
For Information

REPORT TITLE: Climate Change Master Plan Progress 2021

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OBJECTIVE

To provide Regional Council with an annual update on the implementation progress of the Region of Peel's Climate Change Master Plan.

REPORT HIGHLIGHTS

- Through the Term of Council Priority setting, the Region mapped key climate change projects to significantly advance Region of Peel's Climate Change Master Plan (CCMP) implementation by the end of 2021.
 - Priority projects have been delayed due to the COVID-19 response, impacting progress made on Reduce greenhouse gas (GHG) Emissions and Be Prepared outcomes of the CCMP.
 - The Region of Peel's most recent (2020) corporate GHG emissions inventory is 32 per cent below 2010 levels but with 17,000 tCO₂e to still address plus any new emissions, it will require an urgent and scaled response to meet the 2030 GHG emissions reduction target of 45 per cent below 2010 levels.
 - The strong leadership shown by the Region throughout the COVID-19 response has brought clarity to what can be achieved through bold action, and a similar response is now required to meet the urgency of the climate crisis.
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DISCUSSION

1. Background

The scientific community has been clear; bold climate action in this decade is critical and mobilization is needed now if the world is to avoid the dire consequences of increasing global temperatures. Region of Peel Council has responded to this call for action in 2019 by declaring a climate change emergency and approving the Region's Climate Change Master Plan (CCMP).

The approval of the CCMP was followed by the emergence of a new crisis, the COVID-19 pandemic, impacting the provision of Regional services. The Region's response was swift and prioritized resources to contain this threat for over two years. This decisive action met the immediate needs of the COVID-19 response but did result in climate change resources being reallocated and actions delayed.

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On March 24, 2022, the Region ended the declared (health) emergency in recognition of leaving the acute phase of the pandemic. However, while pandemic recovery is in line of sight, the climate change crisis has continued unabated. Lessons learned from the pandemic, including unprecedented coordination and bold action, should be applied to the Region's response to the climate crisis.

In summer 2021, the Intergovernmental Panel on Climate Change (IPCC), representing the world's leading climate change scientists, produced working papers on the global response to mitigate and adapt to the effects of climate change. Regarding climate change mitigation efforts, the IPCC was clear that without immediate, rapid, and large-scale reductions in greenhouse gas (GHG) emissions, limiting warming to close to 1.5°C or even 2°C will be beyond reach and lead to irreversible changes to our climate, which will have dire physical, environmental and socio-economic consequences.

Efforts to adapt to climate change are not fairing much better. The IPCC notes that climate change will bring on more intense and frequent extreme weather events that will cause extensive losses and damages. The response has been unevenly distributed, resulting in vulnerable populations being most negatively impacted (e.g., flood damage to basement apartment tenants). This highlights the need for much greater thought around equity in climate action led by all levels of government.

Later in November 2021, leaders from across the world came together at the 26th UN Climate Change Conference of the Parties (COP26) to discuss how they will mitigate and adapt to the effects of climate change and how this critical work will be financed. Traditionally labeled as an "environmental issue", there is a growing appreciation among leaders of the human impacts of climate change, from health to economic and social issues.

Canada left COP26 pledging to no longer use financial instruments to enable the use of fossil fuels, halt deforestation, reduce methane emissions, and support the transition to electric modes of transportation. More recently, the Government of Canada released its 2030 Emissions Reduction Plan: Clean Air, Strong Economy, which is aligned with the Region's CCMP outcomes.

In Ontario, the Financial Accountability Office recently released a report concluding that climate change will increase costs to maintain public buildings and facilities in a state of good repair by \$6 billion by the end of the next decade. The Province has not yet brought forward a response in how these costs are to be addressed.

As the progress of Canada's and Ontario's climate change action continues to be monitored, this report looks more closely at the Region of Peel's climate response in a turbulent COVID-19 environment. The following sections provides an overview and accounting of the Region's CCMP progress achieved in 2021 with greater detail on specific actions in Appendix I. Continuing and anticipated climate action in 2022 is listed in Next Steps.

2. Climate Change Master Plan Progress 2021

The CCMP follows a principle to "Lead, Influence, Transform", which is intended to catalyze community climate change action by first leading through example. The CCMP has two primary climate change outcomes:

- Reduce Greenhouse Gas (GHG) Emissions to 45 per cent below 2010 levels by 2030.

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- Be Prepared by providing a safe, secure, and connected community is provided by ensuring Regional services and assets are more resilient to extreme weather events and future climate conditions.

These primary outcomes are enabled by supporting outcomes: Build Capacity, Invest, and Monitor and Report. In total the CCMP is comprised of 20 actions.

With the conclusion of the second year of CCMP implementation, 0 per cent of actions have been completed, 85 per cent of actions are in progress, and 15 per cent actions are not yet started. As noted earlier, the redeployment of resources to the COVID-19 responses impacted even prioritized climate work, resulting in limited to no progress in 2021 for some projects. This was the case for the climate change and asset management risk assessment tool, employee engagement plan and climate change financing strategy, which were Term of Council Priorities. The criticality of completing all these initiatives remains and re-commitment to undertaking these priorities will be a focus in 2022 and 2023.

This impact extended, to varying degrees, to all other actions that are considered “in progress” but still require a significant amount of work and/or scaling prior to completion. For example, the CCMP calls for constructing deep energy retrofits at dozens of Regional buildings by 2030, however, at this time, only three projects have made it to the early design phase. As the Region applies lessons learned from COVID-19, continues to build experience and capacity, increase annual investment, and climate action becomes more regulated and incentivized by the federal government, therein lies the hope that the expediency of climate change action will decisively improve.

a) Reduce GHG Emissions

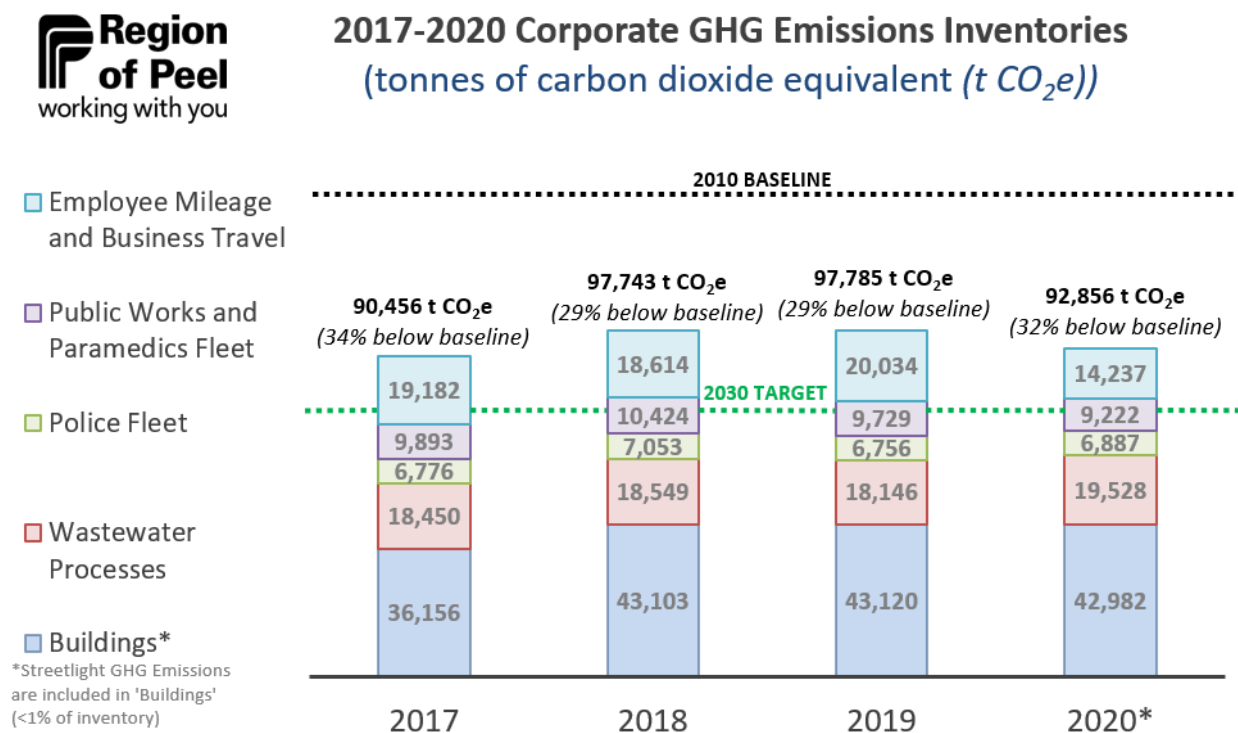
In the most recent inventory (2020), the Region of Peel’s corporate GHG emissions were 32 per cent below 2010 levels (See Figure 1). Most of the early progress on corporate GHG emissions reduction were the result of the Province phasing out coal powered electricity generation. In the absence of another market leap like this, the Region will be responsible for the remaining (17,000 tCO₂e) and any new GHG emissions reductions needed to meet its 2030 target of 45 per cent below 2010 levels.

Based on past and current achievement of Region-led GHG emissions reduction projects, together with the fact that the electricity grid is getting dirtier and the growth that the Region is anticipating in the coming years, the scale and priority of climate change mitigation action must increase if the Region is to meet its 2030 GHG emissions reduction target. The message is sobering, however, there is now a line-up of approved and funded climate change capital projects that are slated for completion between 2022 and 2025 with an estimated net reduction of 2,500 tCO₂e. As the Region steps up its climate leadership, this forecast must and will improve year over year through the budget cycle, collaborations and external funding opportunities to expedite accelerated climate action.

Note: Not all GHG emissions factors needed to complete the 2021 corporate GHG emissions inventory are yet available. This update will be provided with the 2022 Climate Change Master Plan Progress Report.

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Figure 1: Recent Corporate GHG Emissions Inventories [t CO₂e]



It is important to note the vast majority of progress made between 2019 and 2020 can be attributed to reduced employee and business commuting as a result of remote work during the pandemic. It is anticipated that when the 2021 GHG inventory is calculated, the continuation of Remote Work First Policy will result in continued commuter GHG emissions reductions, however, large scale hiring at the Mass Vaccination Clinics will likely offset this progress and result in less actual commuter GHG emissions reduced in 2021.

Regional buildings and fleet were a focus in 2021 as they account for most of the organization's GHG emissions. Highlights of this work include:

- Initiating the development of a new net zero emission (NZE) policy and standard for the construction of all new buildings. The policy and standard aim to improve building insulation, use of energy efficient equipment, and greater reliance on cleaner fuel sources, such as electricity.
 - East Avenue Affordable Housing New Construction project completed a NZE feasibility study with approximately \$175K of funding from the Federation of Canadian Municipalities (FCM); and the NZE performance standard was incorporated into the design to avoid up to 200 tCO₂e annually together with approved \$1.5M incremental budget for climate-related construction costs.
- Pursuing deep energy retrofits projects that strive for similar NZE performance standard results on existing buildings by leveraging the state of good repair (SoGR) planning cycle.

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- Weavers Hill Affordable Housing Retrofit completed a NZE feasibility study with approximately \$175K of funding from FCM. An additional \$12M has been secured through the budget process for NZE design and construction to reduce up to 1,000 tCO₂e annually (accounted for in 2025 GHG reduction forecast). The focus is on fuel switching of the building's mechanical system (e.g., installing electric air source heat pumps).
- Electrifying the Region's and Peel Regional Police fleets and thereby reducing fossil fuel dependency while experiencing operational savings over the life of the asset.
 - Seventeen new plug-in hybrid electric (PHE) sport utility vehicles (SUV) were purchased as part of the Region's Green Fleet Strategy.
 - Ten additional electric vehicle (EV) charging stations were installed at the Region's Yards to enable the electrification of the Region's fleet. Thirteen charging stations were installed at Peel facilities for public and employee use. External funding totaling \$95K was employed for this work.
 - Peel Regional Police received approval for 33 PHE SUVs in addition to the 84 currently in its fleet. Approval was also received in 2021 to pilot four fully electric police vehicles in 2022.

To support similar GHG emissions reductions in community buildings and vehicles, the Region has collaborated with the area municipalities and conservation authorities on a range of initiatives, including:

- *Lakeview District Energy Project*, in collaboration with the City of Mississauga, with the intention of enabling the recovery of clean energy from wastewater effluent to condition homes in the Lakeview community. A separate Council report will provide more details on this project.
- *Centre for Community Energy Transformation*, working with the City of Brampton, with staff support from City of Mississauga and Town of Caledon, to create a centre that provides needed resources to the community to catalyze change and inform how best to reduce residential and commercial energy use and GHG emissions.
- *Zero Emissions Vehicle (ZEV) Strategy*, developed through the Peel Climate Change Partnership (a collaboration of Peel municipalities and conservation authorities) and informed through community engagement, the ZEV Strategy has a series of actions that will help the community transition to electric vehicles.

b) Be Prepared

The Region does not yet have specific climate adaptation targets. Similar to many municipalities, there is a need to continue to build the Region's knowledge of climate change exposure and vulnerability to climate hazards, inform the investment necessary to be prepared and adapt to unavoidable impacts to infrastructure, and build resilient communities. The immediate focus for adaptation is improving understanding of climate-related risk, appropriate responses, and inventorying and assessing Regionally-owned assets to determine if they are sufficiently resilient. It is critical that the Region address these knowledge gaps expeditiously to help ensure that the approved level of service is not compromised, and that damage and loss costs do not inflate due to climate change. In 2021, this started to be addressed through the following;

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- *Regional Tree Inventory*- working with local conservation authorities, commitment and budget of \$167K was secured in 2021 for Phase 1 to inventory and assess the health of trees on a subset of Regional properties and roads in 2022. All remaining trees will be similarly inventoried in 2023, pending budget approval. Trees have an important role in our response to temperature increases and extreme weather, along with capturing carbon, so it important that tree health is maintained. This work is a first step in implementing the approved Urban Forest Best Practice Guidelines (Resolution Number 2021-1024).
- *Integrated Climate Change and Asset Risk Assessment*- the Region is in process of completing climate change risk assessments for select road and wastewater assets. A Higher-level climate change risk assessments will be applied to all the Region's nearly \$30B of assets using climate modelling scenarios to understand impacts, damage costs and investment required to factor resilience into the assets' level of service.
- *Climate Lens Growth Management*- As the Region looks to influence and support the transformational preparedness of the community, a climate change lens has been applied to the Growth Management and Settlement Area Boundary Expansion to 2051 through scoped sub-watershed studies and agricultural impact assessments. This information has informed the Municipal Comprehensive Review and ROPA scheduled for submission to the Province in 2022.

c) Build Capacity

To build capacity of the organization, the climate change lens must be considered in all decisions through enhanced climate change literacy, planning, and accountability. Despite COVID-19, the Region has carried out some of this important work in 2021 through the development and approval of enabling policies, advocacy and broad engagement, notably:

- *Remote Work First Policy*: Arrangements that were instated as part of the pandemic response but enabled the Region to achieve significant GHG emissions reductions due to less employee commuting.
- *Electric Vehicle Charging Station Management Policy*: When implemented, will help employees optimize the use of electric vehicle charging infrastructure to support climate change outcomes.
- *Council's Advocacy*: Supporting the phase out of natural gas electricity generation and opposition to the GTA West Corridor service to strengthen climate commitments and achieve targets.
- *Talk Climate Change Event*: Took place in advance of the COP26 talks, where 180 employees learned about climate science, shared their thoughts and concerns pertaining to climate change.
- *Intersection of Climate Change and Covid-19*: Peel Public Health's participation on external advisory tables, conferences, and authorship promoting the connection between climate and health vulnerabilities and the transferable lessons between the COVID-19 and the climate crisis.
- *Going All in on Climate Action Webinar*: Led by the Peel Climate Change Partnership, this event included an international keynote speaker and local municipal climate change experts discussing the threats and responses to climate change. Close to 200 residents were in attendance.

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d) Invest

The single CCMP invest action is about developing a Climate Change Financing Strategy, which will provide the framework for how the actions of the CCMP will be funded. Though paused during the COVID-19 response, the strategy will identify financing principles, potential financing mechanisms and position the CCMP funding needs into a ten-year capital plan that will look to mitigate impacts to the tax base and utility rate through pursuit and advocacy for external funding.

In 2021, approximately \$825K in external funding was secured through projects described in the Reduced GHG Emissions section.

e) Monitor and Report

There are finite dollars to be spent on the Region's climate change response. As such, it is important that these investments are monitored and verified that they are providing value to and impact on CCMP outcomes. The annual CCMP Progress Report contributes to this effort. As the maturity of the climate change file grows, so will the reporting mechanisms. In this spirit, the Region is working with the Conservation Authorities to help advance the use of key performance indicators. Work is also being done with municipalities inside and outside of Peel Region to assess how best and when to disclose the Region's climate change investments through appropriate financial reporting channels.

3. Next Steps

Despite the unprecedented challenges of the COVID-19 pandemic, the Region was able to progress on meaningful climate change work over the course of 2021, however, there is a great deal more work that must be done. The planning and implementation of climate work in 2022 is underway and, to a degree, reflects the stated need for accelerated action. However, there are a series of challenges facing the successful completion of this work. The following table outlines some of the challenges and how they will be addressed:

Table 1: Ongoing Climate Change Action Challenges and 2022 Responses

Challenge	Impact	Next Steps- 2022 Response
Financial Resources- There are limited revenue streams for municipalities to fund climate change action at the necessary scale and urgency	This impacts all actions, especially those that have the greatest financial cost and often greatest climate change impact	<ul style="list-style-type: none"> - The Climate Change Financing Strategy will provide guidance on how the Region can overcome this financial challenge - The Region will pursue \$12M in funding from the Canada Community Building Fund to reduce 1,322 tCO₂e across 14 state of good repair projects

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<p>Grid Mix and Capacity- in recent years the Ontario electricity grid has become dirtier and has not maintained its transmission capacity to service growing demand</p>	<p>This primarily impacts actions that are focused on switching from fossil fuels (e.g. gasoline) to electricity. Capacity limitations of the grid can also limit the Region’s ability to generate renewable electricity.</p>	<ul style="list-style-type: none"> - Electricity Demand Studies to account for future electricity needs as the Region diverts from fossil fuel - Advocacy for cleaner electricity that can support the demand and supply of sustainable clean energy sources
<p>Community Scale- the Region of Peel is one of the largest GHG emitters in the community yet represent a fraction of the overall community’s emissions. For greater and timely impact, a greater presence in the community is needed</p>	<p>This primarily impacts the CCMP principle of “Influence’ and “Transform’ which needs to expand while continuing to complete corporate GHG emissions reduction work.</p>	<ul style="list-style-type: none"> - Refresh of the Peel Climate Change Partnership with focus on how to best align collective efforts for larger community impact. - The Region is a stakeholder for the Centre for Community Energy Transformation, which will support GHG emissions reduction action in community - Council to receive the Peel Zero Emission Vehicle Strategy aimed at supporting the community’s transition to electric vehicles
<p>Limited Regulation- practices like decentralized energy and green infrastructure are mature in many places in the world, but relatively new to Ontario, which results in a need for regulations to formalize to enable this work</p>	<p>Decentralized and renewable energy (ex. Low Carbon District Energy) actions along with emerging “Be prepared” actions that optimize the utility of green infrastructure</p>	<ul style="list-style-type: none"> - Continue to enable the Lakeview District Energy Project to help build internal knowledge and further legitimize the action in Ontario - Advocacy for enabling regulations - Advancing transition to NZE regulations by leading through design work on new construction projects across Public Works, Peel Region Police, and Paramedic Services

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<p>Change Fatigue- with the COVID-19 response employees are searching for ‘normalcy’. The climate change response has similar calls for change that may be challenging for employees to embrace</p>	<p>This applies to all actions calling on employee to change current practices and approaches to account for climate change</p>	<ul style="list-style-type: none"> - Climate Change Engagement Plan is centered on change management - The Future Forward work policies will enable the Region to continue to achieve a level of GHG emissions reduction through remote working
<p>Market Availability- there is a great deal of instability in a number of markets for goods and services that support climate change action</p>	<p>There is a shortage of available consultants and trades that are needed to complete climate change studies and projects. Goods like electric vehicles are also in short supply making it difficult to make substantial progress in the immediate term</p>	<ul style="list-style-type: none"> - An Electric Vehicle Infrastructure Study is being conducted to ensure the Region is well prepared for EV expansion when available. Similar exercises will be done for other actions

FINANCIAL IMPLICATIONS

While there are no financial implications by accounting for the CCMP progress made to date, the original costing of the CCMP identified \$300M - \$400M investment that is needed to reduce corporate GHG emissions, and substantially more is expected once infrastructure adaptation costs are known. Most of this investment is still required but unaccounted for in current 10-year capital planning and budget forecasts.

CONCLUSION

The urgency of the climate crisis requires decisive action in this decade. The scale of work remaining on actions “in progress” along with a quarter of actions not yet initiated are causes for concern and drives the urgent call for accelerated rate of Region of Peel’s Climate Change Master Plan implementation. Specifically, projects that result in measured greenhouse gas reductions and the quantification of and commitment for investment for be prepared actions. The strong leadership shown by the Region throughout the COVID-19 response has brought clarity to what can be achieved through bold action, and a similar response is now required to meet the urgency of the climate crisis.

APPENDICES

Appendix I – Climate Change Master Plan Progress Report 2021

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