



## Greater Peterborough Area Climate Change Action Plan

### Chapter 1 – City of Peterborough

#### Community and Corporate Climate Action Plans

September 30, 2016

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## Section 1: Introduction and Overview

### Greater Peterborough Area Climate Change Action Plan

In 2014, the Greater Peterborough Area's (GPA) member communities joined more than 250 other communities across Canada to address climate change through participation in the Partners for Climate Protection (PCP) program aimed at reducing GHG emissions from both municipal/First Nation corporate operations and community sources.

As part of the PCP program, the Climate Change Action Plan sets a course to reduce local contributions to climate change and prepare communities for present and expected changes that will occur as a result of climate change. This plan represents an integrated approach to dealing with some of the most important issues related to the sustainability of our diverse region. The overall objective of the CCAP is to reduce our greenhouse gas emissions through a reduction in fossil fuel use and lowering our energy consumption, and to better prepare for our changing climate. The Plan identifies strategies, actions, and emission reduction targets that fit with and address the needs of each municipality and First Nation within the GPA. This regionally coordinated approach will ensure that we act together to safeguard the health of our residents and ensure the stability of our local economic and natural resources against impacts related to climate change.

### Climate Change Vision

In 2010, the GPA embarked on an exciting journey – the development of an Integrated Community Sustainability Plan, coined *Sustainable Peterborough*. Within the Sustainable Peterborough Plan, climate change was identified as one of the eleven key theme areas of focus. Each community of the GPA is working together to collectively achieve the following vision, as originally identified as the climate change goal in the Sustainable Peterborough Plan:

*We will reduce our contributions to climate change while increasing our ability to adapt to climate change conditions.*

### The City of Peterborough's Community and Corporate Action Plans

Chapter 1 of the CCAP includes the City of Peterborough's Community (Section 2) and Corporate (Section 3) Action Plans. Both of these build on the overarching components outlined in the main CCAP, but provide greater detail specific to the City of Peterborough. They both include the following:

- *Where are we now* – a brief discussion of community and corporate baseline GHG emissions.
- *Where do we want to go* – GHG emissions reductions targets for the community and corporation.
- *How are we going to get there* – actions that the community and corporation will take to achieve its emissions reduction targets.

## Section 2: Community Action Plan

### Where are we now?

In 2011, 349,743 tonnes of CO<sub>2</sub>e were emitted by the City of Peterborough community. Based on the projected growth for the City of Peterborough, community emissions are expected to grow to 389,587 tonnes CO<sub>2</sub>e by 2031 if nothing is done to reduce GHG emissions. For further details on the City of Peterborough's baseline community emissions (PCP Milestone 1), please see the Appendix attached to this chapter entitled *City of Peterborough Corporate and Community Emissions Inventory*.

### Where do we want to go?

The City of Peterborough community is aiming to achieve a 39% reduction in its GHG emissions from the 2011 baseline by 2031. This is equivalent to 136,768 less tonnes of CO<sub>2</sub>e emitted per year by 2031, which would put the City's community emissions at 212,975 tonnes of CO<sub>2</sub>e per year by 2031 compared to the current 349,743 tonnes per year.

### How are we going to get there?

The following tables detail the strategies and actions that the City of Peterborough will use to achieve its community GHG emissions reduction target. Further detail on each strategy is provided in the main *Climate Change Action Plan* document.

#### Our Homes

##### Strategy H1: Help existing homes become more energy and water efficient and be more adaptable to climate risks

<b>Primary Action</b>	Mitigation impact: direct	Adaptation impact: direct
	Develop and implement a comprehensive multi-year deep energy retrofit program focused on existing households to achieve efficiency gains of at least 30% to 50% depending on the age and type of building.	
<b>Primary Action Assumptions</b>	Implement retrofits in 60% of the residential housing stock by 2031.	
<b>Supporting Actions/ Policies</b>	<b>Supporting Actions &amp; Initiatives</b> <ul style="list-style-type: none"> <li>Develop a Municipal Energy Plan (MEP) to better understand the existing housing stock to target efforts</li> <li>Implement a Flood Reduction Subsidy Program to help prevent flooding on private properties</li> <li>Implement a program to encourage low water use and flood adaptive landscaping</li> </ul>	
<b>GHG Emission Reduction Potential</b>	38,094 tonnes of CO <sub>2</sub> e/per year	

##### Strategy H2: Build new homes to be more efficient and have a smaller environmental footprint

<b>Primary Action</b>	Mitigation impact: direct	Adaptation impact: direct
	Implement gradual improvement in new building stock efficiency aimed at achieving near net-zero or equivalent (0.14 to 0.24 GJ/m <sup>2</sup> ) in all new buildings by 2031.	

Strategy H2: Build new homes to be more efficient and have a smaller environmental footprint	
Primary Action Assumptions	Results in full electrification of energy end uses.
Supporting Actions/Policies	<b>Supporting Policies</b> <ul style="list-style-type: none"> <li>• 'Solar Ready' Official Plan Updates</li> <li>• Decrease minimum parking requirements for new residential development where supporting public transit exists</li> </ul> <b>Supporting Actions &amp; Initiatives</b> <ul style="list-style-type: none"> <li>• Identify potential amongst new developments to build a pilot neighbourhood to meet net-zero emissions</li> </ul>
GHG Emission Reduction Potential	6,383 tonnes of CO <sub>2</sub> e/per year

Strategy H3: Reduce the amount of waste generated by residents that contribute to greenhouse gas emissions	
Primary Action	Mitigation impact: direct                      Adaptation impact: none Explore feasibility of capturing energy from waste (e.g. anaerobic digestion) to manage organic material and to reduce emissions of methane gas.
Primary Action Assumptions	Assumes 50% of household waste that contributes to GHG emissions (i.e. organic material) is managed through the determined technology.
Supporting Actions/Policies	<b>Supporting Actions &amp; Initiatives</b> <ul style="list-style-type: none"> <li>• Implement a "less waste challenge" to encourage reduction in waste generation, with a particular focus on food waste</li> <li>• Review efficiency of waste collection program and implement changes to reinforce diversion programs and reduce collection truck emissions</li> </ul>
GHG Emission Reduction Potential	2,468 tonnes of CO <sub>2</sub> e/per year <sup>1</sup>

## Our Workplaces and Schools

Strategy W1: Improve energy and water efficiency of existing buildings and business operations	
Primary Action	Mitigation impact: direct                      Adaptation impact: indirect Work with utilities (PDI, Hydro One, Enbridge as appropriate) to deliver a coordinated deep energy retrofit program to industrial, commercial, and institutional organizations.
Primary Action Assumptions	Implement retrofits in 60% of industrial, commercial, and institutional facilities by 2031.
Supporting Actions/Policies	<b>Supporting Policies</b> <ul style="list-style-type: none"> <li>• Community Improvement Plans</li> </ul>

<sup>1</sup> Note that GHG emissions avoided through managing organic waste have been attributed to the City's corporate GHG reduction target because the landfill is owned by the City of Peterborough and is included in the City's corporate baseline inventory.



**Strategy W1: Improve energy and water efficiency of existing buildings and business operations**

	<b>Supporting Actions &amp; Initiatives</b> <ul style="list-style-type: none"> <li>Encourage local businesses to participate in energy benchmarking through the use of Energy Star Portfolio Manager provided through Natural Resources Canada</li> <li>Work with the Building Owners and Managers Association (BOMA) to expand their Operator Training program to the Greater Peterborough Area (County and City partnership)</li> </ul>
<b>GHG Emission Reduction Potential</b>	25,623 tonnes of CO <sub>2</sub> e/per year

**Strategy W2: Build new buildings to be more efficient and have a smaller environmental impact**

<b>Primary Action</b>	Mitigation impact: direct      Adaptation impact: direct Implement gradual improvement in efficiency of industrial, commercial, and institutional buildings.
<b>Primary Action Assumptions</b>	<ul style="list-style-type: none"> <li>Commercial &amp; Institutional: full electrification, and uses 70% less energy</li> <li>Industrial: only 20% of the energy mix consists of fossil fuels (i.e. natural gas), and uses 40% less energy</li> </ul>
<b>Supporting Actions/ Policies</b>	<b>Supporting Policies</b> <ul style="list-style-type: none"> <li>Implement zoning requirements and policy direction to encourage cycling and other sustainable modes of travel for new commercial development (e.g. reduced parking requirements, bike storage, employee showers)</li> </ul>
<b>GHG Emission Reduction Potential</b>	6,143 tonnes of CO <sub>2</sub> e/per year

**Strategy W3: Facilitate climate change friendly business operations and practices**

<b>Primary Action</b>	Mitigation impact: indirect      Adaptation impact: direct Support Sustainable Peterborough Business Initiative to build a toolkit for Greater Peterborough Area businesses to assist with climate change impact analysis and business continuity planning for extreme weather.
<b>Supporting Actions/ Policies</b>	<b>Supporting Actions &amp; Initiatives</b> <ul style="list-style-type: none"> <li>Engage with businesses and institutions to implement corporate sustainability initiatives aimed at reducing greenhouse gas emissions</li> <li>Work with institutions and businesses to support implementation of food waste reduction and/or diversion</li> </ul>
<b>GHG Emission Reduction Potential</b>	Impact on GHG emissions nominal

**Strategy W4: Support local economic resilience and growth of the local green economy**

<b>Primary Action</b>	Mitigation impact: indirect      Adaptation impact: indirect Support GreenUP as a “one-stop shop” for businesses to learn about and advance sustainability through the Green Business Peterborough Program.
<b>Supporting Actions/ Policies</b>	<b>Supporting Actions &amp; Initiatives</b> <ul style="list-style-type: none"> <li>Support Evergreen to deliver the mid-sized cities pilot program in</li> </ul>

Strategy W4: Support local economic resilience and growth of the local green economy	
	<p>Peterborough to help strategically position Peterborough as a green/sustainable community and economy</p> <ul style="list-style-type: none"> <li>• Explore opportunity and locations to establish a local eco business zone or “Partners in Project Green” program to share resources amongst businesses and encourage green industries (County and City partnership)</li> <li>• Support the Greater Peterborough Chamber Of Commerce to establish a business leadership and mentorship program to support energy and climate leadership amongst businesses as part of the Peterborough Business Excellence Awards</li> </ul>
GHG Emission Reduction Potential	Impact on GHG emissions nominal

Strategy W5: Facilitate low carbon energy generation and local energy security	
Primary Action	<p>Mitigation impact: direct                      Adaptation impact: direct</p> <p>Conduct a regional study to explore the potential to implement local renewable energy generation and storage (institutional, commercial, industrial, and residential).</p>
Primary Action Assumptions	Solar PVs are to generate 10% of the electricity demand in IC&I and residential buildings, while 4% of the natural gas consumed in all buildings are to come from renewable sources by 2031.
GHG Emission Reduction Potential	13,595 tonnes of CO <sub>2</sub> e/per year

## On the Move

Strategy M1: Build an active transportation network and support active transportation	
Primary Action	<p>Mitigation impact: direct                      Adaptation impact: none</p> <p>Reduce vehicle trips and foster greater walking and cycling mode share through a coordination of efforts.</p>
Primary Action Assumptions	Active transportation (i.e. walking and cycling) to represent 16% of the mode share by 2031.
Supporting Actions/ Policies	<p><b>Supporting Actions &amp; Initiatives</b></p> <ul style="list-style-type: none"> <li>• Develop a Complete Streets Policy and Guidelines, including consistent sidewalk requirements and guidance on paved shoulders/cycle lanes</li> <li>• Install bike racks on buses</li> <li>• Support GreenUP and BIKE’s existing cycling education programs for adults and children</li> <li>• Promote and support the City’s long-standing Active and Safe Routes to School partnership and related programming and campaigns</li> </ul>
GHG Emission Reduction Potential	11,654 tonnes of CO <sub>2</sub> e/per year

Strategy M2: Facilitate alternatives to single-occupant vehicle use to reduce frequency of personal vehicle use	
Primary Action	Mitigation impact: direct      Adaptation impact: none Explore feasibility of a carpool lot network (formal and informal spaces) (in partnership with the County and other Townships).
Primary Action Assumptions	Carpooling, or travel as a passenger in a vehicle, to represent 22% of the mode share by 2031.
Supporting Actions/ Policies	<b>Supporting Actions &amp; Initiatives</b> <ul style="list-style-type: none"> <li>• Work with businesses and schools to implement preferred parking for carpoolers</li> </ul>
GHG Emission Reduction Potential	2,331 tonnes of CO <sub>2</sub> e/per year

Strategy M3: Make public transportation more appealing to increase its usage	
Primary Action	Mitigation impact: direct      Adaptation impact: none Expand public transit service in the City as per the City of Peterborough Public Transit Operations Review.
Primary Action Assumptions	Travel via public transportation to represent 12% of the mode share by 2031.
Supporting Actions/ Policies	<b>Supporting Actions &amp; Initiatives</b> <ul style="list-style-type: none"> <li>• Implement a trip planning program/service for public transit</li> <li>• Implement technology for real-time bus tracking system and make available on the web and smart phone apps</li> <li>• Explore opportunities to increase number of students using public transportation to get to school</li> <li>• Explore transitioning from transit hub model to a grid model of public transit during next Public Transit Operations Review</li> </ul>
GHG Emission Reduction Potential	6,993 tonnes of CO <sub>2</sub> e/per year

Strategy M4: Help transition vehicles to use cleaner and lower greenhouse gas emitting fuel sources	
Primary Action	Mitigation impact: direct      Adaptation impact: none Support a shift in vehicle technology to Electric Vehicles (EVs).
Primary Action Assumptions	15% of all vehicles on the road in 2031 are to be EVs.
Supporting Actions/ Policies	<b>Supporting Actions &amp; Initiatives</b> <ul style="list-style-type: none"> <li>• Install electric vehicle charging stations for public usage</li> <li>• Support [local organizations] to work with local businesses to transition corporate fleets to EV</li> </ul>
GHG Emission Reduction Potential	38,268 tonnes of CO <sub>2</sub> e/per year



## Our Food

Strategy F1: Support localization of the food system		
	Mitigation impact: indirect	Adaptation impact: indirect
<b>Primary Action</b>	Undertake a community food system assessment to better understand local food production and movement within the GPA.	
<b>Supporting Actions/ Policies</b>	<b>Supporting Policies</b> <ul style="list-style-type: none"> <li>Update Official Plan policies to support urban agriculture and the growing, processing and distribution of locally-produced food for all residents</li> </ul> <b>Supporting Actions &amp; Initiatives</b> <ul style="list-style-type: none"> <li>Continue to expand the network of community gardens throughout the Greater Peterborough Area and engage the broader community in the value of gardening</li> <li>Support local organizations to provide community skill sharing programs to increase awareness among community members on how to grow, process, and store food</li> <li>Support local organizations in training, facilitating access to land and promoting successful entrepreneurship of new farmers and food business to increase the production and processing, distribution and retailing of local food</li> </ul>	
<b>GHG Emission Reduction Potential</b>	Impact on GHG emissions nominal	

  

Strategy F2: Encourage purchasing of locally produced food		
	Mitigation impact: indirect	Adaptation impact: indirect
<b>Supporting Actions/ Policies</b>	<b>Supporting Actions &amp; Initiatives</b> <ul style="list-style-type: none"> <li>Support local organizations to promote the marketing of locally-produced food through initiatives such as the Purple Onion Festival and Local Food Month</li> <li>Expand and promote the Farmers Market Network across the Greater Peterborough Area</li> <li>Support and encourage farm gate sale of produce</li> </ul>	
<b>GHG Emission Reduction Potential</b>	Impact on GHG emissions nominal	

  

Strategy F3: Reduce the amount of wasted food		
	Mitigation impact: direct	Adaptation impact: none
<b>Primary Action</b>	Implement a residential awareness campaign to encourage elimination of wasted food in the home, workplaces, and schools.	
<b>Primary Action Assumptions</b>	Generally could achieve a reduction in the proportion of wasted food in the waste stream by 11%.	
<b>Supporting Actions/ Policies</b>	<b>Supporting Actions &amp; Initiatives</b> <ul style="list-style-type: none"> <li>Promote current regional programs, such as the Recycle Rangers Program, which educates school children about waste reduction,</li> </ul>	

Strategy F3: Reduce the amount of wasted food	
	<p>composting, and food waste</p> <ul style="list-style-type: none"> <li>• Work with institutions and businesses to support implementation of food waste reduction and/or diversion</li> <li>• Support establishment of a food rescue program in partnership with local food retailers, manufacturers, restaurants, caterers to collect and redistribute excess food to those in need that would otherwise be disposed of (County and City partnership)</li> </ul>
<b>GHG Emission Reduction Potential</b>	Non-quantifiable with available information

## Our Land

Strategy L1: Strengthen land use policy and the development review process to better support climate change mitigation and adaptation	
<b>Primary Action</b>	<p>Mitigation impact: indirect      Adaptation impact: direct</p> <p>Establish a multidisciplinary review team to assess provincial and local land use planning legislation and tools and make recommendations to decision-makers on how to best implement an ecosystem-based approach to the development application process (partnership amongst all communities).</p>
<b>Supporting Actions/ Policies</b>	<p><b>Supporting Policies</b></p> <ul style="list-style-type: none"> <li>• Integrate climate change policies into Official Plans</li> <li>• Continue to implement land use policy that supports building complete communities that are mixed-use, compact, and higher density to achieve intensification targets outlined in the Provincial Growth Plan</li> </ul> <p><b>Supporting Actions &amp; Initiatives</b></p> <ul style="list-style-type: none"> <li>• Sustainability metrics tool to predict, measure and report the sustainability performance (including GHG emissions) of proposed developments focusing on the built environment, mobility, natural environment, and infrastructure and buildings (e.g. Richmond Hill/Vaughan/Brampton)</li> <li>• Continue/enhance education opportunities on the need for increased housing density and implications related to climate change at all points of contact with decision-makers, stakeholders, and the public</li> </ul>
<b>GHG Emission Reduction Potential</b>	Non-quantifiable with available information

Strategy L2: Identify climate change risks and prepare for potential impacts	
<b>Primary Action</b>	<p>Mitigation impact: none      Adaptation impact: direct</p> <p>Conduct a Greater Peterborough Area-wide vulnerability assessment of expected climate change impacts (including drought and lake levels) (in partnership with all communities).</p>
<b>Supporting Actions/ Policies</b>	<p><b>Supporting Actions &amp; Initiatives</b></p> <ul style="list-style-type: none"> <li>• Adopt the Low Impact Development Stormwater Management Planning</li> </ul>

Strategy L2: Identify climate change risks and prepare for potential impacts	
	<p>and Design Guide (CVC/TRCA) for landscape-based stormwater management planning and low impact development stormwater management practices</p> <ul style="list-style-type: none"> <li>Update engineering design standards to improve climate change readiness of new infrastructure by taking a green infrastructure approach first and increasing flood standards to a 200-year storm standard rather than the current 100-year standard</li> </ul>
GHG Emission Reduction Potential	None

Strategy L3: Protect and enhance natural assets	
Primary Action	<p>Mitigation impact: indirect      Adaptation impact: direct</p> <p>Develop and implement a Natural Heritage System Plan (City and County with Townships).</p>
Supporting Actions/Policies	<p><b>Supporting Policies</b></p> <ul style="list-style-type: none"> <li>Place restrictions on cutting down trees on private property and/or a tree replacement policy</li> <li>Update Official Plan policies to require greater buffers around wetlands to protect them from surrounding land uses</li> </ul> <p><b>Supporting Actions &amp; Initiatives</b></p> <ul style="list-style-type: none"> <li>Continue to implement an Urban Forest Strategic Plan</li> <li>Support and promote local Conservation Authorities' tree planting programs to encourage planting trees on public and private property</li> <li>Support local Conservation Authorities to deliver planting and restoration projects at strategic high priority areas with climate ready species</li> </ul>
GHG Emission Reduction Potential	Non-quantifiable with available information

## Our People

Strategy P1: Prepare for the health impacts associated with a changing climate	
Primary Action	<p>Mitigation impact: none      Adaptation impact: direct</p> <p>Conduct a local community vulnerability assessment of public health impacts from climate change to identify climate risks on vulnerable populations (in partnership with all communities).</p>
Supporting Actions/Policies	<p><b>Supporting Actions &amp; Initiatives</b></p> <ul style="list-style-type: none"> <li>Establish a protocol for extreme weather alerts and flooding updates</li> </ul>
GHG Emission Reduction Potential	None

Strategy P2: Foster a culture of climate change awareness		
	Mitigation impact: indirect	Adaptation impact: indirect
<b>Supporting Actions/ Policies</b>	<b>Supporting Actions &amp; Initiatives</b> <ul style="list-style-type: none"> <li>Support Sustainable Peterborough and other local organizations in hosting regular events focused on climate change (speaker series, annual event, etc.)</li> <li>Support Sustainable Peterborough in seeking buy-in and endorsement/support for the shared vision and goals of Community Climate Change Action Plan from existing groups and organizations in the Greater Peterborough Area</li> <li>Support Sustainable Peterborough to host a community, youth, adult, and senior climate change champion through the annual Sustainable Peterborough Awards</li> </ul>	
<b>GHG Emission Reduction Potential</b>	Impact on GHG emissions nominal	

Strategy P3: Encourage civic engagement around climate change		
<b>Primary Action</b>	Develop a charter and guidelines (engagement strategy) to foster meaningful community engagement in climate change issues and environmental stewardship (partnership amongst all communities).	
	Mitigation impact: indirect	Adaptation impact: indirect
<b>Supporting Actions/ Policies</b>	<b>Supporting Actions &amp; Initiatives</b> <ul style="list-style-type: none"> <li>Support Sustainable Peterborough to establish a youth advisory committee on climate change to empower youth to take action on climate change</li> </ul>	
<b>GHG Emission Reduction Potential</b>	Impact on GHG emissions nominal	

### Decarbonization of the Electric Grid

Since the baseline year of 2011, the Province of Ontario has taken steps to reduce the GHG emissions associated with the electrical grid. For example, it closed all of its coal-fired power plants. This in turn will result in significant GHG Emission Reduction Potential for the City of Peterborough community, totalling 27,529 tonnes of CO<sub>2</sub>e/per year.

## Section 3: Corporate Action Plan

### Where are we now?

In 2011, 15,129 tonnes of CO<sub>2</sub>e were emitted by the City of Peterborough's corporate operations. The business-as-usual forecast for the corporate operations is based on annual growth rates derived from official population projections. Emissions from corporate operations are projected to increase to 16,852 tCO<sub>2</sub>e per year by 2031 if the City continued to operate as it did in the baseline year without taking any actions to reduce GHG emissions. For further details on the City of Peterborough's baseline corporate emissions, please see the Appendix attached to this chapter entitled *City of Peterborough Corporate and Community Emissions Inventory*.

### Where do we want to go?

The City of Peterborough is aiming to achieve a 40% reduction in its corporate GHG emissions from the 2011 baseline by 2031. This is equivalent to 5,989 less tonnes of CO<sub>2</sub>e emitted per year by 2031, which would put the City's corporate emissions at 9,140 tonnes of CO<sub>2</sub>e per year by 2031 compared to the current 15,129 tonnes per year.

### How are we going to get there?

The following table details the strategies and actions that the City of Peterborough will use to achieve its corporate GHG emissions reduction target.

City of Peterborough Corporate Action Plan	Timeframe			
	Underway or Complete	Short (1-4 years)	Med (5-9 years)	Long (10+ years)
<b>Buildings</b>				
<b>Strategy 1: Institutionalize energy efficiency and low carbon thinking into the organization</b>				
Implement employee training for energy efficiency	X	X	X	X
Implement staff behaviour change programs to reduce usage of electricity and heating in day-to-day activities	X	X	X	X
Establish a policy to consider highest energy efficiency as part of procurement requirements and evaluation (City and PU)	X	X	X	X
Continue to monitor incentive programs offered through utilities and other third party funding source to be leveraged for implementing energy efficiency improvements	X	X	X	X
<b>GHG Emission Reduction Potential: In-direct GHG reductions</b>				
<b>Strategy 2: Enhance operational efficiency of existing buildings</b>				
Develop and deliver an equipment preventative maintenance program on an ongoing basis	X	X	X	X
Conduct regular energy audits of City facilities on a rotational basis to identify opportunities for improved efficiency	X	X	X	X
Explore installation of building automation systems to optimize building operations where feasible	X		X	X

Conduct building re-commissioning to optimize building operations where applicable	X	X	X	X
Continue to implement a utility bill validation process to identify and correct any billing issues and variations in energy usage	X	X	X	X
Work with utilities to install sub-metering capacity at each City facility where feasible to better monitor energy usage	X	X		
<b>GHG Emission Reduction Potential: 171 tonnes of CO<sub>2</sub>e/per year</b>				
<b>Strategy 3: Build municipal facilities to ensure high environmental performance</b>				
Establish a Green New Building Policy to require new municipal buildings and major renovations be built to high environmental standards		X		
Install electric vehicle charging facilities as part of new facility builds	X	X		
Formalize and continue to implement a full lifecycle analysis costing process for new buildings or major renovations to consider the sustainability of the building over its life	X	X	X	X
Install geothermal heating and cooling systems for new buildings and major renovations if feasible			X	X
Explore feasibility of district energy for new facilities (e.g. social housing)			X	X
<b>GHG Emission Reduction Potential: 330 tonnes of CO<sub>2</sub>e/per year</b>				
<b>Strategy 4: Improve environmental performance of existing municipal facilities</b>				
Conduct annual assessments of each facility to identify opportunities to improve energy efficiency	X	X	X	X
Continue implementation of interior and exterior LED lighting retrofit program in facilities where feasible	X	X	X	
Install programmable thermostats and occupancy sensors in all facilities where feasible	X	X	X	
Establish policy direction to replace appliances with Energy STAR rated appliances as needed	X	X	X	X
Upgrade insulation/building envelope while conducting other essential building work (where feasible)	X	X	X	X
Replace windows and doors with high efficiency according to replacement schedule/need	X	X	X	X
Replace mechanical equipment with high efficiency according to replacement schedule/need	X			X
<b>GHG Emission Reduction Potential: 1,543 tonnes of CO<sub>2</sub>e/per year</b>				
<b>Strategy 5: Utilize renewable energy sources</b>				
Conduct an assessment to explore opportunities for solar photovoltaic panels and other renewable energy options at all municipal facilities	X	X		
Converting electric hot water heaters to solar			X	X
<b>GHG Emission Reduction Potential: 136 tonnes of CO<sub>2</sub>e/per year</b>				



Fleet				
Strategy 6: Transition the municipal fleet to be more efficient and less carbon emitting				
Develop and implement a Green Fleet Strategy and replacement schedule				
<ul style="list-style-type: none"> <li>Right sizing vehicle/appropriate vehicle class (fit-for purpose vehicles) through replacement schedule</li> <li>Transitioning to low emission and alternative fuel vehicles (e.g. clean diesel, advanced natural gas, ethanol, or hybrid)</li> <li>Use of anti-idling technology</li> <li>Fuel and vehicle performance monitoring</li> </ul>	X	X	X	X
Implement an operator training and education program (e.g. eco driving and anti-idling)	X	X	X	X
Continue preventative maintenance program for vehicles and equipment	X	X	X	X
Continue conducting vehicle/fuel performance audits	X	X	X	X
<b>GHG Emission Reduction Potential: 1,332 tonnes of CO2e/per year</b>				
Water & Sewage				
Strategy 7: Enhance operational efficiency of the water services system				
Review and optimize pumps and blowers at Waste Water Treatment Plant	X	X		
Continue to deliver preventative maintenance program	X	X	X	X
Continue to deliver operator training and education program	X	X	X	X
Conduct regular energy performance audits of water and waste water treatment facilities	X	X	X	X
Monitor and track energy performance of water and waste water treatment facilities	X	X	X	X
<b>GHG Emission Reduction Potential: 175 tonnes of CO2e/per year</b>				
Streetlighting				
Strategy 8: Improve energy efficiency of the streetlighting system				
Retrofit all remaining street lighting to LED		X		
Retrofit all decorative lights and street signage to LED		X		
Retrofit all rental lights to LED (Peterborough Utilities)		X		
Retrofit all parking lot lighting to LED			X	
Explore retrofitting of media boards and other digital signage			X	
<b>GHG Emission Reduction Potential: 271 tonnes of CO2e/per year</b>				
Solid Waste				
Strategy 9: Reduce the amount of organic waste generated through municipal operations				
Continue to participant in and enhance the office waste reduction and diversion initiatives	X	X	X	X
Implement collection of organic waste from City offices/facilities	X		X	X
Implement staff education and awareness program related to waste minimization and diversion	X	X	X	X
Conduct annual corporate waste audits at each facility to understand waste composition and identify opportunities for improvement	X	X	X	X
Develop a corporate waste diversion target and strategy	X	X		
Monitor and track corporate waste generation and diversion	X	X	X	X
Redevelop and implement the corporate green procurement policy	X		X	
Develop and implement a green event policy	X	X		
<b>GHG Emission Reduction Potential: 2,468 tonnes of CO2e/per year</b>				

### **Decarbonization of Electricity Grid**

Since the baseline year of 2011, the Province of Ontario has taken steps to reduce the GHG emissions associated with the electrical grid. For example, it closed all of its coal-fired power plants. This in turn will result in significant GHG Emission Reduction Potential for the City of Peterborough's corporate emissions, totalling 1,287 tonnes of CO<sub>2</sub>e/per year.