



City of
Peterborough

To: **Members of the General Committee**

From: **Cynthia Fletcher,
Commissioner of Infrastructure and Planning Services**

Meeting Date: **March 2, 2020**

Subject: **Report IPSIM20-003
Climate Change Initiatives Update**

Purpose

A report to update Council on the current and planned initiatives which affect Climate Mitigation and Climate Adaptation, for the City as an organization and the broader community.

Recommendations

That Council approve the recommendations outlined in Report IPSIM20-003 dated March 2, 2020, of the Commissioner of Infrastructure and Planning Services, as follows:

- a) That staff make application to the Federation of Canadian Municipalities- Green Municipal Fund; Study: Reduce Fossil Fuel Use in Fleet and that Council approve up to \$100,000 from the Climate Change Reserve for the City's 50% contribution, if approved;
- b) That staff include anti-idling as a distinct initiative for inclusion in the City's partnership program with Toronto and Region Conservation Authority on a neighbourhood based Low Carbon Social Mobilization initiative;
- c) That, for projects/initiatives which have an impact on Climate Adaptation and/or Mitigation, a descriptive statement be included in future Standing Committee reports;

- d) That staff report to Council annually on the progress related to the Climate Change Action Plan implementation plan, Adaptation and Community Resilience and Mitigation efforts;
- e) That staff report back on progress on the Peterborough Environmental Advisory Committee sub-committee's review of striving for net zero emissions as a municipality, as part of annual update;
- f) That staff prepare a report on the potential use of the remainder of the 2020 Contribution to the Climate Change Reserve in the amount of \$426,400, by July 2020;
- g) That Council endorse an 18-month contract position to develop Standard Operating procedures to optimize the use and potential of the adaptive controls for the City-wide streetlighting system and advance the planned Decorative Street lighting project;
- h) That staff report to Council, as part of the 2021 budget review, on permanent staffing resources required to significantly advance and sustain the Corporate and Community actions related to the Climate Change Action Plan (CCAP);
- i) That staff and Council seek opportunities to advocate with the Provincial and Federal governments for funding to support Climate Adaptation and Mitigation initiatives in Peterborough;
- j) That staff and Council seek opportunities to advocate with the Provincial and Federal governments for policy changes which positively impact Climate Mitigation and Adaptation efforts and contribute to the benefit of the City and broader community;
- k) That the City partner with Community agencies and researchers on initiatives which affect Climate Mitigation and Adaptation efforts for the broader community; and
- l) That staff, in collaboration with key community partners, develop a clear implementation strategy for the Community Sector of the Climate Change Action Plan (CCAP), with focus on verifying data assumptions and identifying community measurables.

Budget and Financial Implications

The 18-month contract Senior Project Manager position will be funded from the Street Light Program (Project ID: 17482) at a cost of \$175,000 over the term.

The \$21,700 in donations to the Climate Change Action Plan reserve from citizens have been earmarked for the Transition 2050 project the City has with Toronto Regional Conservation Authority (TRCA) and Peterborough GreenUp. The funding will assist in the implementation of a Neighbourhood-based Low Carbon Social Mobilization program and will build off work completed by GreenUp through the Sustainable Neighbourhoods Program (SUN). Focus will be placed on encouraging community uptake of home energy retrofits to address energy and Greenhouse Gas (GHG) emissions created from private residences. The project aligns very well from feedback received that focus needs to be placed on targeting community sector emissions, or ~95% of overall emissions.

Many initiatives are funded or and others will be reviewed during annual budget processes. Increasing community resiliency and accelerating mitigation measures into Capital project planning will require significant investment.

Future Council Reports:

With respect to the motion from Council that staff consider if future Committee reports include a statement that identifies the sustainability and climate adaption and/or mitigation impact, staff recommend that the template for Council reports be modified to include a section for comment on Climate Change initiatives. For projects/initiatives which have an impact on Climate Adaptation and/or Mitigation, a descriptive statement would be included in future Standing Committee reports. (Recommendation "c" of this Report)

Background

This report responds to two motions approved by Council. The information is divided into the following categories:

Council Reference	pages 4-6
Purpose and Feedback Key Themes	pages 6-7
Climate Change Definition & Measurement Challenges	pages 8-9
Asset Management	page 9

City Projects, Programs and Initiatives: Adaptation	pages 10-12
City Projects, Programs and Initiatives: Mitigation	pages 12-17
Update on Climate Change Action Plan	pages 17-21
Funding	page 21
Staffing	pages 22
The Global Context	pages 23
The Greater Peterborough Community Context	pages 23-26
Summary	page 26

Council Reference

In response to the public budget delegations presented to City Council on Wednesday, January 9, 2019 regarding the need to implement greater climate mitigation actions to reduce our greenhouse gas emissions, the following motion was approved by Council:

That staff be requested to report back to Council by June 2019 with the following:

- a) A status report on our Climate Change Action Plan, providing an update on climate adaptation and climate mitigation actions, as well as the progress made towards our emissions reduction target of 30% for both the municipal operations and the Community Sector;
- b) That the status report include:
 - i) a short-term action plan outlining potential costs, funding opportunities, feasibility and priorities that the City will undertake to reduce greenhouse gas emissions across the Corporation and throughout the Community;
 - ii) an update on a staff committee being formed that embeds sustainability and climate change into day-to-day decision making;
 - iii) how a Climate Change lens can be used in the City's Asset Management Planning; and
 - iv) the potential for Committee and Council reports to include a statement that identifies the sustainability and climate adaptation and/or mitigation impact.

- c) That staff be directed to establish an account to accept donations for the City's Climate Change Action Plan, to issue income tax receipts; and
- d) That staff report back to Council with an update on the quantity of donations.

At the meeting of September 23, 2019, Council adopted the following motion in declaring a Climate Emergency:

Whereas:

1. Climate change is the greatest crisis of our times worldwide, harming human and animal populations through extreme storms, severe flooding, record heat waves, prolonged droughts, and other natural disasters;
2. Climate change is contributing to billions of dollars in property and infrastructure damage worldwide and is viewed as the major public health threat in Canada for cardiovascular and respiratory illnesses and deaths;
3. International research has concluded that there is a need for massive carbon emissions reductions within the next 11 years to avoid further devastating damage to our environment, economy, and society; and
4. Over 450 local governments, including 40 Canadian communities such as Ottawa, London, Hamilton, and Kingston have acknowledged this urgency by officially declaring a climate emergency. They are committed to action to drive down emissions at emergency speed. These Climate Emergency Declarations importantly involve the public and serve as Calls to Action by the Community as well as by Council and other levels of government.

That Council, pursuant to its authority under section 10 of the **Municipal Act, 2001**, hereby declares a climate emergency within the City of Peterborough for the purpose of naming, framing and deepening our commitment to protecting our community, its economy, and its eco systems from climate change, and,

That staff, working with PEAC, be requested to also report on the opportunities to:

- a. Greatly accelerate timelines for our existing actions to reduce the effects of climate change;
- b. Add new actions and proposals to reduce greatly our GHG emissions;
- c. Identify the budgetary implications of proposed actions, including opportunities to engage all other levels of government and private sources, to combat climate change;

- d. Incorporate a climate change lens into all city actions and policies recognizing the need to achieve a target of 45% GHG emission reduction by 2030 and net zero by 2050;
- e. Engage and educate the general public regarding this crisis to support the city's efforts to meet these goals; and
- f. That staff report back to Council by the end of the first quarter, 2020.

The purpose of this report is to provide a preliminary progress update on the City's Climate Change related initiatives, address the new Council motions at a very high level and assure Council of the Community Collaboration to address the impacts of Climate Change. The report also includes a the Global/National/Provincial perspective and future initiatives planned which affect the Peterborough Climate Change context.

Staff has engaged with and/or reviewed the following:

- The Peterborough Environmental Advisory Committee (PEAC)
- Community partners and the research community
- 2020 Budget review - feedback from citizens
- All relevant background City documents
- Internal subject matter City Managers/Staff
- Best practice approaches in the industry

Key Feedback Themes

Through this research and discussion, the following themes emerge that the City needs to be mindful of in their future initiatives:

- Build upon the Climate Change Action Plan (<https://www.peterborough.ca/en/city-hall/resources/Documents/Chapter-1-City-of-Peterborough-Climate-Action-Plans-FINAL.pdf>) to develop an implementation plan with measurable actions. Investments, actions and progress must be tracked and reported in a transparent and consistent manner.
- Continue the City's efforts and leadership, which addresses 5% of the community's (City of Peterborough) emissions.
- Provide City leadership on the community actions required to mitigate emissions, which represents the other 95% of the Community's emissions.
- Public outreach is important to seek input and to provide information regarding climate change actions

- Continue to maintain a distinct line within the City's Budget that addresses Climate Change
- Request additional staffing resources to focus on moving the efforts to address climate change significantly forward
- Challenge other levels of government to put more emphasis on addressing climate change
- Support enhancements to our natural systems to further adaptation and resilience.
- Recognize the link between climate change, and social and economic needs to build long-term resilience
- Focus efforts on an anti-idling campaign and signage
- Review the potential of identifying any Sustainability and Climate adaptation and/or Mitigation Impact as part of Standing Committee reports

The recommendations of this report address elements of Council direction within the January and September 2019 motions and the key feedback themes.

Over the past decade, the City of Peterborough has been collaborating on and leading in the areas of Climate Adaptation and Mitigation. The City has capitalized on many lower cost and quick win initiatives ("low hanging fruit"). Moving forward, due diligence is needed to ensure Council can make well informed decisions, as further investment in adaptation and mitigation will be significant. More work is needed to fully understand requirements and opportunities in the Peterborough Corporate and Community context. Staff will be reporting back by the end of 2020 on additional opportunities, recommendations and the significant investment required to further advance adaptation and mitigation targets.

Climate Change

What is causing climate change?

The climate is changing, both globally and locally. One of the main factors influencing climate change is the increase of greenhouse gases (GHG) in the atmosphere. GHGs are naturally found in the environment and can fluctuate in nature through events like volcanic eruptions and forest fires.

Human related sources of GHGs are contributing large quantities into the environment. GHG emissions are a by-product of the actions we take in our day-to-day lives such as:

- Electricity used to power appliances, equipment and lighting
- Natural gas used for heating
- Carbon based fuel used in vehicles
- Waste management practices (e.g. solid waste sent to landfills)
- Land-use decisions (e.g. dispersed development)
- Agricultural activities (e.g. livestock and manure management)

Measurement Challenges

Existing baselines have been established using a basic GHG Emission Inventory approach, based on readily available information in 2011. Understanding the assumptions made at that time and ensuring we have comparable current date remains a challenge.

Part of the Council motion of January 2019, directed staff to report on “the progress made towards our emissions reduction target of 30% for both the municipal operations and the Community Sector”.

Part of the Council motion of June 2019, directed staff to report on ways to “Incorporate a climate change lens into all city actions and policies recognizing the need to achieve a target of 45% GHG emission reduction by 2030 and net zero by 2050”.

In order to achieve a 45% GHG emission reduction of its corporate emissions by 2030 at this time, significant investment and/or policy changes by other levels of government is needed.

For the City and its Corporate emissions, great progress toward the reduction target is being made. The single largest short-term reduction opportunity is the Source Separated Organics Program (SSO). The planned implementation of the program in 2023, will push the City to a projected 33-35% reduction in GHG emissions from the 2011 levels. If the County townships were to adopt the SSO program, the City will achieve a 45% reduction target by 2030, as the City is responsible for the collective emissions related to waste management.

To address the challenges around data, PEAC discussed the need to establish a subcommittee to review the existing approaches to quantifying greenhouse gas (GHG) emissions for the community sector. The focus would be to advise staff on the best method(s) of quantifying and demonstrating achievement of a proposed target of 45% GHG reduction from the 2011 baseline by 2030 and net zero by 2050.

More work is needed to understand the full financial impact of achieving net zero.

In considering the recommendation outlined in Report PEAC20-003 dated January 22, 2020 of the Manager of Infrastructure Management Division, PEAC adopted the following motion;

That the PEAC subcommittee on GHG emission data be established to report back to the Committee and staff on options for gathering community sector GHG emission data and reporting on progress.

Climate Change and Asset Management

In addition to the work related to data and measurement, the City is in the process of updating its Asset Management Plan. The Asset Management Plan is another tool where climate adaptation and mitigation, or a “climate lens” is considered. Municipalities are required to establish Asset Management Policies and Plans for Municipal Infrastructure as per O.Reg. 588/17. This includes considering actions that address the vulnerabilities of the municipality’s infrastructure assets that may be caused by climate change. Identifying adaptation opportunities to manage vulnerabilities, mitigation approaches to climate change, and disaster planning and contingency funding are required elements of the asset management plan.

The City’s Asset Management Policy was updated in 2019 to require city-wide workflows that enable a coordinated, cost-effective, and sustainable approach to the management of our assets in order to prepare for climate change among other requirements. Steps are being taken to incorporate climate change vulnerability as a parameter through which the City assesses risk at the strategic and/or individual asset level, and support managers in considering climate change when planning asset related activities. The City has been involved in a project with researchers from Carleton University to explore ways to integrate climate change effects within an asset management framework and will be enhancing the City’s framework with these findings as we consider how to build, operate, maintain, renew, replace and dispose of assets.

The City Commitment to Climate Change

The City of Peterborough has started to embed climate change considerations into service areas as outlined under the City projects, programs and initiatives section below and through policy documents like the draft Official Plan. Peterborough’s commitment to act on climate change is evident in the draft Official Plan and its vision statement.

City Projects, Programs and Initiatives

A balanced program to address the effects of Climate Change includes Adaptation and Mitigation measures. The sections below outline examples of the City’s past/current/planned programs:

Adaptation

Climate adaptation includes measures focused on increasing community resiliency to the effects of climate change. The City of Peterborough has been and will continue to lead Adaptation initiatives such as:

Plans and Policies

- **Climate Adaptation Plan:** The City was selected by International Council for Local Environmental Initiatives (ICLEI) Canada as one of three Ontario municipalities to participate in a fully funded project called the Changemakers Project. This project includes the creation of a local Climate Adaptation Plan that considers local vulnerabilities for the City of Peterborough.
- **Official Plan Update:** As part of the vision for the new Official Plan, the City has included specific language related to environmental sustainability, efficient use of land and infrastructure and green initiatives. The Plan also includes a specific section related to Environmental Stewardship and Sustainability.
- **Watershed Study and Watershed Management:** “Our Watershed, Our Blueprint” officially launched on June 3, 2019. Over the next two years the City will collaborate with our neighbouring municipalities, First Nations, and Otonabee Conservation on the development of this plan. The Watershed Study will inform the development of a Watershed Management Plan. This plan will shape our approach to climate change adaptation and reduce climate risk by helping to shape future development and City infrastructure priorities in a way that is environmentally sustainable.
- **Low Impact Development (LID):** The City continues to advance its Low Impact Development (LID) and Green Infrastructure (GI) initiatives in both new development and infrastructure retrofits. LID and GI is an important adaptation strategy that will help reduce flood risk, improve water quality and increase our drought tolerance, all of which are impacted in a changing climate. All new development and re-development sites implement various forms of LID storm water management techniques. Examples of LID include; rainwater harvesting/re-use, swales/bioswales, infiltration galleries and chambers, absorbent landscape, permeable pavement, green roofs/walls.
- **Design Changes:** Through Stormwater Management and stormwater quantity control, the City has updated the Engineering Design Standard to the latest published Environment and Climate Change Canada Intensity Duration Frequency parameters. These changes will accommodate for more intense rainfall events in the future.

- Ontario Building Code changes: The City has been actively involved in the development and training programs related to the Ontario Building Code (OBC) Energy Efficient design and construction guidelines. Staff also have been working with the local construction and development Industry to ensure everyone is aware of and able to meet the standards that have been set in the aim of Climate Change prevention and reduction.

Water

- Stormwater Management and Flood Reduction Master: This ongoing program of work focuses on building more community resiliency related to the potential for flooding. Specific areas of focus include ensuring proper stormwater management infrastructure, reducing inflow and infiltration to the sanitary system, smooth assumption of new development facilities, proper alignment of water courses and incorporating storm and sanitary infrastructure into road re-construction projects.
 - Projects like the Bethune Street Diversion Project and Curtis Creek Watershed Improvements are examples
 - The Flood Reduction Subsidy Program can help homeowners with flood reduction initiatives such as inflow & infiltration reduction, backflow prevention, foundation drain disconnects and the related labour and materials costs.
- Monitoring: With more intense rain events causing an increased chance of flooding to basements, roads and other infrastructure, the City has installed and upgraded equipment to view almost live data throughout the City. This live data will monitor rain fall amounts during a storm event as well as sanitary sewer flow monitors that gives the City almost live sanitary sewage levels in selected pipes. The equipment also contains alarms set to trigger alerts if thresholds are exceeded.
- Areas at Risk: The City is working with Provincial and the Federal governments in collaboration with Otonabee Conservation to protect areas that are at risk. The City will continue to apply for external funding opportunities to support these projects. The City is installing larger storm pipes and conduits to move water more effectively away from sensitive areas while attempting to widen watercourse banks to collect and move water more effectively.
- Maintenance and Inspections: The City is working to achieve unimpeded flows in our sewers through routine maintenance to ensure full sewer capacity availability. This is completed via yearly flushing, cleaning and camera inspections allowing pipe conditions to be recorded and to better prepare the City for severe storms.

Sites

Brownfield Remediation: The City is working with the Ministry of the Environment and Climate Protection (MOECP) to review and create Environmental Management plans for City-owned brownfield sites.

Urban Canopy

Between the regular replacement and Emerald Ash Borer programs, we are targeting 700-800 new plantings for 2020. The number is variable based on the number of ash trees that are removed. Ongoing programs are included in the 10 year Capital forecast. Staff will report to Council on the Urban Canopy Conservation public consultation in March of 2020. Subsequent work is underway to refresh the Urban Canopy Conservation framework and associated By-Law.

Mitigation

Mitigation measures are actions intended to reduce GHG emissions. The City has made and is planning to make noted investment in Climate Mitigation projects and programs such as:

Energy

Through staff report CSD14-013, the City of Peterborough adopted the 2014 Energy Conservation and Demand Management Plan. Council endorsed the following vision which was included in the report:

The City of Peterborough will strive to continually reduce our total energy consumption and associated carbon footprint through wise and efficient use of energy and resources, while still maintaining an efficient and effective level of service for our clients and the general public.

The management of our energy is a combination of energy data management, energy supply management, and energy use management. Some examples of innovative energy management projects are:

- **LED Street Lighting Upgrades:** In the fall 2018, the City replaced over 7,000 high pressure sodium cobra head streetlights with adaptive LED. There has been a significant drop in GHG emissions due to the conversion to LED lights. The conversion of high-pressure sodium decorative streetlights is planned. Recommendation “g” of this report addresses the need for a dedicated resource to ensure the City is realizing the full benefit of the adaptive controls and associated MESH network installed as part of the streetlight retrofits. The adaptive controls have potential that has not yet been optimized:

- Adaptive control allows the City to monitor the system's performance, understand when and where the system has issues or requires maintenance
- Potential to optimize lighting levels remotely to ensure energy efficiency, within approved lighting standards
- Adaptive controls and sensors within the network can allow for data gathering through additional instrumentation that can be used to optimize real-time service delivery and "smart city" applications
- Traffic lights have also been converted to LED. Traffic Signal Improvement initiatives are underway to optimize synchronization opportunities. The traffic division is reviewing new and update technologies on an ongoing basis, with the goal of improving flow for all modes of transportation.
- Building retrofits and Sustainable Design:
 - In 2016, the Peterborough Sport & Wellness Centre (PSWC) had HVAC upgrades. In 2017 the facility participated in the Save on Energy Retrofit Program to replace facility lighting fixtures with energy savings calculated at 162,352.306 kWh. Major work was done to the pool's pump and filtration system. In 2018, the PSWC replaced existing pool pumps with Variable Frequency Drives (VFD) which are motor control devices which reduce the speed of circulation pumps.
 - The Public Works Operations Centre incorporates the collection of all rainwater from the surface and roofs, which is filtered and used to wash vehicles. It also incorporates all LED lighting and smart lighting controls to reduce energy use, a building automation system to control all HVAC equipment to assist with energy savings, and high efficiency boilers for the floor heating system that reduces energy consumption and heat loss.

Renewable Energy:

- CoPHI: The City of Peterborough has a proven track record in developing renewable energy through its investment company, City of Peterborough Holdings Inc. (CoPHI). The Company develops and operates renewable hydro, solar and renewable natural gas generation facilities and operates a wholesale metering business. As published in their 2018 Annual Report, over the past several years initiatives have provided a base for renewable energy equivalent to powering approximately 52% of City owned buildings excluding wastewater infrastructure. The Company has been a conservation leader in providing its customers with opportunities to reduce their consumption.

- EV Charging Stations: The Ministry of Transportation through the Electric Vehicle Chargers Ontario Program awarded a grant of \$291,480 to Peterborough Utilities Inc, who in partnership with the City of Peterborough, installed 9 electric vehicle charging stations. The grant was used to install these electric vehicle charging stations in 6 locations across the Greater Peterborough Area:
 - Riverview Park & Zoo
 - Lansdowne Place Mall (2 units)
 - King Street Parking Garage (2 units)
 - Peterborough Memorial Centre
 - Downtown Lakefield: Public Parking Lot
 - Downtown Norwood: Foodland (2 units)
- The installation of rooftop solar PV at the Kinsmen Civic Center, which has been operational since August 2016 and generated ~1.76M kWh of energy over the past 3 years.
- The operation of the Peterborough Landfill Biogas Digester has been operational since 2013 and has generated ~40.6M kWh of energy over the past 7 years.

Waste Management:

- Waste diversion programs resulted in a residential diversion rate of 56% in 2017. New, more challenging diversion opportunities continue to be investigated including reuse opportunities, bulky plastics, and textiles diversion. The Waste Management Master Plan, scheduled for spring 2020, will review all waste management and diversion programs. There will be many changes in the waste management sector over the next 5 years. Some highlight initiatives are listed below:
 - Source Separated Organics Program
 - Transition from Blue Box Program to Full Producer Responsibility creates a “cradle to grave” accountability for producers of their waste materials.
 - Review of the future of Waste Management and Landfill Operations
- Wastewater: several retrofits are planned for the Wastewater Treatment plant to ensure capacity and build in redundancy. Staff are exploring new and innovative technologies in this sector.

Transportation:

- Active Transportation: Cycling lanes and multi-use trail infrastructure has been expanded from 55 kilometres in 2011 to 70 kilometres in 2018. Focus on further expansion of active transportation infrastructure is built into the ten-year capital budget.
- Traffic Signal Upgrade and Optimization project: This project will allow the City to synchronize traffic signals to optimize traffic flows, resulting in reduced emissions.
- The City has underway various Master plans and studies to improve the Transportation network and promote alternate modes of transportation. These studies will lead to greater access to active transportation opportunities and more efficient movement of vehicular and pedestrian traffic flows:
 - City's Transportation Master Plan
 - East Side Transportation Study
 - Transit Route Review and Long-Term Growth Study
 - Traffic Calming Review
 - Cycling Network Update

Transit:

- Transit Ridership:
 - increased significantly in 2017 and 2018 (~25% increase)
 - estimated that just over 11 million vehicle-kilometres of travel has been avoided resulting in just over 2,000 tonnes of GHG emissions avoided.
 - City's Transit is participating in Canadian Urban Transit Research & Innovation Consortium (CUTRIC): on their Pan-Canadian Electric Bus Demonstration & Integration Trial project. The City benefits from the most current information while not assuming cost/risk
- Since 2011, the emissions generated by the transit fleet has decreased by 18%, on a per kilometer basis, due to more efficient/modern buses.
- **City Fleet**

The City intends to make application to the FCM- Green Municipal Fund for a Study to Reduce the Use of Fossil Fuels in the City's Fleet vehicles. The program funds feasibility studies for projects that reduce or avoid fossil fuel use in any vehicle that delivers municipal services. All classes of vehicle are eligible for this funding. Grant funding is available a maximum of \$175,000, with the City contributing 50%. Staff is

proposing use of the Climate Change Reserve, to a maximum of \$100,000, to cover the City's share and any additional incidental costs. Any monies remaining from the City's contribution will be returned to the Climate Reserve, once the project is fully reconciled. (recommendation a) of this Report)

Aviation:

As part of providing employment opportunities to the Peterborough region, the City owns the Peterborough Municipal Airport. It is primarily an Aviation Business Park. As a member of the Southern Ontario Airport Network, the Peterborough Airport and other members have capacity to grow at existing airports in southern Ontario rather than building a new airport to support the significant growth expected over the next 25 years.

Plans are underway to expand LED lighting retrofit the runway, apron lights and floodlights. Taxiways and some floodlights have previously been converted to LED.

The Airport Operations contractor is investigating some innovative maintenance equipment and has converted some equipment to include with engine idling controls. A previous project installed a timer to turn off radiant heat panels in the Terminal after hours, saving on energy.

In the aviation industry there is significant funding for research and development of more efficient engine technology. ie; gas/electric, lighter weight aircraft components

Nav Canada has been revising routes for aircraft flying into large Airports to maximize fuel efficiency.

Clean Technology

The City is a partner with Trent University in establishing the CleanTech Commons Research and Innovation Park. This unique CleanTech Innovation Park will play host to a cluster of world-class companies and start-up, spinout and growth ventures in the fields of clean, green and low-carbon technology; agro-biotechnology, water technology and biomaterials. Council has made financial and in-kind investment in the venture.

Winter maintenance salt reduction

The City is implementing a pre-wet process for road surface treatment during winter maintenance. The pre-wet solution causes salt to "stick" to the road surface rather than bouncing to non-road surfaces. The result is that much less salt is needed during application. The City also uses sand for surface treatment where/when applicable.

The following Community programs and Update on the Climate Change Action Plan provide examples of the City and Greater Peterborough Area's work to address the 95% Community emissions.

Community programs:

- Climate Change Program offered to Grades 2 to 6: In 2016, the City launched a Climate Change interactive, online education program through Planet Protector Academy for Grades 2-6. The Keep Cool program teaches kids how to reduce their energy and water use while changing their transportation habits. The City expanded to include a Waste Diversion program, known as Zero Heroes in 2017, and launched a Water program, known as H2Whoa! in September 2019.
- The City is in partnership with Toronto and Region Conservation Authority (TRCA) on a neighbourhood based Low Carbon Social Mobilization initiative (Transition 2050). Under this initiative and with other community partners, we plan to tackle GHG emissions (eg anti-idling awareness/challenges) and building resiliency.

Update on Climate Change Action Plan

The Climate Change Action Plan is grouped into 6 themes (Our homes, Our workplaces & schools, On the move, Our food, Our land, Our people) and contains 21 strategies to target community sector GHG emissions in response to climate change. Multiple actions have been undertaken by the City and other organizations in the community and several examples are provided below. The Peterborough Environmental Advisory Committee has decided to dedicate a portion of every meeting in 2020 to focus on one of the 6 themes per meeting.

Our Homes

Help existing homes become more energy and water efficient and be more adaptable to risks (Strategy H1)

- Piloting TRCA's Transition 2050 program in late-2020-2021
- Local Improvement Charge (LIC) being investigated
- Reviewing other municipalities' household energy retrofit programs
- Exploring a Community Energy Plan in 2020
- On-going Low-flow Toilet Rebate program to conserve water

Build new homes to be more efficient and have a smaller environmental footprint (Strategy H2)

- Draft Official Plan includes Solar Ready clause (5.4.3.e.ii)

- On-going review of minimum parking space requirements on an application-by-application basis
- Pilot net-zero emission neighbourhood – To be determined, requires multiple sectors to develop pilot

Reduce the amount of waste generated by residents that contribute to GHG emissions (Strategy H3)

- Added biogas generator in 2013 at landfill
- In development stages for city-wide Source Sorted Organics program and facility
- Increasing waste diversion of more products from landfill: (recycling program, textiles, etc.)

Our Workplaces and Schools

Improve energy and water efficiency of existing buildings and business operations (Strategy W1)

- PDI and Enbridge are both carrying out energy improving activities within the community

Build new buildings to be more efficient and have a smaller environmental footprint (Strategy W2)

- Green Economy Canada (GEC) Hub being developed to support businesses reduce energy use, late 2020
- Facilitate climate change friendly business operations and practices
- GEC Hub will support city-wide businesses after launch (Strategy W3)
- Support local economic resilience and growth of the local green economy
- GEC Hub will support city-wide businesses after launch (Strategy W4)
- Facilitate low carbon energy generation and local energy security (Strategy W5)

On the Move

Build an active transportation network and support active transportation (Strategy M1)

- Active transportation target met in 2018
- Draft Official Plan proposes more bicycling infrastructure
- Bus racks cannot be installed on fleet due to safety issues
- Continual support for all GreenUp's bicycle programs

Facilitate alternatives to single-occupant vehicle use to reduce frequency of personal vehicle use (Strategy M2)

- Support Carpool Ontario carpooling network

Make public transportation more appealing to increase usage

- Public Transit Operations Review in-progress (Strategy M3)
- Surpassed mode share target
- Piloting rural public transit route through Selwyn in 2020
- Trip planning program rolling out in 2020
- Real-time bus tracking system in development stage
- Success with Fleming College and Trent University express bus routes
- Transit route review underway

Help transition vehicles to use cleaner and lower GHG emitting fuel sources (Strategy M4)

- Installed 6 EV chargers throughout the Peterborough region
- Explore future EV charging stations with Provincial/Federal funding

Our Food

Support localization of the food system (Strategy F1)

- Draft Official Plan contains urban agriculture policy (5.4.6)

Encourage purchasing of locally produced food (Strategy F2)

- City continues to promote and fund Purple Onion festival
- City supports Farmers Markets

Reduce the amount of wasted food (Strategy F3)

- Compost bins sold at cost when purchased through the City
- Supports Green Up's Kitchen to Compost program

Our Land

Strengthen land use policy and development review process to better support climate change mitigation and adaptation (Strategy L1)

- Higher density land-use included in draft Official Plan (4.1.4)
- Watershed Plan in-progress

Identify climate change risks and prepare for potential impacts

- Climate Adaptation Plan in development phase (Strategy L2)

- Low Impact Development policies being informed by pilot projects and plans underway
- Engineering design standards include aggressive storm events for stormwater management

Protect and enhance natural assets (Strategy L3)

- Protection of natural heritage features included in draft Official Plan (4.6.1)
- Kawartha Land Trust completed Kawartha Naturally Connected Plan
- Currently updating urban tree canopy conservation approach
- Schedule of buffers for natural heritage features included in the draft Official Plan (4.6.2)
- Implementation of Urban Forest Strategic Plan on-going
- Ongoing support for ORCA's tree planting and restoration efforts within the City

Our People

Prepare for the health impacts associated with a changing climate (Strategy P1)

- Peterborough Public Health developing a Climate Change and Health Adaptation Plan through its Climate Change and Health Advisory Group

Foster a culture of climate change awareness (Strategy P2)

- Establishment of the Peterborough Environmental Advisory Committee
- City Council made Climate Change Emergency Declaration
- City 2020 Budget includes a 0.25% of all-inclusive tax rate to fund Climate Change Reserve

Encourage civic engagement around climate change (Strategy P3)

- City sponsored community Global Climate Day of Action in September 2019 and mayor declared the Day to be Peterborough's Climate Day of Action

Funding

The City demonstrates tangible partnership on Sustainable and Climate Change initiatives by annually funding community agencies:

- GreenUp: \$149,000
- Sustainable Peterborough: \$40,000

The Investment and Project Grants allow for Environmentally focused organizations to apply for city funding to undertake their projects or activities. Three organizations are

recommended to receive a total of \$3,300 for Project Grants for 2020 and two organizations received a total of \$11,200 in the Investment Grant category.

Council demonstrated a further commitment to advancing Climate Adaptation and Mitigation efforts by adopting the following motion as part of the 2020 budget review:

That the Infrastructure Management budget of \$1,419,754, as presented on page 78 of the 2020 Budget Highlights Book, be amended to include a Contribution to the Climate Change Reserve of \$426,400, for a total 2020 budget of \$1,846,154; and

That the amount of \$426,400, which equates to 0.25% of the All-inclusive tax rate, be added to the All-inclusive tax rate increase identified on page 9 of the 2020 Highlights Book, making it 2.59% and,

That any expenditures of these funds be reported to Council.

This funding represents an annual contribution to a reserve, built into the base operating budget and then each future year. Expenditures will be recommended to Council as part of annual budget review or via in year reports.

The City will also be accessing funding from external sources and promoting available Incentive programs to support both Corporate and Community Climate Change efforts.

It is recommended that staff report back to Council by July 2020 on potential projects to be completed with these funds. (recommendation f) of this Report)

Staffing

The portfolio of Sustainability, which includes Climate Change initiatives, was shifted into the Infrastructure and Planning Department in the Fall of 2019 and now is part of the Infrastructure Management Division. While staff is still working through long term resource requirements, we can provide Council with the current leadership of the Climate Change initiatives.

- 1) The Senior Watershed Project Manager position was put in place for 24 months to focus on the Comprehensive Watershed Study and is integral to the City's Climate Change Adaptation Plan and initiatives. The position is funded through a grant for 24 months to focus on the Comprehensive Watershed Study. With the responsibility for Sustainability moving to this Division going forward, this position will evolve to work on other Corporate Adaptation and Mitigation initiatives, as well as the focus on collaboration and the Community Climate Change Action Plan. While focus on the Watershed Study will be maintained, there is the opportunity to incorporate work on the implementation plan for the CCAP and developing an

Adaptation plan for the City. Both bodies of work will involve community partners, students, researchers and the community.

Current funding exists for this position and ongoing funding will be included in future base operating budgets.

- 2) **Contract Position:** Council adopted a motion as part of the 2020 budget review to report back on the requirements to accelerate the multi-year LED Decorative Street Light Project Capital Project. In order to address this motion, this report recommends hiring a Senior Project Manager for an 18-month contract. The focus for this position will be to optimize the investment the City has made in the upgrade of the general street lighting system, to accelerate the design and installation of the decorative streetlights and to research/recommends further use of the adaptive controls associate with the system. (recommendation g) of this Report)
- 3) Further review of resources needs is underway. Areas like community engagement, project management and data verification/analysis pose potential resource needs. Staff will report to Council, as part of the 2021 budget review, on permanent staffing resources required to significantly advance and sustain the Corporate and Community actions related to the Climate Change Action Plan(CCAP).Key feedback received from stakeholders and PEAC encouraged a request for a permanent position(s) to ensure momentum and to move the efforts to address climate change significantly forward. (recommendation h) of this Report)
- 4) **Oversight:** A Sustainability Steering Committee of City staff meets regularly to coordinate and collaborate on climate stewardship in relation to City Services. This committee includes the Commissioner of IPS and the Divisional Managers from the following areas: Infrastructure Management, Transportation, Engineering, Environmental Services, Airport, Building, Planning, Facilities Management, Facilities Planning, Real Estate and Communications. This group will also be providing input and reviewing the annual update on progress to address the effects of Climate Change

The Global Context

As realized by the December 2019 United Nations Climate Change Conference (also known as COP25), global leaders are struggling to come to agreement on the issues and to balance competing needs. While delegates reached agreement on the key question of increasing the global response to curbing carbon, divisions over other questions were delayed until the next gathering in 2020.

Policy decisions made globally or by other levels of government can significantly impact our success with Climate Adaptation or Mitigation efforts locally.

For example, the Province of Ontario's decision to close its coal-fired power plants has resulted in significant GHG emission reduction potential for the Peterborough community projected at 27,529 tonnes of CO₂e/per year.

Municipalities need to advocate for a Federal and Provincial contribution to any mitigation target, as it is not reasonable to expect local communities to shoulder the entire responsibility. Advocating for policy decisions which would contribute 1/3 each to any reduction target would seem more reasonable for any municipality to tackle. While the Federal and Provincial governments have developed funding programs to assist local municipalities, it is the policy decision which will have the greatest impact eg. New legislation related to Producer responsibility for waste diversion programs and reduction of excess packaging.

The key areas which will impact Climate Mitigation efforts the most are Provincial/National/Global policy decisions and Community engagement efforts and incentives

The Greater Peterborough Community Context

While the City of Peterborough continues its corporate efforts to mitigate and manage the effects of climate change, we need to be a full partner at the table related to the broader community.

The Greater Peterborough Area (GPA) encompasses the City of Peterborough, Peterborough County and its eight member townships (Asphodel-Norwood, Cavan Monaghan, Douro-Dummer, Havelock-Belmont-Methuen, North Kawartha, Otonabee South-Monaghan, Selwyn, and Trent Lakes), as well as Curve Lake First Nation and Hiawatha First Nation. Municipalities and First Nations in the GPA have demonstrated leadership in the field of sustainability.

In 2014, these communities came together to develop a Climate Change Action Plan (CCAP), and the GPA joined more than 250 other communities across Canada to address climate change through participation in the PCP program, aimed at reducing GHG emissions from both municipal/First Nation corporate operations and community sources.

The program has two distinct focuses:

- 1) Corporate sources of GHG emissions (municipal and First Nations operations);
and
- 2) Community sources of GHG emissions.

Goals

- 1) Reduce our GHG emissions
- 2) Reduce reliance fossil fuels
- 3) Lower energy consumption
- 4) Adapt to our changing climate

A key component of developing the CCAP has been strong engagement of all stakeholders, groups, and residents within the GPA.

While the Plan provides a solid foundation upon which an implementation plan can be developed, more focus is needed by the City and community to ensure we have distinct and measurable actions.

Community Focus

There are fantastic community initiatives and world class research occurring within Peterborough and our surrounding municipalities by organizations such as:

- Peterborough & the Kawarthas Economic Development (PKED) & Sustainable Peterborough:
- GreenUp
- Partners for Climate Protection (PCP)
- Association of Municipalities of Ontario (AMO) / Local Authority Services (LAS)
- Peterborough Public Health
- Otonabee Regional Conservation Authority
- International Council for Local Environmental Initiatives (ICLEI)
- Trent/Fleming
- Center for the Advancement of Low carbon Implementation (CALCI)
- Community Climate Change Working Group
- Southern Ontario Airport Network (SOAN) Southern Ontario Municipal Aerospace Council (SOMAC),

The Greater Peterborough Climate Change Action Plan (CCAP) is the over-arching and guiding document. The intention is then for each participating municipality (City, Township and First Nation) to develop:

1. a Corporate Climate Action Plan to target the emissions related to municipal services provided, which represents approximately 5% of the overall.

2. a Community Climate Action Plan to target the emissions generated in homes, business, vehicles etc., which represents approximately 95% of the overall.

Working with our key Community Partners, the next steps related to the broader community are:

- a) establish a clear implementation strategy for the Community Climate Action Plan (CCAP)
- b) verify data assumptions and identify community measurables
- c) review best practices for carbon mitigation measurement
- d) leverage the work and expertise of Community Partners and Researchers on those items which will affect Climate Mitigation and Adaptation efforts for the broader community
- e) assess the permanent resources needed to significantly advance and sustain the Corporate and Community actions related to the CCAP

Governance and Collaboration with Committees/Agencies

Sustainable Peterborough, which functions under the umbrella of PKED, is currently working with a consultant to prepare a Strategic Plan for the organization. This will help frame the role of Sustainable Peterborough for the future and how that role connects and works with the City, County, Townships and other organizations listed above. A further report will come back to Council on this initiative.

Sustainable Peterborough is a community based, regional collaborative working to integrate the sustainability framework identified in the Community Sustainability Plan throughout the Greater Peterborough Area.

Summary

While the City of Peterborough has identified many corporate initiatives, which affect Climate Mitigation and Climate Adaptation, the biggest impacts will be realized through broader community collaboration, citizen engagement and advocating with Federal, Provincial governments.

The City has completed many adaptation and mitigation projects, setting us on the right track. Current projects, such as the Source Separated Organics program, position the City to meet a Corporate GHG emissions reduction of 33-35% by 2030. There is potential opportunity for future expansion of this program to the townships, which would reduce emissions by a further 10%. While this is good news, the City will continue to look for further opportunities to reduce emissions and build community resiliency.

The Greater Peterborough Area and many community partners have played a key role in developing a Climate Change Action Plan (CCAP). The City of Peterborough is committed to collaborating to leverage the CCAP into an implementation plan and advancing the Community emission reduction. The City will be working with established partners to engage the community members in mitigation and adaptation efforts and to build awareness on ways to influence the effects of climate changes.

As this work continues, focus will be on developing a community climate change report card to be included as part of the annual reporting to Council. Additional resources and investment requirements will be considered through annual budgets.

Summary of 2020-2023 Initiatives that will build a more resilient community or contribute the Corporate GHG reduction commitment.

- Low Impact Development (LID) for City and private development projects
- Flood reduction projects
- Tree planting and Canopy protection annual programs
- LED Decorative Street lighting Retrofit
- Optimization of Street lighting Adaptive controls
- Transit Route review and improvements
- Active Transportation projects; cycling, trails, sidewalks
- Source Separated Organics Program
- Study to Reduce the Use of Fossil Fuels in the City's Fleet vehicles
- LED lighting expansion at the Airport (runway, apron lights and floodlights)
- Low Carbon Social Mobilization Program (Transition 2050)
- Winter maintenance salt reduction

Submitted by,

Cynthia Fletcher
Commissioner of Infrastructure and Planning Services

Contact Name
Michael Papadacos, P.Eng.
Manager, Infrastructure Planning
Phone 705-742-7777 ext 1756
Toll Free: 1-855-738-3755
Fax 705-876-4621
E-mail: mpapadacos@peterborough.ca