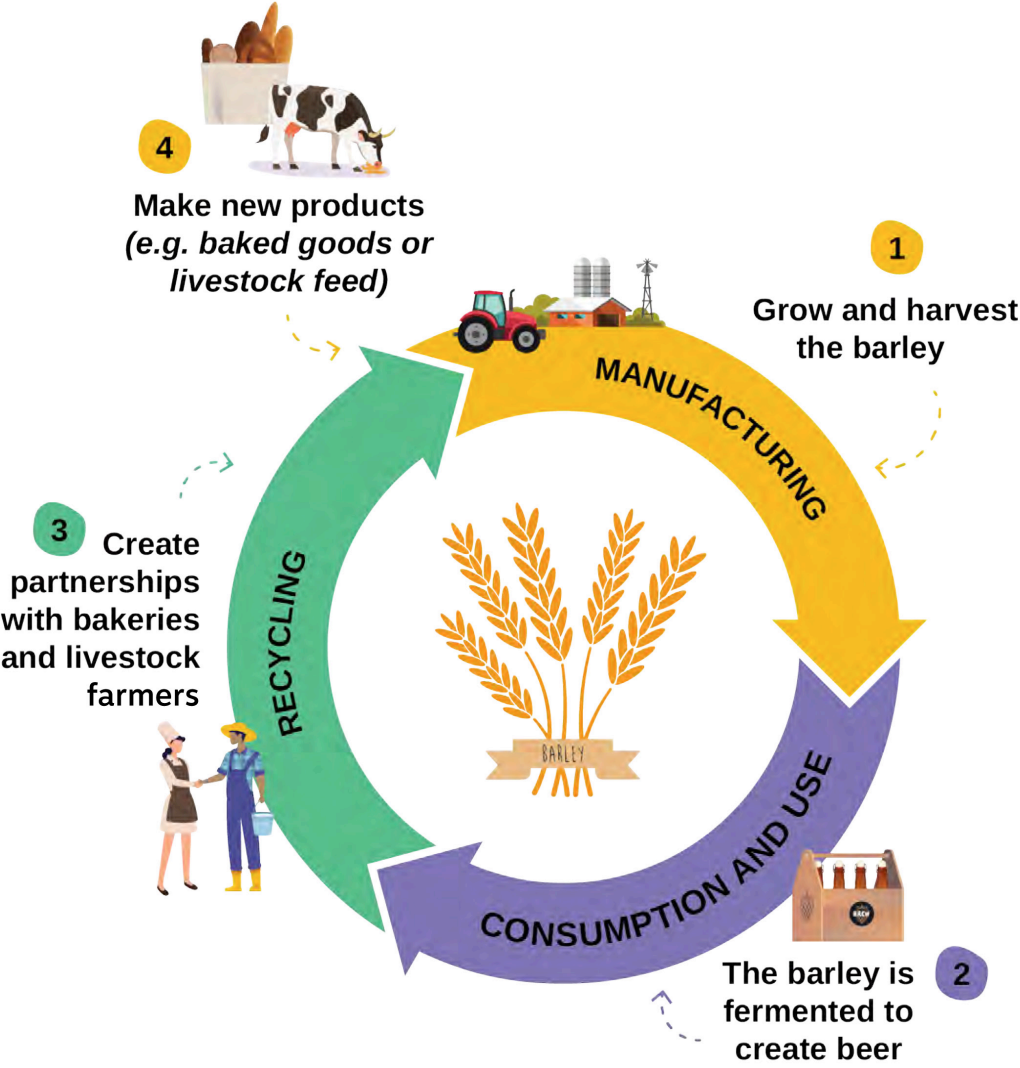
Total grey cart waste generated = 283 kg per household  
The City's 2030 target = 250 kg per household

## Solid Waste Management Master Plan and the Circular Economy

The SWMMP is focusing on supporting a circular economy, waste reduction policies and service level reviews, enhanced promotion and education, and community sharing and repair initiatives and has advanced:

- Supporting the circular economy by developing a Circular Economy Policy and Supporting Framework,
- Preparing for the Blue Box Program transition to full producer responsibility,
- Developing the Single-Use Items Reduction Strategy and ban,
- Piloting a curbside "gold star" recognition program to improve food waste diversion, and
- Collaborating with Guelph Tool Library on community repair cafes, car seat recycling and Guelph's Largest Clothing Swap.

**55%**  
of Guelph's curbside waste was diverted from landfill through proper sorting





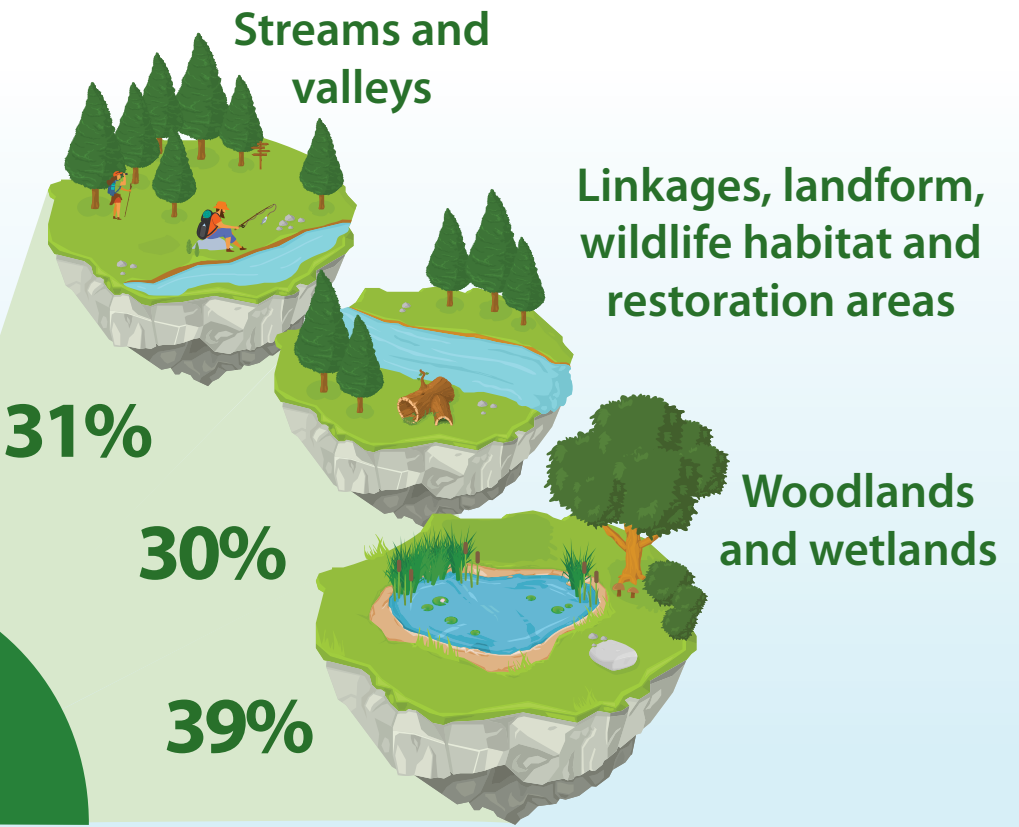
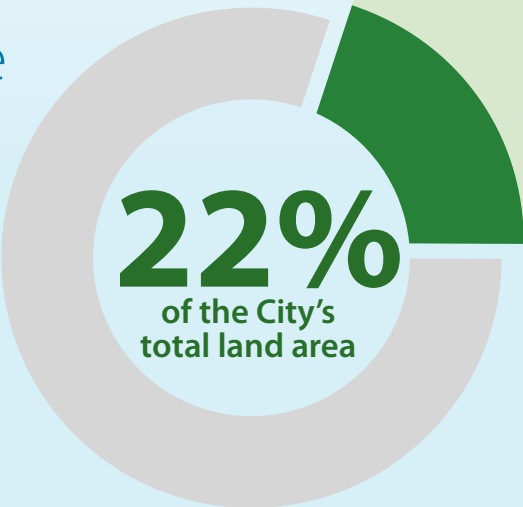
# Urban Forest and Natural Heritage

The City maintains, protects and restores Guelph's natural heritage system and urban forest which helps us to:

- reduce pollutants in the water and air
- save energy by cooling our community
- support the health and wellbeing of Guelph residents
- provide recreational spaces and opportunities for outdoor activities
- allow for local plants and wildlife to move throughout their lifecycles safely and healthfully
- support a wide range of native plants and wildlife
- mitigate floods

## Natural heritage system

**Guelph's natural heritage makes up 1/5 of Guelph's land area**

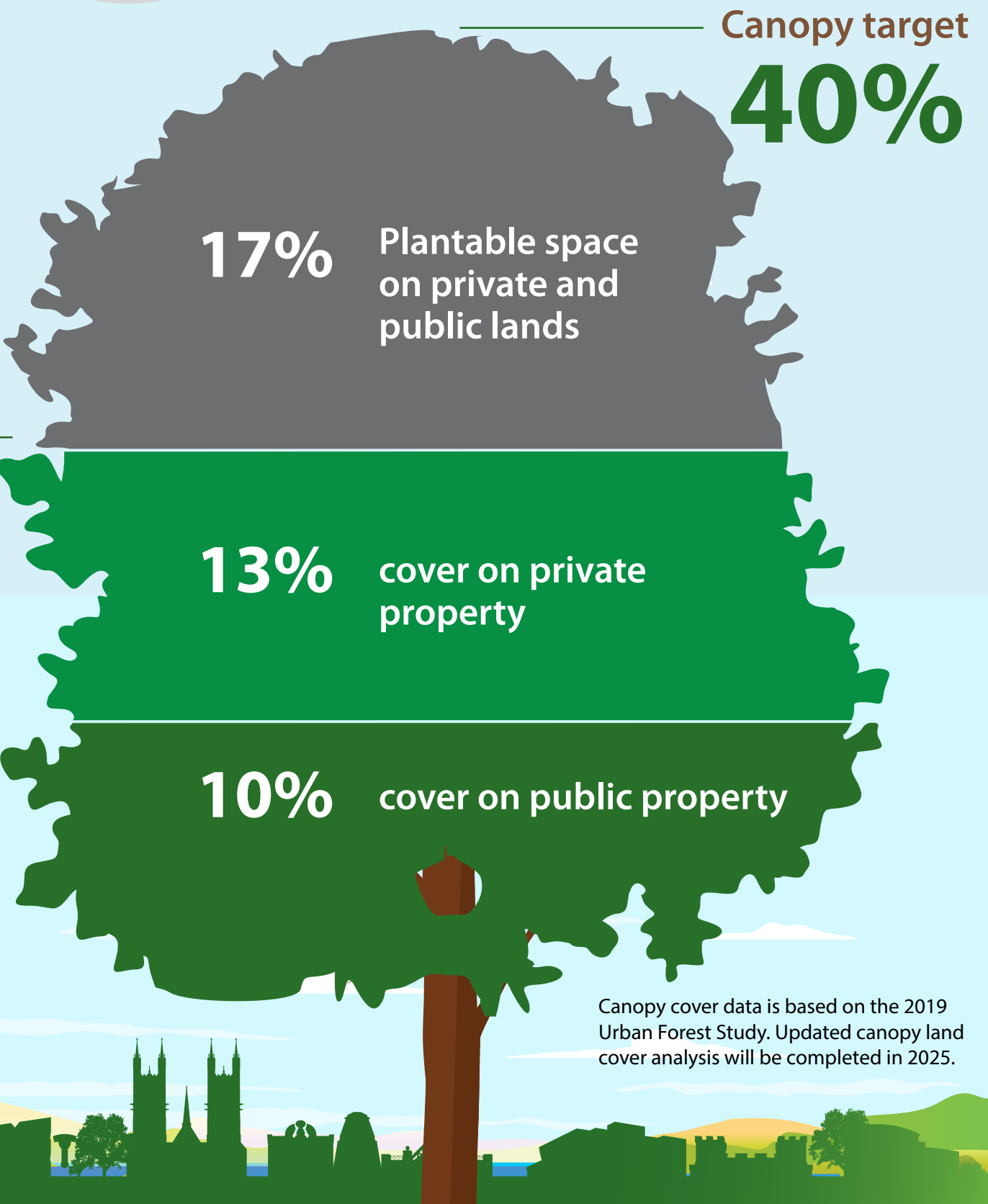


## Urban forest

**Guelph's urban forest provides valuable ecological, social and economical benefits to the community**

Canopy cover is **23%**  
of the City's total land area

**Most canopy cover is in woodlands, natural areas and mature neighbourhoods**

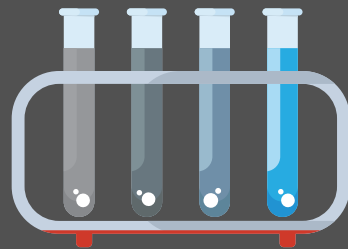


Canopy cover data is based on the 2019 Urban Forest Study. Updated canopy land cover analysis will be completed in 2025.

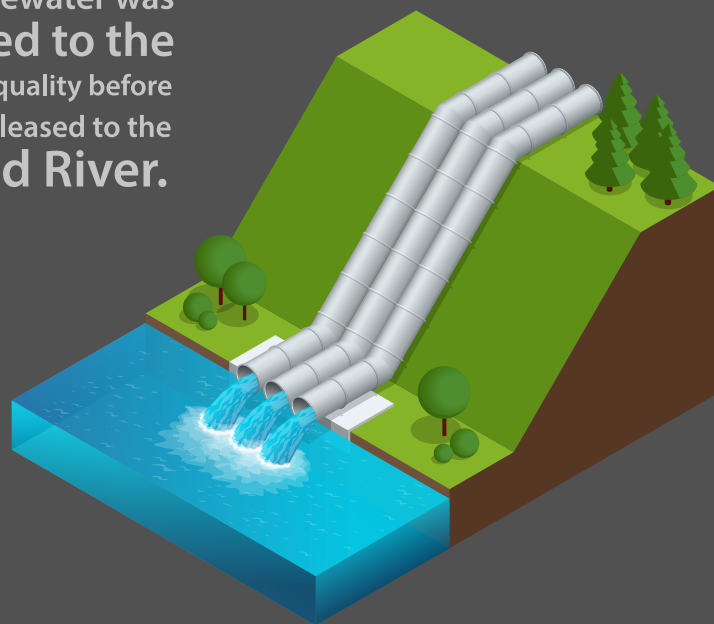


# Wastewater Services

Environmental stewardship drives all of the City's Wastewater Services programs. Whether it be reusing digester gas (methane) and biosolids (organic solids removed from sewage) recovered from the treatment process to power our Water Resource Recovery Centre, or developing new educational programs to engage with our community, we're continually finding new ways to improve our processes to reduce our environmental footprint.

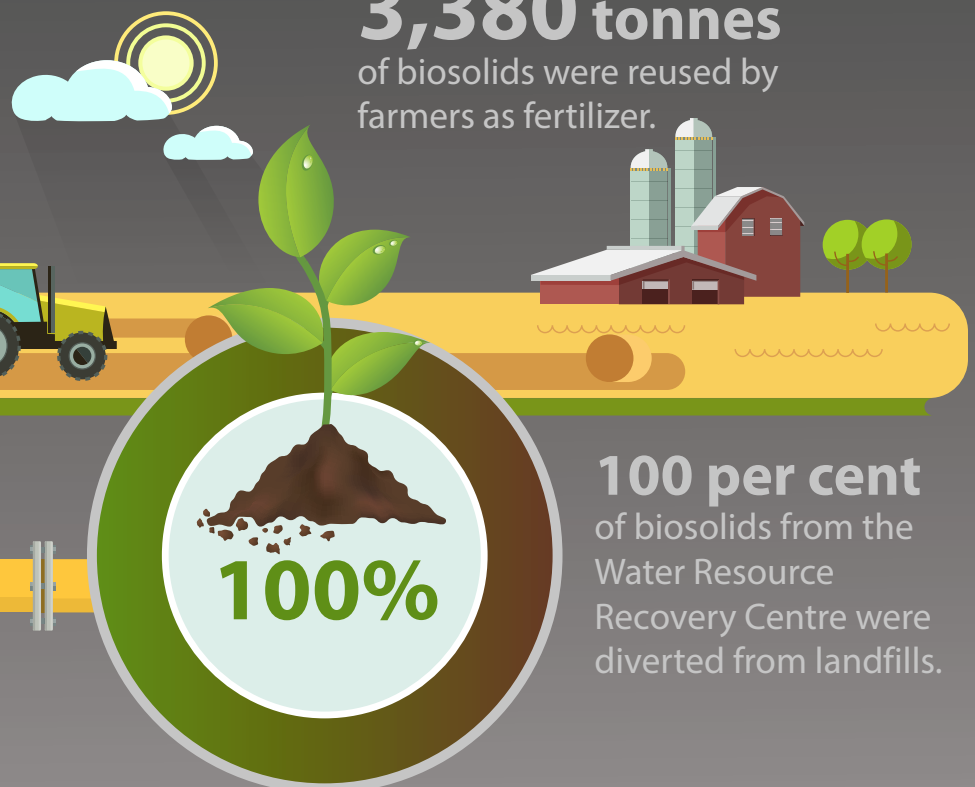


**20.1 billion litres** = **55 million litres** per day!  
of wastewater was treated to the highest quality before being released to the Speed River.



**1,497,576 m<sup>3</sup>** of reused digester gas powered the Water Resource Recovery Center. That's enough to power **1,123 houses**

**3,380 tonnes** of biosolids were reused by farmers as fertilizer.



**100 per cent** of biosolids from the Water Resource Recovery Centre were diverted from landfills.

# Water Services

The City provides Guelph residents with safe, high quality drinking water while meeting or exceeding, and continually improving on legal, operational and quality management system requirements.

## 2024 Year in Review

In 2024, the City treated and pumped 2.83 per cent less water than in 2023. Average annual consumption has increased by 2.7 per cent with a population growth of 15.1 per cent from 2014 to 2023. The Water Supply Master Plan that was approved in 2023 ensures the City's water supply meets the needs of current and future demands.

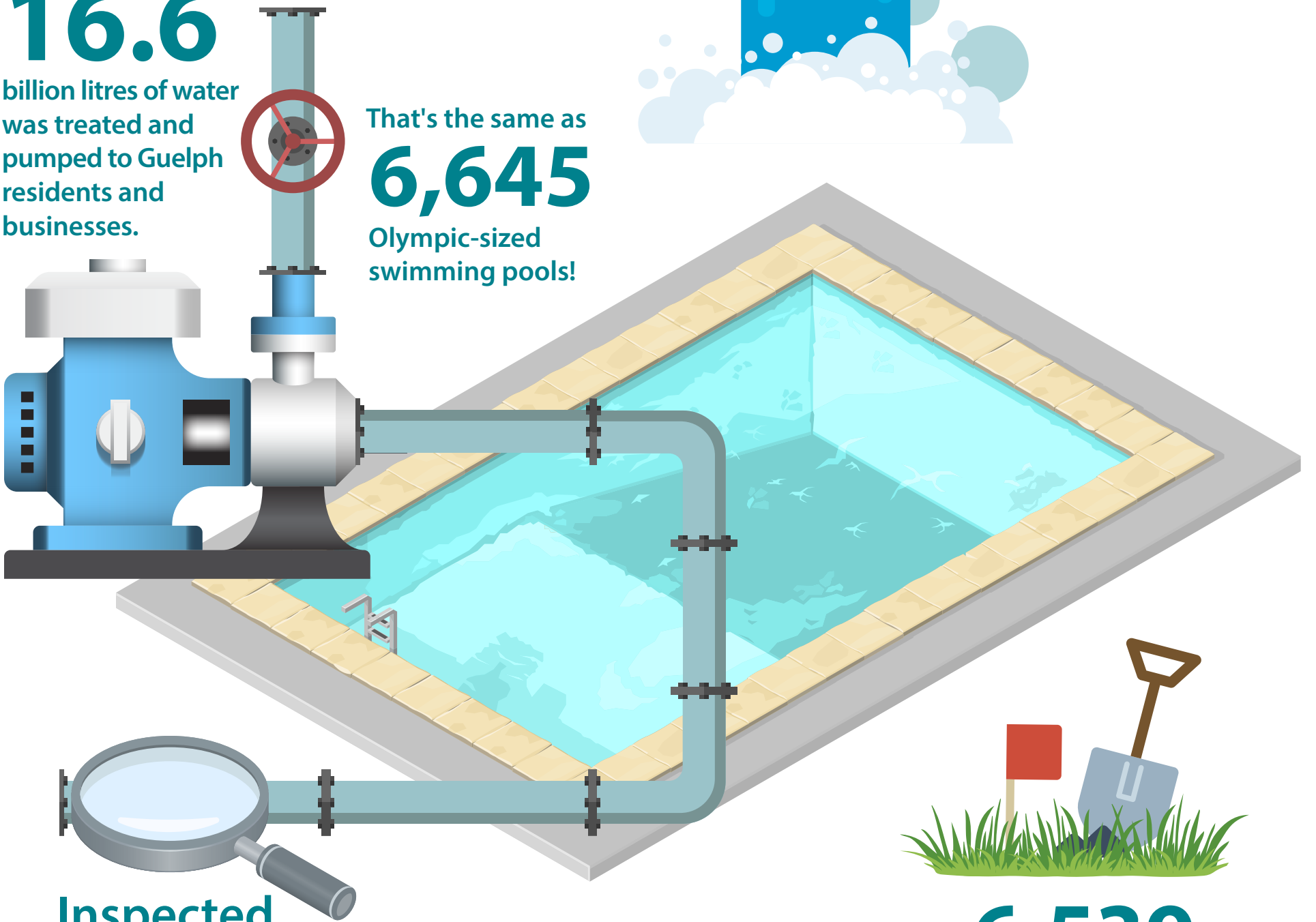
**16.6**

billion litres of water was treated and pumped to Guelph residents and businesses.

That's the same as

**6,645**

Olympic-sized swimming pools!



Inspected

**564**

kilometers of watermain for leakage and reclaimed

**119m<sup>3</sup>**

per day from found underground

**leaks.**

**202,940**

litres of water is saved per day through water-efficiency programs including water loss management!



**6,539**

water utility locates completed to prevent damage to City water infrastructure and our natural environment.



The Guelph Water Wagon helped divert over 44,000 water bottles from recycling and waste streams at local events.