

Annual Report 2019

Environment & Energy Division



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2019 Key Achievements

- \$200 million raised through Toronto's second Green Bond offering
- Toronto's first Electric Vehicle (EV) Strategy adopted
- 54 Energy Strategy Reports completed for large development sites
- TransformTO Reference Panel on Climate Action formed
- 282 attendees at four TransformTO community meetings
- 500 participants in TransformTO community conversations
- \$1.7 million in financing to convert Toronto's diesel ambulances to hybrid electric
- 81 Smart Commute client organizations (300,000+ employees/commuters)
- The Energy Retrofit Loan program launched
- \$270,000 in retro-commissioning funding from Natural Resources Canada
- 42 home energy retrofit projects supported by \$1 million in Home Energy Loans
- 70,000 participants in Toronto's first walking challenge – Take Steps to TransformTO
- 100 rooftop solar PV systems now installed on City-owned buildings
- 197 outreach events at community festivals, trade shows and others events
- 4,980 hours of service provided by Live Green Toronto Volunteers
- 71 eco-roof projects approved for funding, totaling 123,694 m²
- 9,500 m² of pollinator habitat created through the PollinateTO Community Grants
- 15 Neighbourhood Climate Action Grants awarded
- 200,107 participants at 559 Clean Toronto Together events

TransformTO: Climate action for a healthy, equitable, prosperous Toronto

The Environment and Energy Division (EED) is leading the development, coordination and implementation of the City's TransformTO climate action strategy. We collaborate with City divisions, agencies and corporations, and external stakeholders to deliver innovative programs, research and initiatives to achieve Toronto's greenhouse gas emission reduction goals, improve our health, grow our economy, and improve social equity.


TransformTO identifies a series of short- and long-term actions to reduce community-wide greenhouse gas emissions in key sectors: buildings, energy, transportation and waste. These long-term goals unanimously adopted by City Council in 2017, guide the actions we collectively need to take to achieve a low-carbon future.

100% 
of all **new buildings** will be
built to produce **near-zero**
GHG emissions by 2030

100% 
of all **existing buildings** will
have been **retrofitted** to achieve
net-zero emissions by 2050

 We will have
advanced towards
a **zero waste circular**
economy by 2050

100% 
of all **vehicles in Toronto**
will use **low-carbon energy**
by 2050

At least
30% 
of total floor space
across Toronto will be
connected to **low-carbon**
heating and cooling energy
by 2050

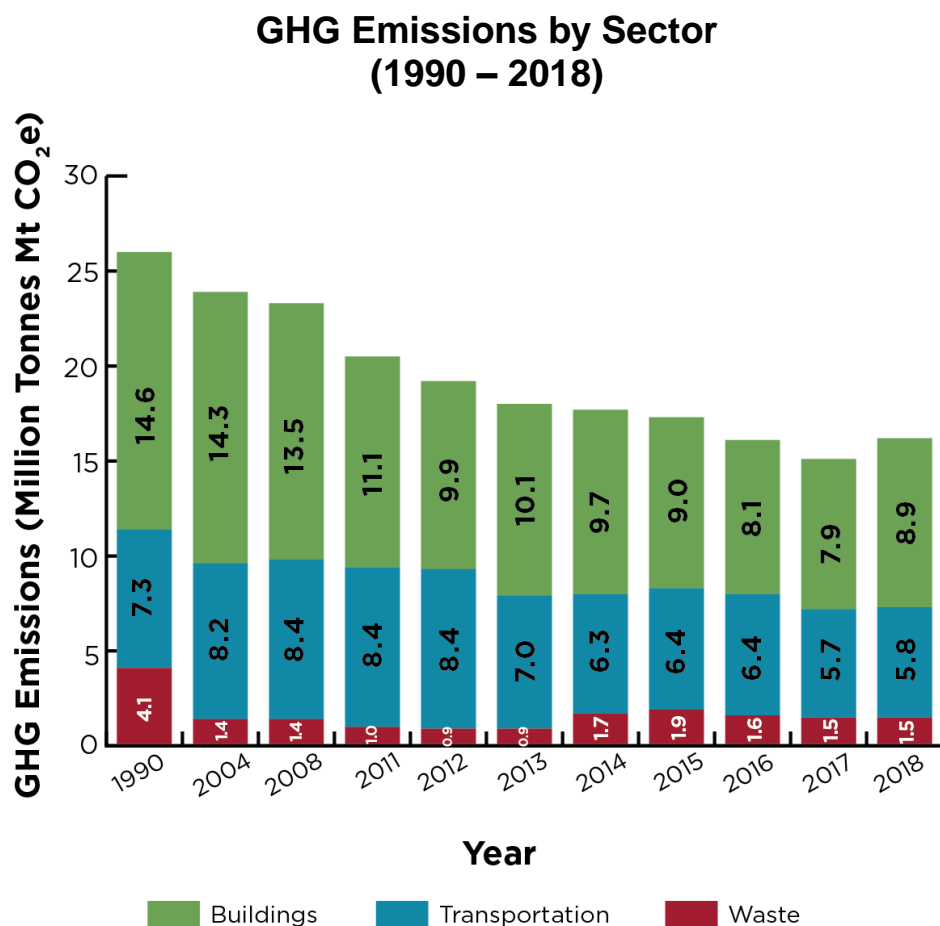
75% 
of trips under 5km will be
walked or biked by 2050

Accelerating Toronto's Climate Action Plan

On October 2, 2019, Toronto City Council voted unanimously to declare a climate emergency and adopt a stronger emissions reduction target for Toronto – net zero by 2050 or sooner.

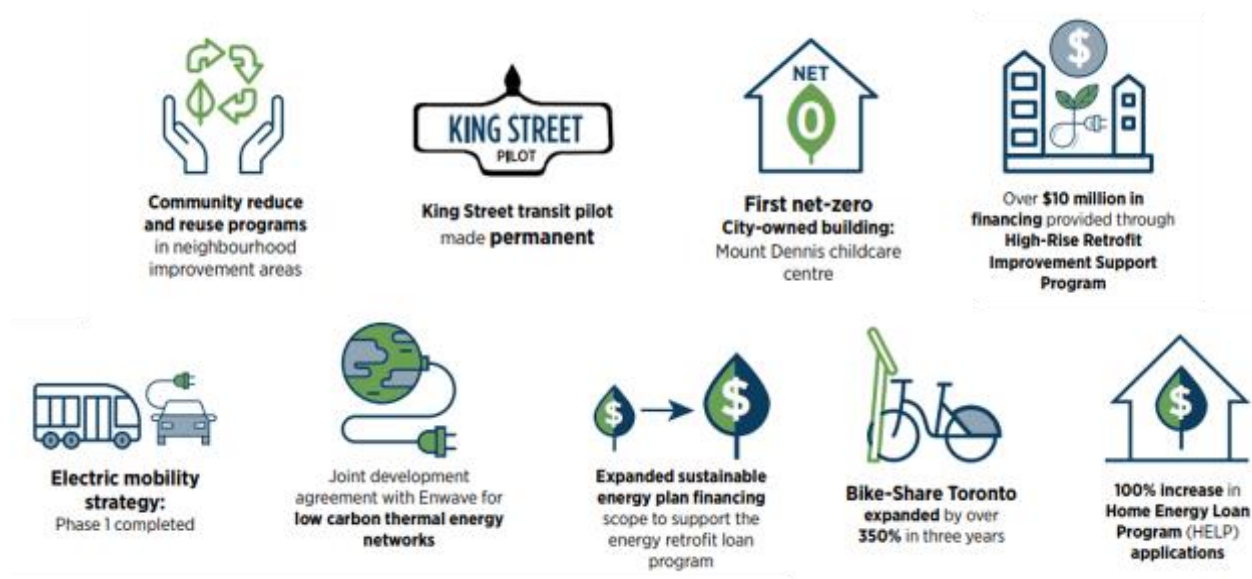
With this declaration, Toronto joined more than 800 cities around the world in acknowledging the scale of the climate crisis, including Amsterdam, Barcelona, Edmonton, London, Los Angeles, Montreal, New York, Ottawa, Paris, San Francisco, Sydney and Vancouver.

The Environment and Energy Division is working to identify how to accelerate the TransformTO climate action strategy to reach the net-zero target by 2050, or sooner, and will report back to Council in 2021.



Key Initiatives Advancing TransformTO

The EED contributes too many key initiatives to transform Toronto buildings, energy, transportation and waste systems to support a low-carbon city. Notable achievements include new low-carbon developments, community grants for climate action, the City's first Electric Vehicle (EV) strategy, and a \$200 million green bond issued in 2019.



Green Bonds

Following the success of Toronto's first green bond issuance of \$300 million in July 2018, the City issued a second green bond offering of \$200 million in September 2019. By investing in green infrastructure projects that contribute to environmental sustainability, the City demonstrates its commitment to addressing climate change.

In August, 2019, the City of Toronto published its first Green Bond Newsletter, detailing how the 2018 green debenture funds were used and the climate performance of the investments. Learn more about [Toronto's Green Debenture Program](#).

Climate Lens

Since City Council's declaration of a climate emergency in 2019, the EED has been working with consultants to develop a framework for Toronto's Climate Lens. The Climate Lens is envisioned as a cross-corporate requirement that will standardize consideration for the climate in all City decision-making, and especially financial decisions. The framework will provide the research and background information necessary for the City to build and implement the Climate Lens and is expected to be completed by the end of 2020.

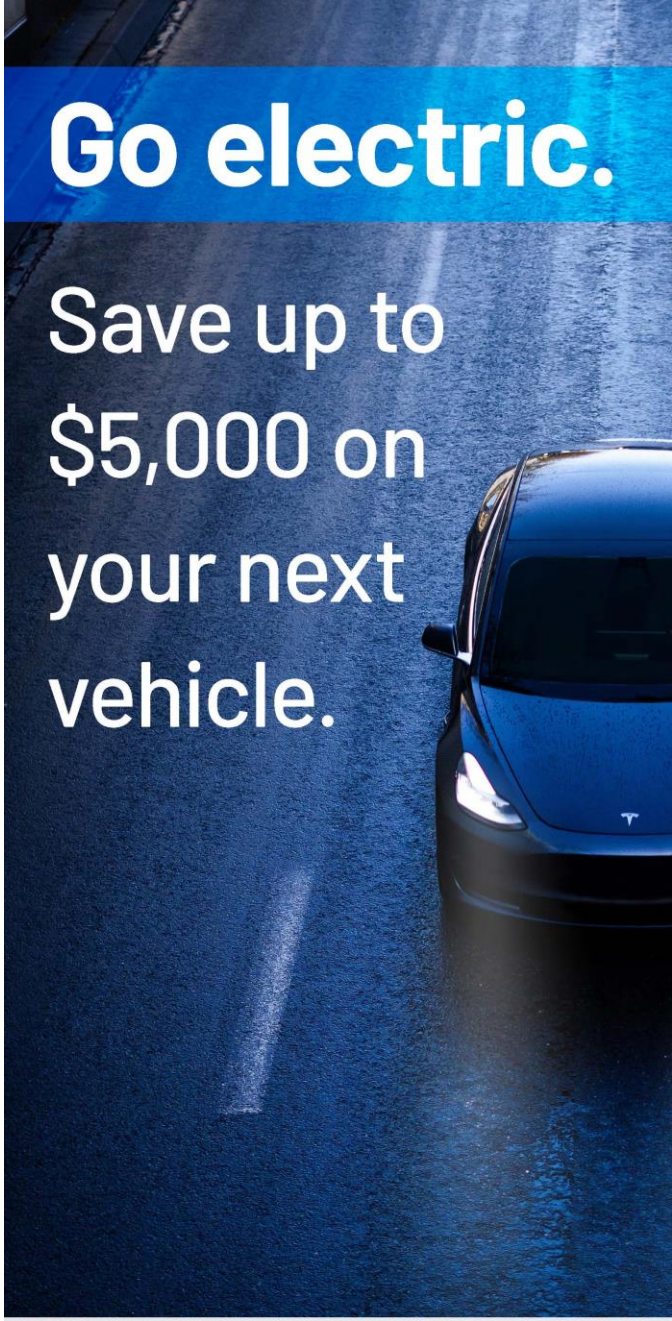
Toronto's First Electric Vehicle Strategy

Toronto's first Electric Vehicle (EV) Strategy was developed in 2019. Led by EED, the strategy was co-created with an Electric Vehicle Working Group, comprised of more than 20 City divisions, agencies and corporations, and external consultants and stakeholders. The strategy identifies actions that need to be taken to ensure Toronto is prepared for the global shift towards electric mobility and achieves a key TransformTO goal: 100 per cent of transportation uses zero-carbon energy sources by 2050.

In addition to lower GHG emissions, there are health benefits stemming from the electrification of vehicles, including air quality improvements, noise pollution reduction, and a reduction in the urban heat island effect. EVs also cost less to operate and maintain than other vehicles, resulting in a lower overall ownership cost.




The EV Strategy identifies actions the City can take to increase charging availability, address cost and convenience barriers, increase public awareness and education, and create economic opportunities that will benefit the local economy. A pilot program will see the installation of curbside EV chargers on select streets across Toronto, which is expected to help the City assess charging frequency and demand, EV parking space selection, on-street EV charging station operation and maintenance, as well as related regulation and enforcement issues. The pilot will pave the way for a larger-scale roll-out of EV charging infrastructure in Toronto.

In 2019, the City also launched a workplace EV Charging program at City Hall and Metro Hall, which allow City employees to charge their personal plug-in vehicles while they're at work. Improving the availability of EV charging infrastructure can help to increase the proportion of residents willing to choose EVs.



Go electric.

**Save up to
\$5,000 on
your next
vehicle.**

  Partial Funding by
Natural Resources
Canada 

Public and Stakeholder Consultation

The City of Toronto undertook two phases of public consultation in 2019 to inform the TransformTO Implementation Plan. Phase 1 of the process ran from July to September 2019 and included the TransformTO Reference Panel. Phase 2 of the process included four public meetings, an online survey, and a community conversation guide.

TransformTO Reference Panel on Climate Action

Created in 2019, the TransformTO Reference Panel on Climate Action consisted of 30 randomly-selected Torontonians who volunteered to learn about climate change and discuss ways that, in the coming years, their city government could take action to reduce local greenhouse gas emissions. The Reference Panel was developed to help shape, along with stakeholders, experts and the public, what greenhouse gas reduction actions would be recommended to City Council.

Despite the variety of perspectives amongst its diverse members, the Panel endorsed and at times recommended strengthening a number of significant municipal actions on climate, including building retrofits, incentive programs for retrofits, public transit improvements, and more. The Panel's final report calls on the City to do more to encourage and enable personal, neighbourhood, and corporate action and to continue to be creative and collaborative so climate action is both top-down and bottom-up.



In July 2019, 30 panelists of the TransformTO Reference Panel on Climate Action met for the first time.

Public Meetings

EED organized four public meetings in October 2019 to gather input on the TransformTO Implementation Plan. The two-hour meetings were in different parts of the City to discuss proposed approaches and actions being considered in the implementation of TransformTO in four key areas: Buildings and Energy, Transportation, Financial Tools and Governance, and Other Areas (comprising Waste, Sustainable Consumption and Lifecycle Emissions, Leading by Example, and Engagement and Collaboration). Approximately 282 people attended the meetings.

Public Survey

An online survey was launched in October 2019 and was open for approximately one month. The survey provided an opportunity for Toronto residents to learn about, and comment on, the major approaches and actions being proposed in the implementation of TransformTO. The survey included the same four themes covered at the public meetings. A total of 2,959 survey submissions were received, including almost 12,000 comments across all the thematic areas.

Community Conversations

A TransformTO Community Conversation Guide was created and available for download in October and November 2019. It was utilized by 25 community groups who hosted their own community conversations. The Guide provided participants with simple background information on TransformTO and the major sources of GHG emissions in Toronto. The Guide was organized into the same four thematic areas as the public meetings and online survey, which went into further detail on the City's proposed approaches and actions in each of those areas. More than 500 residents participated in the community conversations.



High-Performance Buildings

Homes and buildings generate about half of the greenhouse gas emissions in Toronto. To reduce the worst impacts of climate change, the City of Toronto set a target to reach net-zero emissions by 2050, or sooner.

Better Buildings Partnership

Through the EED's Better Buildings Partnership (BBP) program, the City offers programs and services to promote energy efficient retrofits in existing homes and buildings across Toronto.

Buildings are the single largest source of greenhouse gas emissions in Toronto, accounting for 52 per cent of emissions in 2017. To meet the City's goal of net zero by 2050 or sooner, 100 per cent of existing homes and buildings in Toronto must be retrofitted by 2050.

In 2019, EED staff acted as technical and non-technical resources across the BBP portfolio of programs to foster relationships and connect with organizations whose objectives align with TransformTO's goal to reduce emissions from existing buildings. Staff have developed productive relationships with organizations, utilities and other levels of government focused on developing programs and projects to reduce emissions.

Through attendance and presentations at industry events, staff increased awareness of BBP programs and TransformTO. EED also engaged with prominent organizations across the city to make GHG reductions a priority in existing buildings and continue to build a list of contacts and stakeholders to grow the network and influence change.

Navigation and Support Services

Navigation and Support Services was developed in 2019 to address gaps and confusion in the market around existing energy efficiency programs, challenges with the lack of program integration, and lack of support for small and medium businesses. EED staff deliver core services to commercial, institutional, and multi-residential buildings across the city to drive energy efficiency retrofits to lower emissions.

Since its launch in Q2 2019, more than 24 commercial and industrial participants of various building types and sizes have been enrolled in the program. EED staff provide analysis to identify priority energy conservation measures, formulate business cases and support client applications for incentives and financing.

In 2019, EED facilitated the receipt of more than \$270,000 in retro-commissioning funding from Natural Resources Canada, enabling approximately \$400,000 of retro-commissioning work for four participants: University Health Network, Ryerson University, Toronto Community Housing and Bank of Montreal.

EED also completed applications for the Federal Funding for Climate Action through Natural Resources Canada for a range of energy management services including onboarding energy managers and performing audits for the following participants: Toronto Community Housing, Bais Yaakov Elementary School, BOMA, University Health Network, Faith in the Common Good, and Toronto Association of Business Improvement Areas (TABIA).

Energy & Water Reporting and Benchmarking

The Energy and Water Reporting and Benchmarking (EWRB) initiative, developed in collaboration with the Province of Ontario, aims to raise awareness among building owners and managers of their buildings' energy consumption and encourage steps towards greater energy efficiency through data disclosure. The program serves as an enabler and engagement tool for reducing greenhouse gas emissions in existing buildings.

In 2019, EED staff engaged one-on-one with approximate 3,000 first time commercial sector organizations within the city, resulting in a reporting compliance rate of 74 per cent among commercial buildings and 68 per cent overall including residential. Toronto's compliance rate was higher than other municipalities within the province and significantly above the provincial compliance rate of 40 per cent.

Green Will Initiative

The Green Will Initiative (GWI) encourages public and private sector buildings across Toronto to achieve net-zero greenhouse gas (GHG) emissions. The GWI was announced by Mayor John Tory prior to Council's 'Climate Emergency Declaration' in October and at the C40 World Mayors Summit in Copenhagen, Denmark. To date, 11 of Toronto's major building portfolio owners have volunteered to form the GWI's first cohort. Together, they represent 4,500 buildings and over 300 million square feet of building space in Toronto. The program will formally launch in 2020 and the GWI team will support the first cohort in developing their climate action objectives and pathways to net-zero emissions.



Emissions Strategy for Existing Buildings

The Existing Buildings Emissions Strategy is a comprehensive emissions reductions strategy that will provide the foundation for advancing Toronto's existing buildings toward net-zero emissions and the highest standards of energy performance.

The two main components of the strategy are: a framework for emissions and energy performance standards for existing buildings; and a suite of policy and regulatory mechanisms that will support these buildings in realizing those performance standards. Policy mechanisms being explored include mandatory energy labelling and disclosure, mandatory energy audits and recommissioning, deep retrofit capital planning, emissions performance targets, financial instruments to support action, and retrofit support programs.

EED staff conducted a rigorous procurement process in Q2 2019, and kicked off the project with the selected consulting team in Q3 2019. Throughout Q3 and Q4 several key tasks were completed, culminating in an extensive interim report that includes:

- an assessment of the existing policy and regulatory environment facing building owners;
- a comprehensive analysis of international best practices in policies and initiatives to achieve deep emissions reductions in buildings; and
- preliminary data modelling to provide initial assessments of potential emissions reductions impacts of different actions being considered.

Stakeholder engagement was conducted including dialogue with key internal divisional partners and the formation of an Advisory Committee of industry experts to guide project development. The Strategy will be completed by year end 2020, culminating in a final report with recommendations for implementation to be considered by Council in 2021.

Sustainable Energy Plan Financing Program

Since its approval by Council in 2013, the City's Sustainable Energy Plan Financing (SEPF) program provides City Divisions, Agencies and Corporations with low interest loans to improve energy performance and reduce GHG emissions. In 2018, Council approved expansion of the program to include academic, social, healthcare, industrial, and commercial sectors, including privately-owned buildings and condominium buildings located in the city of Toronto to better align the program with TransformTO directives to reduce community-wide greenhouse gas emissions by 80 per cent by 2050.

In 2019, the program approved \$41.8 million in loans that have enabled \$70.1 million of projects across the city by leveraging co-investments, partnerships and incentives from other levels of government. These projects reduce emissions by over 5,600 tonnes of CO₂ annually and produced a number of other co-benefits. For example, the SEPF funded the retrofit of 39 Toronto Community Housing Corporation buildings for energy and heating resilience and improved the quality of life for residents in the buildings; while creating

approximately \$1.7 million in energy savings. Additional successes in 2019 included providing financing for: retrofits in housing for seniors and community homes; energy retrofits of arenas; and retrofit Toronto Paramedic Services' fleet to hybrid electric drivetrain systems from diesel, including installation of solar panels to power and recharge their on-board medical equipment.

Energy Retrofit Loans

Launched in January 2019; through the City's Sustainable Energy Plan Financing program, the City offers low-interest loans to help building owners invest in energy and climate action retrofit projects. All buildings located in Toronto are eligible. The EED works directly with building owners and managers to realize substantial GHG reductions in buildings through the loans, and helps them access rebates and incentives from other levels of government and utility companies.

The low-interest loan program is based on a survey of 70 industry stakeholders, where we learned that there is substantial market demand for energy efficiency financing and that a simplified and standardized program delivery and application processes could generate greater uptake. The survey indicated that the highest demand was from social housing and other community organizations.

2019 Accomplishments

- Over 30 customer leads processed; customers work directly with City staff to review program guidelines and clarify the participation requirements
- Conducted four in-depth technical site visits to expand project scope and reduce GHG emissions
- Facilitated eight formal Expressions of Interest generating the following project potential:
 - 21 building retrofits
 - \$4.9 million in project costs
 - \$3.6 million in financing requests
 - \$1,100,000 in application review stage for two projects
 - \$420,000 in loans in the approval process for two projects

Residential Energy Initiatives

Home Energy Loan Program

The Home Energy Loan Program (HELP) offers Toronto homeowners competitive rates on loans of up to \$75,000 to cover the cost of home energy improvements and retrofits. Eligible improvements include energy-efficient heating and cooling systems, windows, doors, insulation, renewable energy technologies and more. Energy-efficient homes reduce greenhouse gas emissions, save on energy costs and are also more comfortable and healthier to live in.

In 2019, the list of eligible technologies was expanded to include electric vehicle (EV) chargers, and battery storage to support resilience. The program supported the completion of 42 home energy retrofit projects, dispensing about \$1 million in loans, averaging about \$26,538 per project. Homeowners that accessed HELP in 2019 reduced their average annual greenhouse gas emissions from 10.8 GHG tonnes to 7.3 GHG tonnes per year, on average.



BetterHomesTO

In 2019, the EED successfully competed for over \$360,000 in Natural Resources Canada funding over two years to lead a new project- BetterHomesTO. BetterHomesTO makes it easy for Toronto homeowners to access information and supports to increase single-family home retrofits, reduce emissions and increase energy efficiency. BetterHomesTO was officially launched in early November 2019 with a media event hosted by Mayor Tory and Councillor McKelvie.

A key component of BetterHomesTO is a comprehensive and interactive website betterhomesto.ca that provides a one-stop shop with resources and programs to support single-family residential retrofits. In addition to the website, outreach and engagement materials were developed in multiple languages to increase access to information and drive uptake in City/partner programs.

The BetterHomesTO project also supported the development of Home Efficiency Animator Training (HEAT), delivered in partnership with Humber College. Through HEAT, more than 90 individuals from diverse communities across Toronto received a free, two-day, capacity

building program focused on best practices in residential energy conservation. The training will help Toronto's community and sustainability leaders to:

- better understand retrofit best-practices, including low-cost and deep-impact energy savings measures;
- understand and explain the greenhouse gas emissions reduction, energy, and economic benefits of energy upgrades;
- understand key concepts from Natural Resources Canada's home energy efficiency learning outcomes; and
- apply these concepts in their communities to increase energy efficiency and climate action in Toronto.

The EED is also working with Canadian Urban Sustainability Professionals to pilot approaches to integrating equity considerations into program design through the Local Energy Access Program.



Mayor Tory, EED Director Jim Baxter and Councillor McKelvie at the BetterHomesTO launch.

GHG Accounting and Action Reporting

The Global Covenant of Mayors for Climate and Energy, previously known as the Compact of Mayors, is the world's largest coalition of city leaders addressing climate change. Members pledge to reduce greenhouse gas emissions, enhance resilience against climate change and track progress transparently. Commitments to the Covenant are set to deliver half of the global urban potential GHG emissions reductions available by 2020.

As a Global Covenant of Mayors signatory, Toronto discloses its GHG emissions inventory and climate mitigation and adaptation actions annually to the [Carbon Disclosure Project \(CDP\)](#). This disclosure helps to track the City's progress, monitor risks and benchmark against other cities facing similar challenges.

In 2019, for the second year in a row, the City was recognized on the Carbon Disclosure Project Cities "A" List for its leadership and transparency on climate action. Toronto was one out of 105 cities globally to achieve an "A" rating.

According to the CDP:

- "A List" cities demonstrate best practice and set an example of environmental action for others to follow
- "A List" cities take, on average, more than double the number of actions to adapt to climate change, and five times as many mitigation actions compared to other cities scored



In 2019, for the second year in a row, the City of Toronto was recognized on the Carbon Disclosure Project Cities "A" List for its leadership and transparency on climate action.

Resilient City

The EED is developing and implementing innovative resilience policies and programs to address climate change and make Toronto one of the most environmentally sustainable cities in the world.

Resilience Strategy

In 2019, Toronto's first Resilience Strategy was launched. EED staff led the successful funding application for this work and provided support to the City's Chief Resilience Officer. The Resilience Strategy sets out a vision, goals, and actions to help Toronto survive, adapt and thrive in the face of any challenge, particularly climate change and growing inequities.

Climate Related Financial Disclosure

In 2019, EED staff were instrumental in having Toronto join Vancouver and Montreal in being among the first cities in the world to provide climate related disclosures as part of their annual financial report. This work follows the guidelines of the Task Force on Climate Related Financial Disclosure (TCFD). The EED collaborated with Toronto's Accounting Services Division, CPA Canada and staff from Vancouver and Montreal towards the development of a ["Cities Guide to Adopting the Recommendations of the TCFD"](#). TCFD style disclosure involves public reporting about climate change governance, strategy, risk management and metrics and targets for both GHG reduction and climate adaptation.

C40 International Collaboration

The EED is active with the C40 Network of Cities to help identify and promote best practices in combatting climate change. In 2019, work by the EED included: support for the Mayor's delegation to the October 2019 C40 Mayors Summit in Copenhagen; and thought leadership with C40 staff on the publication ["Understanding Infrastructure Interdependencies in Cities"](#)



Greening City Operations

With a commitment to lead by example, the City's TransformTO climate action strategy also includes goals to reduce emissions from the City's own operations:

The City has a number of programs and initiatives in place to reduce energy use in its facilities and ultimately meet its greenhouse gas emissions reduction target.

100% 
of new City-owned buildings will be built
to be near-zero GHG emissions by 2026

100% 
of existing City-owned buildings will be retrofitted to
be 40% more energy efficient, on average, by 2040

24 MEGAWATTS 
of renewable energy capacity will be installed
on City-owned facilities and lands by 2020

45% 
of City-owned vehicles
will be low-carbon by 2030

 **1.5 MILLION**
gigajoules of energy will be
generated from biogas by 2030

100% 
of City-owned facilities will achieve
zero waste status by 2030

Deep Energy Retrofits

EED works with Corporate Real Estate Management, Facilities Management, and Toronto Paramedic Services to pilot deep energy retrofit projects, with plans to roll out the projects across other City sites and divisions once proven successful.

In July 2019, the City integrated its divisions/sections/units involved in real estate related service delivery into a new Corporate Real Estate Management division (CREM). Parts of EED including Energy Management; Corporate Energy Initiatives focused on City owned portfolio; and waste management outreach were included in this integration.

Project Profile: Waterfront Neighbourhood Centre

- Benefits expected from a deep retrofit include 72 per cent reduction in energy consumption, 80 per cent reduction in GHG emissions, and a 40 per cent reduction in energy costs
- LED lighting retrofit completed in 2018
- Solar PV & energy storage installation is continuing, with expected completion in Q3, 2020
- Design of the lake-based geothermal and Building Automation System (BAS) upgrade will start Q3,2020
- Additional energy efficiency measures will be identified to reduce the building's energy consumption and minimize GHG emissions



Waterfront Neighbourhood Centre - 627 Queens Quay West

Project Profile: EMS Headquarters

- LED lighting and Building Automation System upgrades were completed in 2018. An RFP for a 360 kW Solar PV carport and ground-based geo-exchange system for heating and cooling was issued and awarded.
- When complete, energy use will be reduced by 59 per cent, GHG emissions by 4 per cent, and energy costs by 40 per cent, as compared to 2017.

Solar Photovoltaics (PV) - Building Integrated Photovoltaics

EED supported CREM in exploring Building Integrated Photovoltaics (BIPV), an advanced solar technology that replaces conventional windows/skylights with transparent triple glazed solar panel windows on buildings where roof space is limited. This PV solution has strong aesthetic value for office/residential buildings since it allows sunlight to enter while generating solar electricity.

Project Profile: North York Civic Centre

- The City's first system of this kind
- Thirty-six glass panes were replaced with a 3kW AC BIPV system
- Annual output is projected to be approximately 3,000kWhr
- Incremental cost of installing BIPV is approximately 15 to 20 per cent

The system's performance will be monitored with the intention of scaling up, where feasible, in City buildings that are due for window replacement.



North York Civic Centre is home to the City's first Building Integrated Photovoltaics (BIPV) installation.

Over 100 rooftop solar PV systems are now installed on City-owned buildings, generating clean energy and revenue through the Feed-In Tariff (FIT) program. Solar PV supports two key TransformTO goals:

- 24MW of renewable energy will be installed on City-owned facilities by 2020; and
- 75 per cent of Toronto's energy use will come from renewable or low-carbon sources by 2050.

2019 Highlights:

- Supported the design of a large scale 735kW solar PV rooftop system at the Ashbridges Bay Water Treatment Plant.
- Participated in a feasibility study to determine the possibility of electric ferries, and the electric infrastructure that would be required at the Jack Layton Ferry Terminal.

Project Profile: Solar + Energy Storage at EMS station 46

The City's first Solar PV + energy storage project was installed at EMS Station 46 located in the Woodbine and Danforth area. The system offsets 39 per cent of the site's electricity consumption and provides back-up power in the event of a power outage.

The system continues to perform beyond expectations. Data from April through October 2018, showed the amount of electricity generated by the solar panels from exceeded the site's consumption. The excess electricity is exported to the grid, and electricity credits are used during the winter when solar generation decreases. In March 2019, the building's backup electrical panel operated on stored energy for 22 consecutive hours without any disruption to site operations.



In July 2019, Mayor Tory and Councillors McKelvie & Pasternak toured the project at EMS Station 46.

Net-Zero City-owned Buildings

In 2019, EED worked with Parks, Forestry & Recreation, and Corporate Real Estate Management (CREM) to develop requests for proposals (RFPs) for the design of new net-zero buildings, and to determine the feasibility of two net-zero community centres and two maintenance garages.

EED also worked with City Planning to develop the net-zero requirements for the Toronto Green Standard (Version 3) and with Purchasing & Materials Management Division (PMMD) and CREM on developing a guideline RFP template for new net-zero construction projects in the city.



Mount Dennis Child Care Centre Net-Zero project: In 2019, the design was completed and the tender for construction was issued. Construction will start in Q2 2020.

Energy Security and Supply

Toronto's population, which is rising at one of the fastest rates in North America, puts increasing stress on our energy grids and resources. By proactively planning to meet future energy needs and exploring new ways to secure our energy supply – through energy conservation, distributed energy solutions, and strategic partnerships with key stakeholders – EED is working to improve Toronto's energy security.

EED works to accelerate and scale-up implementation of near-zero GHG emissions new development ahead of 2030 through:

- a partnership with City Planning to establish policy frameworks, prepare Community Energy Plans, and review development applications for Toronto Green Standard compliance;
- strategic engagement with industry stakeholders, including real estate and energy developers, architects, engineers, cost consultants, and investors, to identify and problem-solve challenges;
- collaboration with other City divisions on policies and processes to support industry adoption of renewable energy, backup power, and high performance buildings; and
- project development, including Combined Heat and Power plants for resilience, and the strategic development of Low-Carbon Thermal Energy Networks (district energy systems).

Energy Planning & Development Review

EED's New Development team collaborates with City Planning to integrate energy, emissions, and resilience into all steps of the land-use planning and development review process. In partnership with City Planning, we draft city-wide Official Plan environmental policies, prepare neighbourhood-scale Community Energy Plans, and review Energy Strategy reports and building Energy Models submitted by developers.

2019 Highlights:

- Reviewed 204 Energy Models with total gross floor area of over 50 million square feet, avoiding over 40,000 tonnes of CO₂ compared to the Ontario Building Code.
- Reviewed 54 Energy Strategy Reports for large development sites; 13 per cent of projects intended to achieve higher tier of energy performance voluntarily.
- Completed 20 high-performance new construction projects in Toronto with funding from the Ontario Save-on Energy program, avoiding 5.9 MW of electrical demand and 728.7 tonnes of CO₂ annually. EED runs the High Performance New Construction program in Toronto, in partnership with Toronto Hydro and the IESO.

Development of new Low-Carbon Thermal Energy Networks

EED plays a central role in accelerating and scaling-up implementation of low-carbon thermal energy networks (district energy systems), which is a key solution to reduce emissions in new development. We support energy developers across the city, and work to develop projects in specific locations through strategic partnerships.

2019 Achievements:

- Business cases completed for three net-zero development nodes ranging from 500,000 square feet to 11 million square feet Gross Floor Area (GFA), each with a unique asset profile (civic, commercial, residential, affordable housing and more).
- The City completed the first phase, schematic design, for the Etobicoke Civic Centre, which will host a district energy system centralized plant. Construction is scheduled to commence in 2021.
- 2019 saw the emergence of a diversified energy market, where real estate and energy operate as separate businesses. Private energy companies are partnering with real estate developers to take on the energy component, thereby adding value to the development while reducing business risk. EED encouraged emerging energy developers to partner with the real estate industry to design better building envelopes and develop renewable thermal energy systems. This partnership between EED, energy developers and the real estate industry has led to district energy systems being implemented at The Well and Mirvish Village, and the system at The University of Toronto being upgraded.



Enwave is expanding its existing Deep Lake Water Cooling and hot water distribution networks by building a new energy storage facility housed at The Well.

Project Profiles: District Energy System Nodes

Small Scale - Affordable Housing:

- 550,000+ square feet affordable housing complex (residential towers and townhouses)

Mid-range – Etobicoke Civic Centre Precinct

- 3 million square feet GFA, 13 acre mixed-use development consisting of: civic/community space, affordable housing, market rate residential, retail and parklands
- Low-carbon thermal energy network and efficient buildings with centralized energy plant to supply the entire precinct, leveraging large-scale geo-thermal renewable energy

Large Scale – Toronto Waterfront

- 21 million square feet, 125 acres of waterfront development to accommodate up to 25,000 residents and 30,000 employees
- District energy with a mix of large-scale renewable energy sources, including geo-exchange, sewer heat recovery, thermal energy storage/ sharing/distribution, solar thermal, lake based exchange and biomass/biogas



The "Mirvish Village District Energy System" will provide heating, cooling and electrical power to the development from an energy centre located in the parking level of building.

Outreach & Engagement

Through its Live Green Toronto program, EED delivers a suite of programs, resources, tools and events to engage and inspire Toronto residents and businesses to help green our city. With a strong focus on social media and extensive cross-divisional and cross-sectoral outreach and engagement, the Live Green Toronto team raises awareness, generates connections, and contributes to a healthier and more resilient city.

In 2019, EED staff and volunteers attended 197 community festivals, trade shows and other public events.

At these events, they engaged with tens of thousands of residents and raised awareness of a variety of City environmental programs and initiatives, including cycling, recycling, waste reduction, pollinators, TransformTO, local food and more.

2019 Highlights:

- Outreach at 197 events
- Over 12,000 twitter followers
- 636 tweets resulting in 1,341,900 impressions
- 4,236 Instagram followers
- 6,387 Facebook followers
- 2,102 pledges (staff and public) to go 'single-use plastic free' at lunch for the month of July
- 200,107 participants in Clean Toronto Together



Live Green Toronto delivers programs, grants, incentives, and resources to engage the community in helping to #TransformTO and accelerate the reduction of greenhouse gas emissions!

Take Steps to TransformTO Walking Challenge

In May 2019, Toronto's first annual walking challenge – Take Steps to TransformTO – challenge encouraged Torontonians to walk more as a part of their daily routine. More than 70,000 Torontonians participated in the challenge and engaged in an interactive educational campaign. The campaign aimed at raising awareness about the benefits of active transportation and its role in reaching the City's TransformTO goal: 75 per cent of short trips being walked or cycled by the year 2050. After an intense two-week-long ward versus ward competition, Ward 13 – Toronto-St. Paul's was announced the winner.

2019 highlights:

- 70,000 participants in the walking challenge
- 10 per cent increase in participant awareness about TransformTO
- 73 per cent of participants were motivated to use active transportation methods more often after completing the challenge
- Participants increased their walking by an average of 300 steps per day and sustained that behaviour for at least two weeks following the challenge

Live Green Block Party

On September 21, 2019, Live Green Toronto and Councillor Josh Matlow hosted a Live Green Block Party in Ward 12 Toronto–St. Paul's, winner of the first ever "Take Steps to TransformTO Walking Challenge". The event included live music, games, children's activities, educational displays, a food truck and presentation of the TransformTO Walking Challenge trophy to Ward 12.



Live Green @ Work

Live Green @ Work encourages City staff to get involved in greening their workplace and contribute to reaching the City's TransformTO emission reduction targets. Live Green @ Work provides resources and support for staff-initiated greening projects and events.

Live Green @ Work provides support and guidance to 15 Live Green Teams, consisting of over 120 volunteers across various City worksites. Live Green Teams hold monthly meetings and events, and maintain regular contact with staff interested in environmental change.

2019 Highlights:

- Established three new Live Green Teams
- Launched a monthly Live Green @ Work newsletter for City of Toronto staff
- City Hall's Live Green Team launched the Conscious Cup Challenge, which avoided the use of 2,300 single-use cups
- City Hall's Live Green Team hosted 10 TED Talks and discussions
- North York Civic Centre's Live Green Team organized the NYCC Stair Challenge and organized a group for the CN Tower Climb where they raised over \$1,000
- Metro Hall's Live Green Team organized a guest speaker series



Live Green @ Work provides support and guidance to 15 Live Green Teams, consisting of over 120 staff volunteers.

Live Green Perks

Through the City's Live Green Perks program, members get exclusive discounts and deals on green products and services at more than 450 Toronto businesses, as well as invitations to special events and contests. Anyone can join the program by downloading the free Live Green Perks app. As an added incentive, Live Green Toronto will plant a tree for every 20 deals an individual claims with the app.

2019 Highlights:

- 5,598 new Live Green Perks members
- 5,113 new app registrations



Live Green Toronto Volunteers

In 2019, 1,500 dedicated Live Green Toronto Volunteers, who together speak more than 110 languages, engaged with more than 100,000 residents at community events across the city. The EED provides extensive training to volunteers on a wide range of environmental topics, including climate change, sustainable transportation, pollinators and more.

2019 Highlights:

- 4,980 hours of volunteer service provided
- 150 tradeshow and community events attended
- 20 training sessions held

Eco-Roof Incentive Program

The City's Eco-Roof Incentive Program, delivered by the EED, has supported the installation of 482 eco-roofs since 2009, representing 930,889 square metres of roof space, which is equivalent to about 114 football fields. Each year, these roofs reduce energy consumption by 1,886 megawatt-hours (MWh), avoid 344 tonnes of greenhouse gas emissions, and divert over 15.1 million litres of storm water.

The program, which supports the installation of green and cool roofs on residential, industrial, commercial and institutional buildings, is fully funded by developers who opt to pay cash-in-lieu of constructing a green roof, as required by the Green Roof By-law.

2019 Highlights:

- 71 eco-roof projects approved (123,694 square metres)
- 59 projects completed: 47 cool roofs, 12 green roofs (114,894 square metres)
- 203 megawatt-hours (MWh) per year of energy saved
- 38 tonnes of GHG emissions reduced per year
- 300,744 litres of storm water diverted

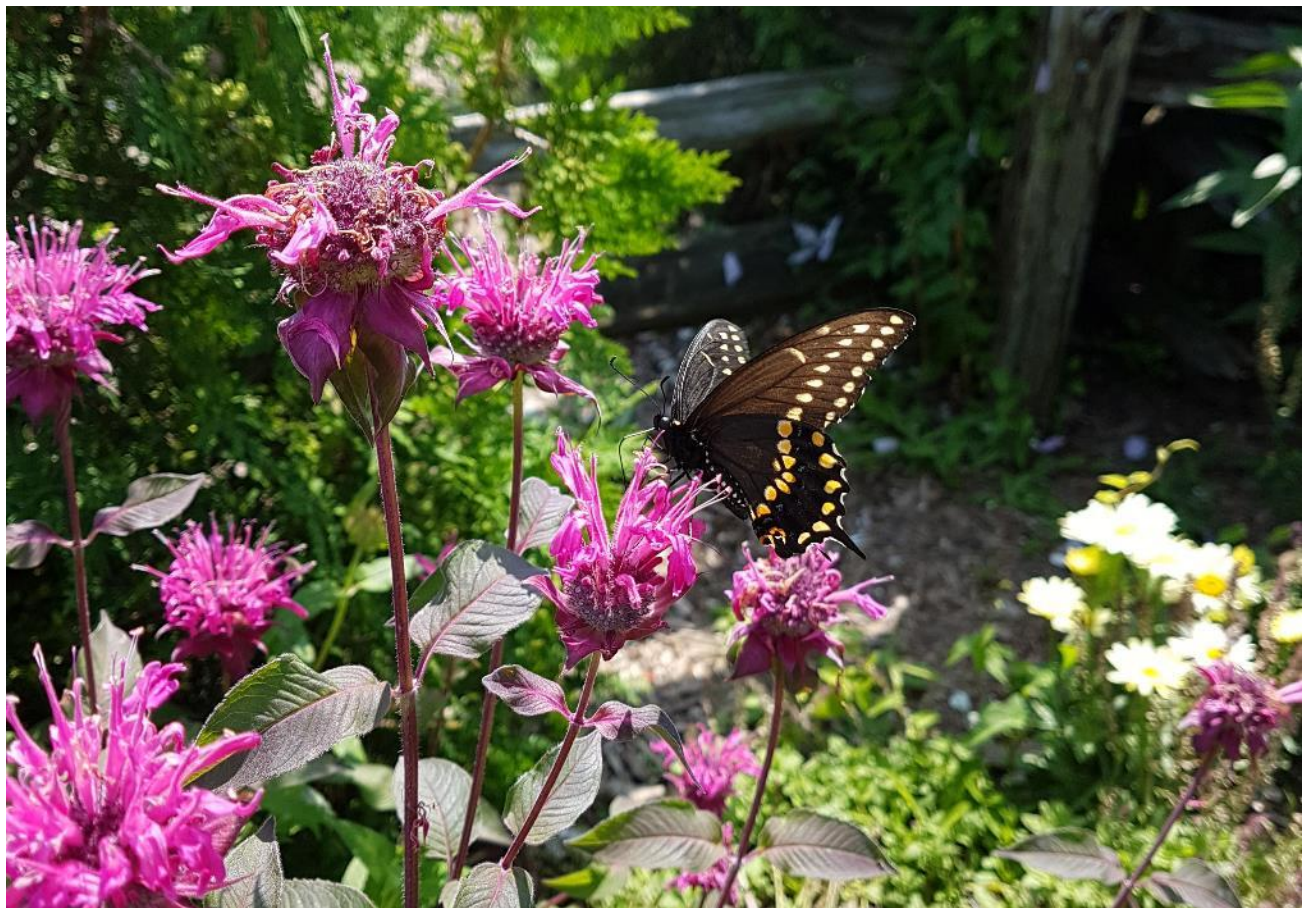


Eco-roof at Avling Brewery, 1042 Queen Street East

PollinateTO Community Grants

In 2019, 35 applicants were selected to receive funding from among 151 applications submitted. Approved projects include community faith gardens, Indigenous education gardens, residential rain gardens, schoolyard teaching gardens, and multiple front-yard gardens on residential streets (which serve as pollinator pathways).

In total, more than 9,500 square metres of pollinator habitat will be created through the grants. The projects will also engage and educate the community through a variety of measures including signage, workshops, tours, videos, seed exchanges, community planting days, indigenous knowledge sharing, senior and youth programming, newcomer education, interpretive art and citizen science.



Toronto is home more than 360 species of bees and more than 100 species of butterflies and other pollinators. Pollinate TO grants support the creation of much-needed habitat

Neighbourhood Climate Action Grants

In 2019, 15 resident-led groups in 16 Neighbourhood Improvement Areas were awarded a grant through the Neighbourhood Climate Action Grants program. This pilot program, a partnership between EED and Social Development, Finance & Administration, invited applications from residents with project ideas to raise awareness and engagement on climate action at the local level.

The funded projects will deliver, in Neighbourhood Improvement Areas, innovative solutions that reduce the emissions that contribute to climate change, educate and engage the public on climate change and climate action, and advance the principles, priorities and actions of TransformTO and the Toronto Strong Neighbourhoods Strategy.

2019 Results:

- 40 applications: 15 successful applications representing 16 neighbourhoods
- Projects funded include educational workshops, youth engagement, cycling clinics, neighbourhood summits and fairs, local research and art installations.
- Average funding per project: \$6,779
- Total funding: \$101,690

Waste Reduction Community Grants

Launched in 2018, the City's Waste Reduction Community Grant (WRCG) program, managed by the EED, provide funds for innovative community-based projects that reduce residential waste and increase participation in the City's waste diversion programs. The program is a partnership between Solid Waste Management Services and the EED.

The grants provide up to \$150,000 in funding per year in 2018, 2019 and 2020. A priority is to support projects that address waste reduction in multi-residential buildings, multi-lingual communities, and Neighbourhood Improvement Areas.

2019 Highlights:

- 121 Expressions of Interest submitted
- 23 applicants invited to submit a full application
- \$72,140 in funding was awarded to five projects



A community clothing swap supported by the WRCG program

Clean Toronto Together

In 2019, the City's annual spring cleanup, managed by the EED, had another record-breaking year, engaging over 200,000 residents, students, businesses, organizations and community groups to help clean public spaces across Toronto. Clean Toronto Together is the largest municipal cleanup campaign in Canada.



Celebrating 10 years of program sponsorship with GLAD

2019 Highlights:

- 200,107 participants at 559 cleanup events, up 23 per cent over 2018
- 535 school cleanups, up 9 per cent over 2018
- 309 corporate cleanups (with 7,782 volunteers) up 28 per cent over 2018

Toronto's Greenest Choice

The second annual Toronto's Greenest Choice campaign in October and November, 2019 encouraged Toronto residents to vote for the places, spaces and businesses that are helping to make Toronto one of the greenest cities in North America.

Over a two-week period, Toronto residents cast almost 80,000 votes in 27 categories, including Toronto's favourite beach, bike shop, bird, coffee, bike trail, and farmers' market.



Plastic-Free July

In July, the EED's Live Green Toronto team raised awareness about the need to reduce single-use plastics at work, home and school. Single-use plastics contribute to litter in our communities and significantly impact our waterways and oceans. Waste reduction is an important goal of the City's TransformTO climate action strategy. The month-long activation included social media posts and resulted in over 2,000 pledges to go 'single-use plastic free' at lunch during the month of July. A Plastic Free Picnic was held at David Pecaut Square to mark 'Single-use Plastic Free Day' in Toronto. The event celebrated everyone who took the pledge to go 'single-use plastic free' at lunch in July.



Mayor John Tory, proclaimed July 30, 2019 as "Single-use Plastic Free Day" in the city of Toronto.

Smart Commute Toronto

Delivered by the EED in partnership with five Greater Toronto Hamilton Area regional municipalities, the Smart Commute team engages and works with local businesses and organizations to promote sustainable commuting options (e.g. carpooling, cycling, and public transit) to their employees. With the goal of reducing single-occupant vehicle trips, the program helps to ease gridlock, improve air quality and reduce greenhouse gas emissions.



EED staff celebrate Bike to Work Day, May 2019

2019 Highlights:

- 81 client organizations supported with over 300,000 employees/commuters
- 4 major campaigns delivered: Carpool Week, Bike to Work Day, Bike Month, Smart Commute Month
- 30 workshops and clinics delivered
- secured funds from the Ontario Municipal Commuter Cycling Program to build trip-end cycling infrastructure at City worksites