

**SUBJECT: Climate Change Master Plan - Annual Greenhouse Gas Inventories and Status Update**

**File Number ACS2021-PIE-EDP-0039**

**Report to Standing Committee on Environmental Protection, Water and Waste Management on 19 October 2021**

**and Council 27 October 2021**

**Submitted on October 7, 2021 by Don Herweyer, Director, Economic Development and Long Range Planning**

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**Ward: CITY WIDE / À L'ÉCHELLE DE LA VILLE**

**OBJET : Plan directeur sur les changements climatiques – Inventaires annuels des émissions de gaz à effet de serre et rapport d'étape**

**Dossier : ACS2021-PIE-EDP-0039**

**Rapport au Comité permanent de la protection de l'environnement, de l'eau et de la gestion des déchets**

**le 19 octobre 2021**

**et au Conseil le 27 octobre 2021**

**Soumis le [6 octobre 2021 par Don Herweyer, Directeur, Développement économique et Planification à long terme, Direction générale de la planification, de l'infrastructure et du développement économique**

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## **REPORT RECOMMENDATIONS**

**That the Standing Committee on Environmental Protection, Water and Waste Management recommend that Council:**

- 1. Receive the annual status update on the Climate Change Master Plan, including the 2020 greenhouse gas emissions inventories attached as Document 1 and updates on the Climate Change Master Plan eight priority actions as summarized in this report; and**
- 2. Approve that the 2020 Hydro Ottawa dividend surplus of \$800,000 be used to fund the proposed spending plan attached as Document 3 and summarized in this report.**

## **RECOMMANDATIONS DU RAPPORT**

**Que le Comité permanent de la protection de l'environnement, de l'eau et de la gestion des déchets recommande ce qui suit au Conseil :**

- 1. prendre connaissance du compte rendu de situation annuel relatif au Plan directeur sur les changements climatiques, notamment les inventaires des émissions de gaz à effet de serre de 2020 reproduits dans le document 1 et les comptes rendus sur les huit mesures prioritaires selon le résumé de ce rapport; et**
- 2. approuver l'utilisation de l'excédent des dividendes d'Hydro Ottawa de 2020, qui s'élève à 800 000 \$, aux fins du financement du plan de dépenses proposé dans le document 3 ci-joint et résumé dans le présent rapport.**

## **EXECUTIVE SUMMARY**

### **Assumption and Analysis**

This report includes:

- Results of the 2020 community and corporate greenhouse gas (GHG) inventories
- Annual status update on the Climate Change Master Plan's eight priorities
- A spending plan of \$800,000 for the 2020 Hydro Ottawa dividend surplus funds

In January 2020, Council approved the Climate Change Master Plan, the overarching framework for how Ottawa will mitigate and adapt to climate change over the coming

decades. As part of the approved plan, staff committed to providing an annual update on the climate change framework that includes the latest GHG inventories and how Ottawa is tracking towards achieving the GHG emission reduction targets, and a status update on the eight priorities. The eight priorities are:

1. Implement Energy Evolution: Ottawa's Community Energy Transition Strategy.
2. Undertake a climate vulnerability assessment and develop a Climate Resiliency Strategy.
3. Apply a climate lens to the new Official Plan and its supporting documents.
4. Apply a climate lens to asset management and capital projects.
5. Explore the feasibility of setting corporate carbon budgets, including piloting them in a small portion of the organization.
6. Explore carbon sequestration methods and the role of green infrastructure.
7. Encourage private action through education, direct and indirect incentives, municipal support, and advocacy for support of individuals and private organizations by senior levels of government.
8. Develop a governance framework to build corporate and community capacity, align priorities, and share accountability in tackling climate change.

The last Climate Change Master Plan update was received by Council in January 2021.

### **Progress towards achieving the GHG emission reduction targets**

The latest community and corporate inventories are for the 2020 calendar year. Community inventories track emissions from activities taking place within the geographic boundaries of the City of Ottawa. Corporate inventories track emissions under municipal operational control within the corporate organizational structure.

Between 2012 and 2020, community emissions decreased 15 per cent (Figure 1) and per capita emissions decreased from 7.1 tCO<sub>2</sub>e per person in 2012 to 5.6 tCO<sub>2</sub>e per person in 2020. Historically, this decline in emissions has been attributable to the provincial phase out of coal plants and a significant reduction in emissions from electricity generation and consumption. However, starting in 2020, the COVID-19 pandemic also played a significant role in reducing GHG emissions, particularly within the transportation sector which saw a 30 per cent drop in gasoline fuel use between

2019 and 2020. Roughly 90 per cent of community emissions are attributable to the buildings (primarily for building heating) and transportation sectors, a trend that has been consistent since 2012, and natural gas consumption was the largest contributing source of emissions.

In order to meet Ottawa's short term and mid-term targets to reduce emissions by 43 per cent by 2025 and 63 per cent by 2030, respectively, the community will need to reduce emissions by 5 to 6 per cent a year over the next five to ten years. It is expected that the drop in community emissions due to the COVID-19 pandemic will not be sustained once the virus is under control and that emissions will rebound if there are no additional actions or investments to achieving Ottawa's GHG emission reduction targets. In 2020, Council approved new GHG reduction targets and Energy Evolution, the action and investment framework for achieving these targets. Staff have been working on developing and launching plans, policies, and programs that will directly impact or influence emission reductions; however, given that Energy Evolution was only approved one year ago and that many of these policies, programs, and plans are still in development, it will take time for these initiatives to have an effect. Staff do not expect to see a significant reduction in the next two to three GHG inventories, particularly on the community side. This is due to the number, scale and complexity of the projects required to achieve Council's targets, as well as factors outside the City's control, including policy decisions by senior levels of government and the availability of funding and market solutions. Staff will continue to report on how Ottawa is tracking towards community and corporate GHG reduction targets and provide status updates on the Climate Change Master Plan including initiatives to reduce emissions in the community and within municipal operations.

Corporate emissions decreased 43 per cent between 2012 and 2020, currently exceeding the short-term target to reduce emissions 30 per cent below 2012 baseline levels by 2025. This decrease in emissions remains primarily due to the significant decline in emissions in the solid waste sector which can be attributed to the considerable efficiencies made at the Trail Road Waste Facility. The remaining emission reductions can be attributable to a decrease in fuel consumption within fleet, specifically transit fleet which saw a 20 per cent drop in diesel fuel consumption from busses between 2019 and 2020, and a reduction in emissions from facilities. The largest contributing sector to total corporate emissions was transit fleet, which accounted for 44 per cent of the total (although emissions did decline in the transit fleet from 2019). Directly related, diesel consumption was the largest contributing source of emissions, accounting for 51 per cent of total corporate emissions. Given the planned

acquisition of electric buses and energy efficiency improvements to City facilities in the coming years, staff expect that the corporation will stay on track and meet the 2025 target.

### **Status Update on the Climate Change Master Plan Priorities**

Key achievements that supported the advancement of the Climate Change Master Plan priorities since the last update in January 2021 include:

- Climate considerations embedded throughout the New Official Plan, Master Plans (including the Parks and Recreation Master Plan that was approved by Council in September 2021), and Asset Management Plans for water, wastewater, stormwater, and transportation.
- Council approved purchasing up to 450 zero emission buses by 2027 and transitioning to a fully zero emission bus fleet by 2036 (based on funding availability and operational needs).
- Council approved the Better Homes Ottawa – Loan Program whereby homeowners can access financing to pay for home energy improvements and help reduce GHG emissions (program to launch fall 2021).
- Council received Phase 2 of the Solid Waste Master Plan and approved the Plan’s vision statement, guiding principles and goals which support the City’s Climate Change Master Plan and associated priorities.
- The City has installed a Level 2 charging station at the renovated Lois Kemp Arena (Blackburn), is installing 12 double-headed Level 2 charging stations in the right-of-way across the city and will install a 150 kW charging station at Bob MacQuarrie Recreation Complex.
- The climate vulnerability and risk assessment is underway in collaboration with internal and external stakeholders. More than 100 potential climate impacts are being assessed across a range of sectors and for key City assets such as the drinking water and wastewater treatment plants.
- A new Climate Implications section has been added to the standard report template to demonstrate how climate change issues have been considered in the development of the project, policy, program, or plan.

- Significant funding in external loans and grants was committed to support climate change mitigation efforts, including funding for zero emission buses and for the Better Homes Ottawa – Loan Program. Four additional funding applications and nine letters of support were submitted (decisions pending) to encourage private action

Staff will continue to work towards achieving the eight priorities under the Climate Change Master Plan and the following reports are anticipated to be tabled at Committee and Council before the end of 2022.

- High-Performance Development Standard
- Corporate Green Building Policy Update
- Personal Electric Vehicle Strategy
- Corporate Electric Vehicle Policy Update
- Update to Municipal Green Fleet Plan
- Draft Solid Waste Master Plan
- Part 1 of Transportation Master Plan Update (Policy)
- Carbon Accounting Tool Framework
- Climate Vulnerability and Risk Assessment
- Asset Management Plans for core infrastructure (water, wastewater, stormwater, and transportation) with consideration given to climate implications

### **2020 Hydro Ottawa dividend surplus spending plan**

Document 3 includes a spending plan for \$800,000 to be funded through the 2020 Hydro Ottawa dividend surplus funds. The spending plan proposes funding to support 6 of 20 Energy Evolution priority projects, leverage federal and provincial funds where possible, and implement energy efficiency, conservation, and renewable energy generation projects.

### **Financial Implications**

Recommendation 1: There are no direct financial implications associated with receiving the status update.

Recommendation 2: Funds are available from the 2020 Hydro Ottawa dividend surplus. Pending Council approval of the proposed spending plan, budget authority of \$800,000 will be added to 908880 Energy Evolution, 100 per cent funded from the dividend surplus.

### **Public Consultation/Input**

No public consultation was required for this status update report. Public consultation will be incorporated into each of the relevant projects, where applicable.

## **RÉSUMÉ**

### **Hypothèse et analyse**

#### **Le présent rapport comprend :**

- les inventaires des émissions de GES communautaires et municipales de 2020
- le rapport d'étape annuel sur les huit mesures prioritaires du Plan directeur sur les changements climatiques
- un plan de dépenses de 800 000 \$ provenant de l'excédent des dividendes de 2020 d'Hydro Ottawa

En janvier 2020, le Conseil a approuvé le Plan directeur sur les changements climatiques, un cadre général orientant les efforts que déploiera Ottawa pour atténuer les effets des changements climatiques et s'y adapter au cours des prochaines décennies. À cette occasion, le personnel s'est engagé à présenter un rapport d'étape annuel sur ce cadre, rapport devant comprendre les plus récents inventaires des GES et indiquer les progrès d'Ottawa relativement aux cibles de réduction des émissions de GES, ainsi qu'un rapport d'étape sur les huit mesures prioritaires suivantes :

1. Mettre en œuvre la stratégie « Évolution énergétique : la stratégie de la collectivité d'Ottawa pour la transition énergétique ».
2. Mener une évaluation de la vulnérabilité climatique et mettre au point la Stratégie de la résilience climatique.
3. Appliquer l'optique des changements climatiques au nouveau Plan officiel de la Ville et à ses documents complémentaires.
4. Appliquer l'optique des changements climatiques à la gestion des biens et aux projets d'immobilisation.

5. Étudier la faisabilité d'établir des budgets carbone pour la municipalité, y compris leur mise à l'essai dans une partie restreinte de l'organisation.
6. Examiner des méthodes de séquestration du carbone et le rôle des infrastructures vertes.
7. Encourager les initiatives privées par l'éducation, les mesures incitatives directes et indirectes, le soutien municipal et la défense du soutien des individus et des organisations privées par les paliers supérieurs de gouvernement.
8. Définir une structure de gouvernance afin de renforcer la capacité de la municipalité et de la collectivité à faire face aux changements climatiques, d'harmoniser les priorités des divers intervenants et de partager la responsabilité.

La dernière mise à jour du Plan directeur sur les changements climatiques a été transmise au Conseil en janvier 2021.

#### Progrès dans l'atteinte des cibles de réduction des émissions de GES

Les plus récents inventaires des émissions de GES communautaires et municipales se rapportent à l'année civile 2020. Les inventaires communautaires permettent de faire le suivi des émissions issues des activités réalisées à l'intérieur des limites géographiques de la ville d'Ottawa. Les inventaires municipaux servent à suivre les émissions relevant du contrôle opérationnel d'une municipalité au sein de la structure organisationnelle municipale.

Entre 2012 et 2020, les émissions communautaires ont chuté de 15 pour cent (figure 1) et celles par habitant ont diminué de 7,1 tonnes d'éq. CO<sub>2</sub> par personne en 2012 à 5,6 tonnes d'éq. CO<sub>2</sub> par personne en 2020. Historiquement, cette baisse des émissions est attribuable à la fermeture, dans l'ensemble de la province, des usines de charbon, ainsi qu'à une réduction importante des émissions causées par la production et la consommation d'électricité. À partir de 2020 cependant, la pandémie de COVID-19 a joué un rôle important dans la réduction des émissions de GES, en particulier dans le secteur du transport, qui a enregistré une baisse de 30 pour cent de l'utilisation d'essence entre 2019 et 2020. Environ 90 pour cent des émissions communautaires sont imputables aux secteurs des bâtiments (essentiellement pour le chauffage) et des transports, une tendance qui se maintient depuis 2012, la consommation de gaz naturel étant la plus grande *source* d'émissions de GES.



Quant aux émissions municipales, elles ont diminué de 43 pour cent de 2012 à 2020, une baisse qui dépasse actuellement l'objectif à court terme (d'ici 2025) de réduire ce type d'émissions de 30 pour cent par rapport aux valeurs de référence de 2012. La principale cause de la baisse des émissions demeure la diminution marquée des émissions générées par le secteur des déchets solides, que l'on peut attribuer aux importants gains d'efficacité réalisés à la décharge contrôlée du chemin Trail. Les autres réductions d'émissions peuvent être attribuables à la baisse de la consommation de carburant par le parc automobile, plus particulièrement le transport en commun, qui a enregistré une baisse de 20 pour cent de consommation de carburant diesel par les autobus en 2019 et 2020, et à une réduction des émissions provenant des installations. Le parc automobile est le secteur contribuant le plus aux émissions municipales, représentant 44 pour cent des émissions totales (malgré une baisse des émissions provenant du transport en commun depuis 2019). Directement liée au parc automobile, la consommation de carburant diesel s'avère la principale source d'émissions de GES, représentant 51 pour cent de toutes les émissions municipales. Les émissions municipales ont représenté environ quatre pour cent de toutes les émissions communautaires en 2020.

Dans les années qui viennent, on s'attend à ce que la baisse des émissions communautaires attribuable à la pandémie de COVID-19 ne se poursuive pas lorsque le virus sera sous contrôle, et que les émissions repartiront à la hausse sans mesure ou investissement supplémentaire pour atteindre l'objectif d'Ottawa en matière de réduction des émissions de GES. En 2020, le Conseil a approuvé de nouveaux objectifs et le plan d'action et d'investissement Évolution énergétique, qui devrait permettre d'atteindre ces objectifs. Le personnel de la Ville a travaillé à l'élaboration et à la mise en place de plans, de politiques et de programmes qui auront une incidence ou une influence directe sur la réduction des émissions; mais puisque Évolution énergétique a été approuvé voilà à peine un an et que bon nombre de ces politiques, programmes et plans sont toujours en cours d'élaboration, il faudra encore patienter pour constater les effets de ces initiatives. Le personnel ne prévoit aucune réduction significative au cours de deux ou trois prochains inventaires des émissions de GES, en particulier les émissions communautaires. Cela s'explique par le nombre, l'échelle et la complexité des projets nécessaires pour atteindre les objectifs du Conseil, et par des facteurs échappant au contrôle de la Ville, comme les décisions stratégiques prises par les paliers supérieurs du gouvernement et la disponibilité de fonds et de solutions de marché. Le personnel entend continuer de rendre compte du suivi que la Ville d'Ottawa fait des objectifs de réduction des émissions communautaires et municipales de GES, et de fournir des rapports d'étapes sur le Plan directeur sur les changements

climatiques, notamment sur les initiatives mises en place pour réduire les émissions dans la collectivité et dans le cadre des opérations municipales.

### **Rapport d'étape sur les mesures prioritaires du Plan directeur sur les changements climatiques**

Voici les principales réalisations qui ont favorisé les mesures prioritaires du Plan directeur sur les changements climatiques **depuis la dernière mise à jour datant de janvier 2021** :

- Considérations d'ordre climatique intégrées dans le nouveau Plan officiel, les plans directeurs (notamment le Plan directeur des parcs et des loisirs approuvé par le Conseil en septembre 2021) et les plans de gestion des actifs visant l'eau, les eaux usées, les eaux pluviales et le transport.
- Le Conseil a approuvé l'achat d'autobus à émission zéro, dont le nombre pourrait atteindre 450 d'ici à 2027, et la transition vers un parc d'autobus entièrement à émission zéro d'ici à 2036 (en fonction des fonds disponibles et des besoins opérationnels).
- Le Conseil a approuvé le programme de prêts pour la mise en valeur des habitations, qui permet aux propriétaires d'avoir accès à un financement qui les aidera à payer les améliorations énergétiques de leur logement et à réduire les émissions de gaz à effet de serre (programme lancé à l'automne 2021).
- Le Conseil a reçu la Phase 2 du Plan directeur de la gestion des déchets solides et a approuvé l'énoncé de la *vision*, les principes directeurs et les objectifs qui soutiennent le Plan directeur sur les changements climatiques de la Ville et les priorités qui y sont associées.
- La Ville a installé une borne de recharge de niveau 2 à l'aréna Lois-Kemp (Blackburn), récemment rénové, installe actuellement 12 bornes de recharge doubles de niveau 2 dans des emprises un peu partout en ville et compte installer une borne de recharge de 150 kW au Complexe récréatif Bob-MacQuarrie.
- La vulnérabilité climatique et l'évaluation des risques est en cours, en collaboration avec des intervenants internes et externes. Plus d'une centaine d'incidences possibles sur le climat, qui toucheraient divers secteurs et des

infrastructure municipales importantes, comme les installations d'eau potable et d'épuration des eaux usées, sont en cours d'évaluation.

- Une nouvelle section consacrée aux répercussions climatiques a été ajoutée au modèle de rapport type, afin de démontrer comment les enjeux du changement climatique ont été pris en compte dans l'élaboration du projet, de la politique, du programme ou du plan dont fait l'objet le rapport.
- Un financement important de prêts et de subventions externes a été attribué pour soutenir les efforts d'atténuation du changement climatique, y compris le financement des autobus à émission zéro et celui du programme de prêts pour la mise en valeur des habitations. Quatre autres demandes de financement et neuf lettres de soutien ont été présentées (les décisions sont attendues) pour encourager les initiatives privées.

Le personnel continuera de travailler à l'atteinte des huit mesures prioritaires du Plan directeur sur les changements climatiques, et les prochains rapports devraient être soumis au Comité et au Conseil d'ici la fin de 2022.

- Norme d'aménagement d'immeubles à haut rendement énergétique
- Mise à jour de la Politique de la Ville sur les bâtiments écologiques
- Stratégie sur les véhicules électriques personnels
- Mise à jour de la Politique de la Ville sur les véhicules électriques
- Mise à jour du *Plan* vert du parc de véhicules municipaux
- Version provisoire du Plan directeur de la gestion des déchets solides
- Partie 1 de la mise à jour du Plan directeur des transports (politique)
- Cadre de l'outil de comptabilisation du carbone
- Vulnérabilité climatique et gestion des risques
- Plans de gestion des actifs pour les principales infrastructures (eau, eaux usées, eaux pluviales et transport), compte tenu des répercussions climatiques

## **Plan d'investissement de l'excédent des dividendes d'Hydro Ottawa de 2020**

Le document 3 contient un plan de dépenses de 800 000 \$, financé à même l'excédent des dividendes de 2020 d'Hydro Ottawa. Ce plan prévoit un appui à six des 20 projets prioritaires d'Évolution de l'énergie, une intégration du financement fédéral et provincial lorsque c'est possible, et la mise en œuvre de projets d'efficacité énergétique, de conservation d'énergie et de production d'énergie renouvelable.

### **Répercussions financières**

Recommandation 1: Aucune répercussion financière directe n'est associée à la réception de la mise à jour.

Recommandation 2: Les fonds proviendront de l'excédent des dividendes de 2020 d'Hydro Ottawa. Sous réserve de l'approbation par le Conseil du plan de dépenses proposé, une autorisation budgétaire de 800 000 \$ sera ajoutée à Évolution énergétique 908880, montant entièrement financé par l'excédent des dividendes.

### **Consultation et commentaires du public**

Aucune consultation publique n'était requise pour le présent rapport d'étape. Une consultation publique sera prévue pour chaque projet pertinent, le cas échéant.

## **BACKGROUND**

In April 2019, City Council approved a motion to declare a climate emergency ([ACS2019-CCS-ENV-0005](#)) which included the following directions to Council and staff:

1. Officially declare a climate emergency for the purposes of naming, framing, and deepening our commitment to protecting our economy, our eco systems, and our community from climate change.
2. Establish a Council Sponsors Group comprised of representatives from the Standing Committee on Environmental Protection, Water and Waste Management, Planning Committee, Transportation Committee, Transit Commission, the Ottawa Board of Health, and the Councillor Liaison of the Environmental Stewardship Advisory Committee.
3. Direct City staff to include the following in the review and update of the Air Quality and Climate Change Management Plan (AQCCMP):

- a) An analysis of how the AQCCMP's long term target to reduce GHG emissions 80 per cent below 2012 levels by 2050 compares to the IPCC's targets for limiting global warming to 1.5°C
  - b) Midterm (2030) corporate and community GHG emission reduction targets
  - c) Climate Change mitigation and adaptation priorities for next five years (2019-2024) to embed climate change considerations across all elements of City business.
4. Direct City staff to include the following in the Energy Evolution Final Report:
    - a) Status update of Energy Evolution Phase 1 actions
    - b) New concrete actions and resource implications (staff and financial) to achieve GHG emission reduction targets
    - c) Use an equity and inclusion lens in the prioritization of actions
    - d) Funding and savings options for the City when implementing emission reductions
  5. Direct City staff to report back, within the 2019 calendar year, on a spending plan for the Hydro Ottawa dividends surplus that would help reduce community and corporate GHG emissions beyond the scope of the City's current climate targets while also saving money.
  6. Direct City staff to complete a vulnerability assessment and develop a climate resiliency strategy to reduce the impacts of a changing climate.
  7. Recognize climate change as a strategic priority in the City's Strategic Plan and accompanying budget directions for the remaining Term of Council.
  8. Work with senior levels of government to accelerate ambition and action to meet the urgency of climate change and provide additional resources for municipalities and the public to reduce their GHG emissions and build resiliency to climate impacts.

In January 2020, Council approved the Climate Change Master Plan, which included setting new short, mid, and long-term GHG emission reduction targets ([ACS2019-PIE-EDP-0053](#)).

In June 2020, Council received the climate projections for the National Capital Region ([ACS2020-PIE-EDP-0014](#)), which provided a comprehensive analysis of future climate conditions in the National Capital Region to 2100. The report includes projected changes in temperature, rainfall, snow, wind, and extreme events such as freezing rain, tornadoes, and storms. It is the first phase in a three-phase process. The next phase is to undertake climate vulnerability and risk assessments (Phase 2) followed by the development of an Adaptation and Resiliency Strategy and Plan (Phase 3). The climate projections will also inform the development of the Official Plan, Master Plans and Asset Management Plans.

In October 2020, Council unanimously approved the final strategy for Energy Evolution: Ottawa's Community Energy Transition Strategy. Energy Evolution provides a framework for achieving Council's target to reduce community greenhouse gas emissions by 100 per cent by 2050 and corporate greenhouse gas emissions by 100 per cent by 2040. Council also approved the spending plan for the 2019 Hydro Ottawa dividend surplus of \$2.6 million to support Energy Evolution projects ([ACS2020-PIE-EDP-0036](#)).

In December 2020, Council approved that the standard Council and Committee report template be amended to include optional sections for Climate Implications, that the next Long Range Financial Plans consider the affordability of raising the debt limit for projects in Energy Evolution that either generate income or savings to the City and the results of this analysis and that the Climate Change and Resiliency Section Manager of the Planning, Infrastructure and Economic Development department's climate change participate in the development of the Long Range Financial Plans to help identify new funding mechanisms for Energy Evolution initiatives required by the Corporation as per the Climate Change Master Plan, to meet the 100 percent emissions reduction scenario.

In January 2021, Council received the annual status update on the Climate Change Master Plan, including the community and corporate 2019 greenhouse gas emissions inventories and updates on the Climate Change Master Plan eight priority actions ([ACS2020-PIE-EDP-0043](#)).

## DISCUSSION

**Recommendation #1: Receive the annual status update on the Climate Change Master Plan, including the 2020 GHG emissions inventories attached as Document 1 and updates on the eight priority actions as summarized in this report;**

In January 2020, Council approved the Climate Change Master Plan, the overarching framework for how Ottawa will mitigate and adapt to climate change over the coming decades. It has a vision to take unprecedented, collective action that transitions Ottawa to a clean, renewable, and resilient city by 2050. The Plan sets guiding principles, goals, GHG emission reduction targets, and eight priority actions for the next five years (2020-2025) that can be embedded into City business. The eight priority actions are:

1. Implement Energy Evolution: Ottawa's Community Energy Transition Strategy.
2. Undertake a climate vulnerability assessment and develop a Climate Resiliency Strategy.
3. Apply a climate lens to the new Official Plan and its supporting documents.
4. Apply a climate lens to asset management and capital projects.
5. Explore the feasibility of setting corporate carbon budgets, including piloting them in a small portion of the organization.
6. Explore carbon sequestration methods and the role of green infrastructure.
7. Encourage private action through education, direct and indirect incentives, municipal support, and advocacy for support of individuals and private organizations by senior levels of government.
8. Develop a governance framework to build corporate and community capacity, align priorities, and share accountability in tackling climate change.

As part of the approved plan, staff committed to providing an annual update on the climate change framework that includes:

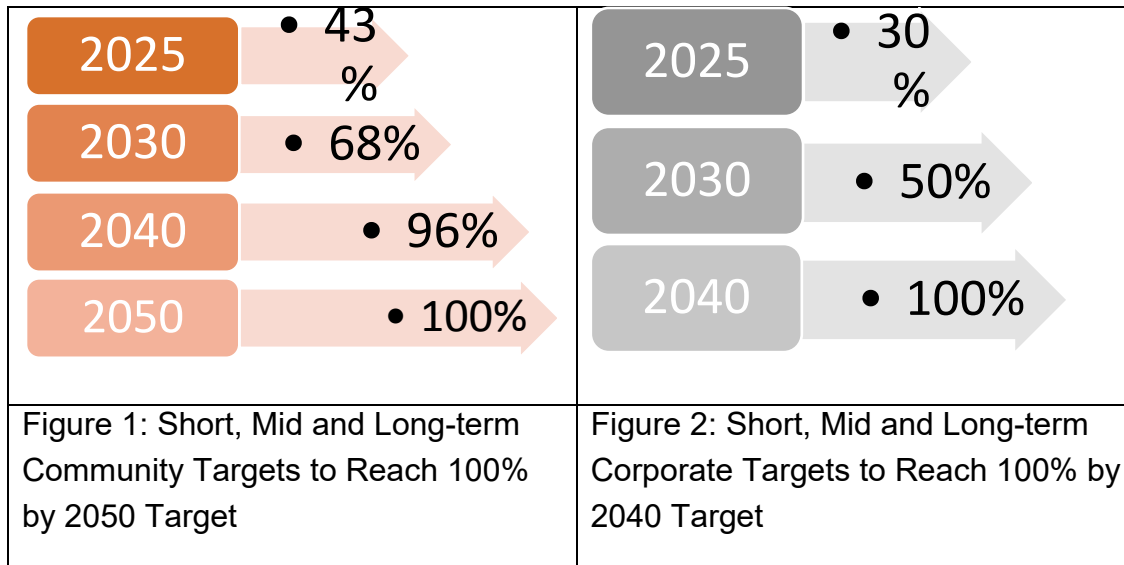
- Annual GHG community and corporate inventories
- An assessment of how Ottawa is tracking towards community and corporate targets
- An update on the Climate Change Master Plan priorities

- Recommendations, as required, to advance the Climate Change Master Plan priorities
- New budget pressures, if required.

The last Climate Change Master Plan update was received by Council in January 2021 ([ACS2020-PIE-EDP-0043](#)).

**ANNUAL COMMUNITY AND CORPORATE GHG EMISSION INVENTORIES**

As part of the Climate Change Master Plan, Council approved short, mid, and long-term GHG emission reduction targets to reduce community emissions by 100 per cent by 2050 and corporate emissions by 100 per cent by 2040 (Figures 1 and 2). These targets align with the Intergovernmental Panel on Climate Change’s target to limit global warming increases to 1.5 degrees Celsius.



GHG inventories provide a snapshot of energy use and associated emissions over a given period within the buildings, transportation, waste, and agriculture sectors. Emissions are reported in tonnes of equivalent carbon dioxide emissions (tonnes of CO<sub>2</sub>e), which are calculated based on carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) emissions. Inventories follow the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories, which offers a consistent and robust accounting methodology that allows for comparison around the world. They are based on five principles to represent a true account of emissions: relevance, completeness, consistency, transparency, and accuracy.



The City of Ottawa undertakes two types of greenhouse gas (GHG) emissions inventories on an annual basis: community inventories and corporate inventories. The latest inventory results are for the 2020 calendar year and further inventory details can be found in Document 1.

Community inventories track emissions associated with activities within the geographic boundaries of Ottawa and are broken down into four sectors:

- a) Buildings – includes emissions from residential, commercial, institutional, and industrial sectors
- b) Transportation – includes emissions from on-road, aviation, railway, and off-road transportation
- c) Waste – includes emissions from solid waste and wastewater treatment
- d) Agriculture – includes emissions from crop production and livestock operations

Corporate inventories are used to track emissions under municipal operational control within the corporate organizational structure and are broken down into four sectors:

- Facilities – includes buildings, streetlights, and traffic lights
- Fleet – includes municipal, transit, and police fleets
- Solid waste – includes emissions from the Trail Road Waste Facility and Nepean landfill
- Wastewater – includes emissions from the treatment of wastewater at Robert O. Pickard Environmental Centre

## **COVID-19**

In 2020, COVID-19 had global, national, and local impacts on all aspects of society, impacting everything from personal commutes to the amount of energy consumed in buildings to manufacturing of goods. Data shows that after rising steadily for decades, global emissions dropped by 6.4 per cent in 2020. However, while there was a sharp decline early in the pandemic due to lockdowns, global and local emissions rose as economic activity began to recover.<sup>1</sup> In comparison, a United Nations Environment

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<sup>1</sup> Tollefson, Jeff. "COVID curbed carbon emissions in 2020 — but not by much". *Nature*. 589, 343 (2021) <https://www.nature.com/articles/d41586-021-00090-3>

Programme report projected that global emissions need to fall by 7.6 per cent per year between 2020 and 2030 to avoid missing the global target to limit global warming to 1.5 degrees Celsius.<sup>2</sup> The 2020 global emissions drop from COVID-19 fell short of this target.

### **How Ottawa is tracking towards community and corporate targets**

#### a) Community inventory

Between 2012 and 2020, community emissions decreased 15 per cent (Figure 3) and per capita emissions decreased from 7.1 tCO<sub>2</sub>e per person in 2012 to 5.6 tCO<sub>2</sub>e per person in 2020. Historically, this decline in emissions has been attributable to the provincial phase out of coal plants and a significant reduction in emissions from electricity generation and consumption. However, starting in 2020, the COVID-19 pandemic also played a significant role in reducing GHG emissions, particularly within the transportation sector which saw a 30 per cent drop in gasoline fuel consumption between 2019 and 2020. This is likely due to a large portion of Ottawa residents that were required to either work or learn from home as well as an increase in on-line activities which replaced the need for physical travel.

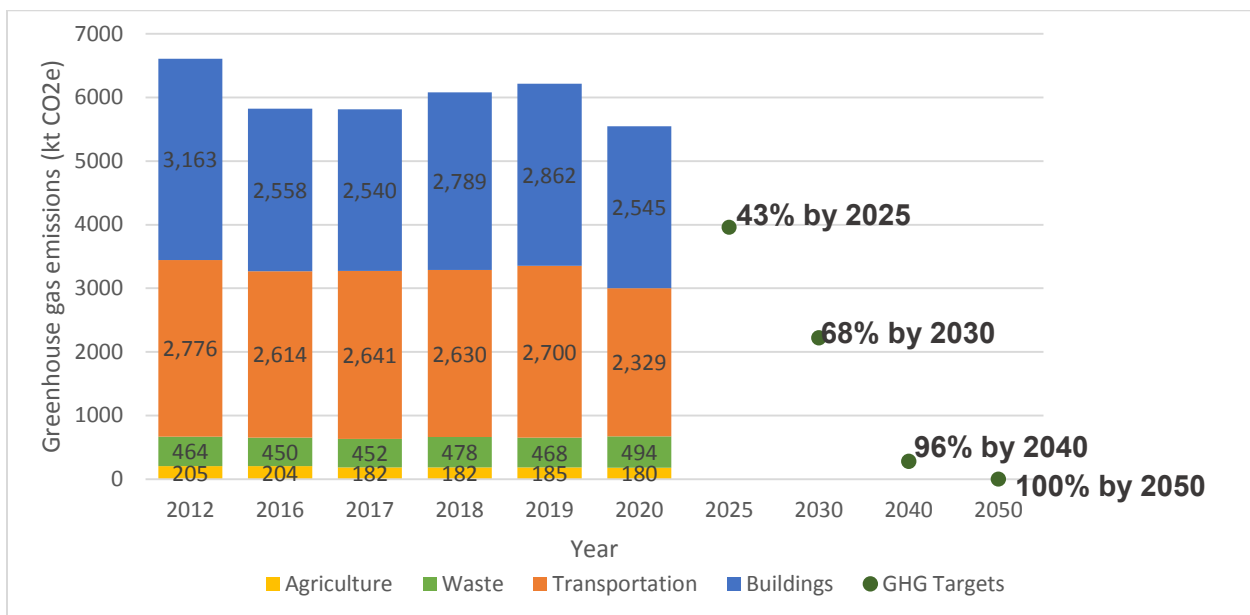
Roughly 90 per cent of community emissions are attributable to the buildings (primarily for building heating) and transportation sectors, a trend that has been consistent since 2012. Waste and agriculture sectors make up the other roughly 10 per cent of emissions (Figure 4). Natural gas consumption was the largest contributing source of emissions, accounting for 38 per cent of total community emissions. Gasoline and diesel consumption were the second and third largest contributors, accounting for 21 per cent and 12 per cent, respectively (Figure 5).

In order to meet Ottawa's short term and mid-term targets to reduce emissions by 43 per cent by 2025 and 68 per cent by 2030, respectively, the community will need to reduce emissions by 5 to 6 per cent a year over the next five to ten years. It is expected that the drop in community emissions due to the COVID-19 pandemic will not be sustained once the virus is under control and that emissions will rebound if there are no additional actions or investments to achieving Ottawa's GHG emission reduction targets. In 2020, Council approved new GHG reduction targets and Energy Evolution, the action and investment framework for achieving these targets. Staff have been

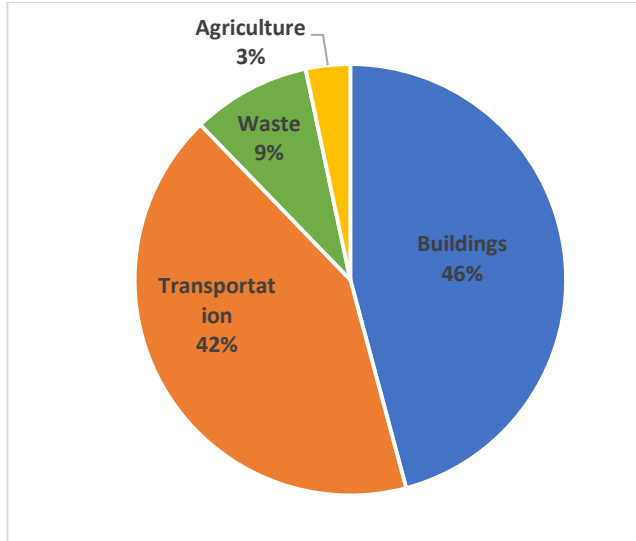
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<sup>2</sup> United Nations Climate Change. (2019 Nov 26). *Cut Global Emissions by 7.6 Percent Every Year for Next Decade to Meet 1.5°C Paris Target – UN Report*. <https://unfccc.int/news/cut-global-emissions-by-76-percent-every-year-for-next-decade-to-meet-15degc-paris-target-un-report>

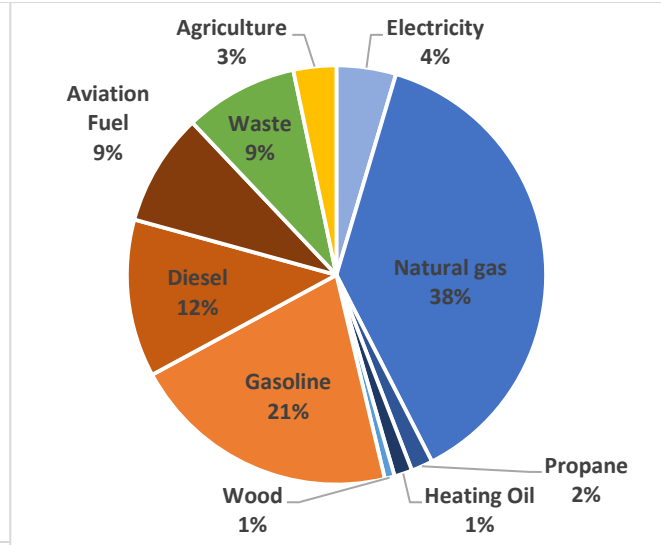
working on developing and launching plans, policies, and programs that will directly impact or influence emission reductions; however, given that Energy Evolution was only approved one year ago and that many of these policies, programs, and plans are still in development, it will take time for these initiatives to have an effect. Staff do not expect to see a significant reduction in the next two to three GHG inventories, particularly on the community side. This is due to the number, scale and complexity of the projects required to achieve Council's targets, as well as factors outside the City's control, including policy decisions by senior levels of government and the availability of funding and market solutions. Staff will continue to report on how Ottawa is tracking towards community and corporate GHG reduction targets and provide status updates on the Climate Change Master Plan including initiatives to reduce emissions in both the community and within municipal operations.



*Figure 3: Annual Community GHG Emissions by Sector, 2012 and 2016-2020*



*Figure 4: Community GHG Emissions by Sector (2020)*



*Figure 5: Community GHG Emissions by Source (2020)*

#### b) Corporate inventory

Between 2012 and 2020, corporate emissions decreased by 43 per cent, currently exceeding the short-term target to reduce emissions by 30 per cent below 2012 baseline levels by 2025 (Figure 6). This decrease in emissions remains primarily due to the significant decline in emissions in the solid waste sector, of which 32 per cent of the 43 per cent total reduction can be attributed to the considerable efficiencies made at the Trail Road Waste Facility. The remaining emission reductions can be attributable to a decrease in fuel consumption within fleet, specifically transit fleet which saw a 20 per cent drop in bus diesel fuel consumption between 2019 and 2020, and a reduction in emissions from facilities.

Similar to previous inventory years, the largest contributing sector to total corporate emissions was the transit fleet sub-sector, accounting for 44 per cent of total corporate emissions (Figure 7). Directly related, diesel consumption was the largest contributing emission source, accounting for 51 per cent of total corporate emissions (Figure 8). Corporate emissions accounted for roughly 4 per cent of total community emissions in 2020.

Given the planned acquisition of electric buses and energy efficiency improvements to City facilities in the coming years, staff expect that the corporation will stay on track and meet the 2025 target.

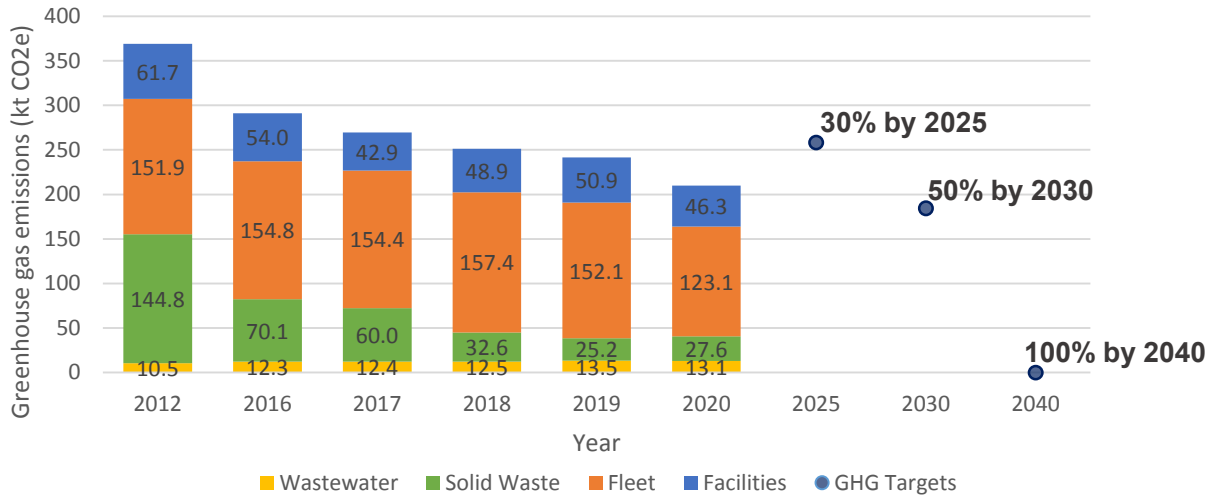


Figure 6: Annual Corporate GHG Emissions by Sector (2012 and 2016-2020)

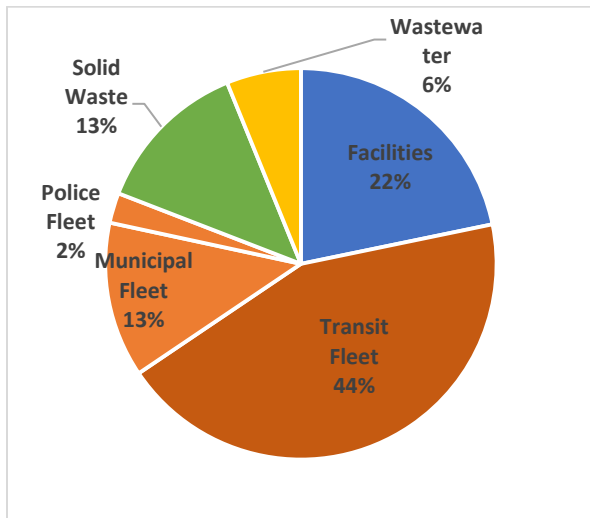


Figure 7: Corporate GHG Emissions by Sector (2020)

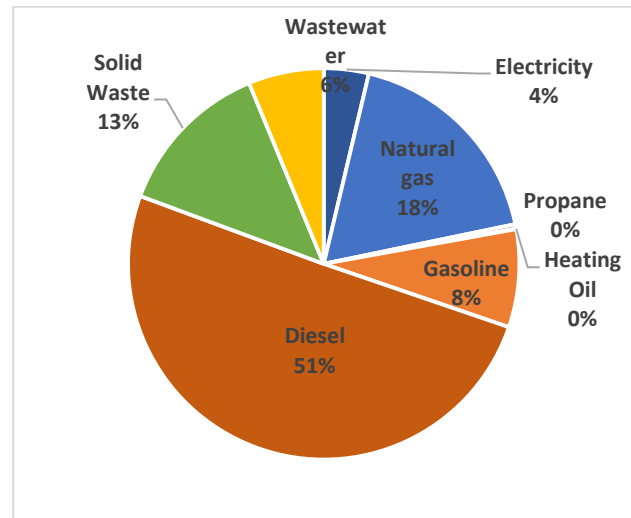


Figure 8: Corporate GHG Emissions by Source (2020)

## UPDATE ON CLIMATE CHANGE MASTER PLAN PRIORITIES

The following provides an update on each of the eight priorities under the Climate Change Master Plan since the last update in January 2021 and next steps.

### 1. Implement Energy Evolution: Ottawa’s Community Energy Transition Strategy

Energy Evolution: Ottawa’s Community Energy Transition Strategy sets the framework for what it will take for Ottawa to meet the Council approved long-term targets to reduce

community GHG emissions by 100 per cent by 2050 and corporate GHG emissions by 100 per cent by 2040. A comprehensive energy, emissions and finance model was used to identify what it will take to achieve Council approved targets in five key sectors: Land Use and Growth Management, Buildings (New and Existing), Transportation, Waste and Renewable Natural Gas, and Electricity. To accelerate action and investment towards achieving the GHG targets, Energy Evolution identified 20 projects to be undertaken by 2025 within these five sectors.

Progress to date:

- For a status update summary of the 20 projects supporting Energy Evolution, including project milestones, next steps, and timelines, refer to Document 2 of this report.
- Climate change mitigation policies were embedded throughout the Official Plan. For more details, refer to the status update for Priority #3 of the Climate Change Master Plan.
- General climate change education and outreach included presentations to 12 community organizations which attracted 1,100 attendees, over 75 social media posts, and three feature stories on Ottawa.ca focused on private action. Since Energy Evolution was approved by Council in October 2020, significant funding in external grants and loans have been committed. For more details, refer to the status update for Priority #7 of the Climate Change Master Plan.
- Key project achievements in the buildings sector include:
  - Better Homes Ottawa - Loan Program: In July 2021, Council approved the Better Homes Loan - Ottawa Program whereby homeowners can access financing to pay for home energy improvements and help reduce GHG emissions. The program will launch in fall 2021.
  - Better Buildings Ottawa Strategy: In October 2021, Committee and Council received the proposed Better Buildings Ottawa Strategy to accelerate the retrofits of existing industrial, commercial, institutional, and multi-unit buildings.<sup>3</sup>

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<sup>3</sup> The report had not yet been tabled at Committee and Council at the time of writing of this report.

- Energy efficiencies at municipal buildings: The City transitioned to electrified heating at Fitzroy Harbour Community Centre, Nepean Sportsplex Halls C, D, and E, and Fire Station #72 in Cumberland by replacing the existing heating systems with cold climate heat pumps. Additionally, the City is dispatching electric boilers in real time at municipal facilities with large electrical accounts when the hourly electricity price is lower than natural gas to displace a large portion of natural gas used for heating purposes.
- Key project achievements in the transportation sector include:
  - Zero Emission Buses for OC Transpo ([ACS2021-TSD-TS-0009](#)): In June 2021, Council approved a transition plan that included acquiring up to 450 zero emission buses by 2027 and moving to a fully zero emission bus fleet by 2036 (based on funding availability and operational needs). The first four battery-electric buses will be operational by the end of 2021, with the acquisition of an additional 74 battery-electric buses included in OC Transpo's 2022 capital budget.
  - Electric vehicle charging stations: The City has installed a Level 2 charging station at the renovated Lois Kemp Arena (Blackburn), is installing 12 double-headed Level 2 charging stations in the right-of-way across the city and will install a 150 kW charging station at Bob MacQuarrie Recreation Complex.
- Key project achievements in the waste sector include:
  - Solid Waste Master Plan ([ACS2021-PWE-SWS-0003](#)): In June 2021, Council received Phase 2 of the Solid Waste Master Plan and approved the Plan's vision statement, guiding principles and goals, which support the City's Climate Change Master Plan and associated priorities.
  - ROPEC Biogas Optimization Study: In September 2021, the City completed an extensive study of feedstocks and technologies to explore increasing biogas production and consider its potential uses at ROPEC and prioritizing the prospective uses of biogas in the future.
- Key project achievements in the electricity sector include:
  - Staff provided feedback or submitted letters to the Ministry of Energy, the Ontario Energy Board, and Independent Electricity Systems Operator on a range of issues including Ontario's long-term energy planning framework, the

hydrogen strategy white paper, community net metering, distributed energy resources, and the phase out of natural gas electricity generation in Ontario

- Council approval for the City of Ottawa to request that the Government of Ontario develop and implement a plan to phase-out gas-fired electricity generation by 2030, lift the prohibition of third-party ownership of net metering assets and develop a framework for virtual net metering
- Staff shared the Energy Evolution modelling work through the CityInSight tool on [ottawa.ca/energyevolution](http://ottawa.ca/energyevolution) for the community to better understand the projected emissions for Ottawa and allow the data to be manipulated for the community's own analysis and research.

Next steps:

- Energy Evolution projects will be continue being developed with input from staff, stakeholders, and the public, and brought to the appropriate future Standing Committee and Council for approval, as required.
- Reports that are anticipated to go to Committee and Council before the end of Q2 in 2022 include:
  - Update to Municipal Green Fleet Plan
  - High-Performance Development Standard
  - Corporate Green Building Policy Update
  - Personal Electric Vehicle Strategy
  - Corporate Electric Vehicle Policy Update
  - Draft Solid Waste Master Plan
  - Part 1 of Transportation Master Plan Update (Policy)
- Staff will continue to carry-out and monitor the Better Homes Loan Program and the Better Buildings Ottawa Program
- Staff will continue to apply for external sources of funding.
- Staff will participate in the development of the City's Long Range Financial Plans to identify new funding mechanisms for Energy Evolution initiatives



- Staff will continue work with senior levels of government to accelerate ambition and action to meet the urgency of climate change and provide additional resources for municipalities and the public to reduce their GHG emissions and build resiliency to climate impacts
- Staff will develop Key Performance Indicators to further track progress being made to achieve Ottawa's GHG reduction targets.
- Staff will continue to provide department specific presentations on Energy Evolution to support on-going alignment of priorities, work plan, and budgets across the corporation

## **2. Undertake a climate vulnerability assessment and develop a Climate Resiliency Strategy**

The purpose of the Climate Resiliency Strategy is to assess how Ottawa is vulnerable to climate change and identify strategies to mitigate the greatest risks. The strategy will assess and mitigate climate risks to Ottawa's community, infrastructure, environment, and economy. It will be developed in close coordination with internal and external stakeholders to align and integrate with initiatives such as the Official Plan and Master Plans, Hazard Assessment Mitigation and Prevention, climate and health vulnerability plan and Comprehensive Asset Management.

Progress to date:

- The climate vulnerability and risk assessment is underway in collaboration with internal and external stakeholders. More than 100 potential climate impacts are being assessed across a range of sectors.
- Thirteen internal working groups have been established with more than 120 staff from across the corporation to assess risks. An external working group of about 50 community partners and stakeholders has been established to share expertise on climate risks and adaptation strategies.
- An Engage Ottawa page was launched in March 2021 to share information on Ottawa's future climate and seek input on risks and opportunities. By August 31, 450 residents, businesses and organizations had completed surveys.
- Detailed risk assessments are underway for water, wastewater and stormwater services and assets, including the drinking water and wastewater treatment plants, to inform the Infrastructure Master Plan.

- Detailed assessments of the health risks of extreme heat are being completed by Ottawa Public Health. Urban heat island mapping has been posted to City and OPH websites. These maps were used to inform draft Official Plan policies.

Next steps:

- Complete the climate risk assessment and integrate findings from water services risk assessments.
- Continue to share relevant climate information publicly, including additional flood hazard mapping and supporting information (in coordination with Infrastructure Services).
- Project timelines have been revised due to the scope of the project and complexity of internal and external engagement. The vulnerability and risk assessment is planned to be completed by early 2022 with a report to Committee and Council by Q2 2022. The Climate Resiliency Strategy and Action Plan will be developed by Q2 2023.
- A "learning while doing approach" is being adopted to address immediate risks while the comprehensive strategy is being developed. For example, flood response plans are in place for the two water purification plants and projects are being identified for possible submission to federal funding opportunities.

### **3. Apply a climate lens to the new Official Plan and its supporting documents**

The Official Plan provides a vision for the future growth of the city and a policy framework to guide the city's physical development. The plan's vision is for Ottawa to grow to be the most liveable mid-sized city in North America. To achieve this vision, Ottawa must be an energy conscious city where people can live, work, and play in all future climate conditions. The Official Plan is an essential tool to meet climate change objectives through land use planning, urban design, regulatory practice, building design and environmental protection.

Updates to the Transportation Master Plan, Infrastructure Master Plan, Urban Forest and Greenspace Master Plan, Parks and Recreation Facilities Master Plan, Solid Waste Master Plan and the Development Charges By-law are to align with the policy directions set out in the new Official Plan and Council's greenhouse gas emissions reduction targets.

Progress to date:

- The November 2020 draft Official Plan was revised following public and stakeholder consultation and the updated Official Plan was posted on the Official Plan's [Engage Ottawa](#) page in August 2021. Policies to mitigate and adapt to climate change are embedded throughout the plan as a cross cutting issue.
- Policies in the draft Official Plan align with the City's intent to support a sustained transition away from fossil fuels toward a low carbon economy and fulfil both community and corporate greenhouse gas emissions reduction targets as well as identify climate risks and adaptation strategies.
- In response to climate change, the Official Plan includes eight primary goals: three related to mitigation, four related to adaptation and one which influences both mitigation and adaptation. They include:

### **Mitigation**

1. Plan a compact and connected City
2. Prioritize a shift to energy efficient transportation modes
3. Enable the use of local renewable energy sources

### **Adaptation**

4. Reduce the urban heat island effect and help protect the vulnerable from extreme heat
5. Build resilience to future flood risks and increased stormwater runoff
6. Protect trees, wetlands and other natural areas and use nature-based solutions
7. Enable sustainable local food production

### **Mitigation and Adaptation**

8. Apply sustainable and resilient site and building design as part of development
- The Parks and Recreation Master Plan was presented to Committee in September 2021 and considers climate adaptation and mitigation. The Solid Waste, Infrastructure, Transportation, and Urban Parks and Greenspace Master Plans continue to consider ways to meet greenhouse gas targets and build resiliency to future climate conditions.

#### Next Steps:

- The Official Plan is expected to be considered by Joint Planning / Agricultural and Rural Affairs Committee and City Council in October 2021.
- If Council adopts the Official Plan, it will be submitted to the Minister of Municipal Affairs and Housing for approval.
- Staff will continue working on the High Performance Development Standard, one of the implementation tools proposed to advance sustainable and resilient design practices in new development and bring a report to committee for consideration.
- Staff will continue to integrate climate considerations into the development of Master Plans.

#### **4. Apply a climate lens to asset management and capital projects**

The Comprehensive Asset Management (CAM) program guides the management of the City's assets. Risk management and asset resiliency are already core principles of asset management. Further integrating climate considerations into CAM will enable climate change to be considered alongside additional challenges such as aging infrastructure, growth, and limited resources. This project will examine ways to embed climate change considerations into the management of existing assets, the design of new capital projects, and current City asset management policies and practices. It supports the City to meet provincial regulation ([O. Reg 588/17](#)) which requires municipalities to commit to considering climate change in asset management planning and better positions the City to respond to external funding opportunities.

#### Progress to date:

- An updated Comprehensive Asset Management Policy was approved by Council in May 2021 and refers to the targets and actions in the Climate Change Master Plan. The Comprehensive Asset Management Policy reflects a commitment to consider climate change in asset management systems and processes.
- Council also received a framework for developing Asset Management Plans that includes guidance on including climate change considerations as part of risk assessment, and how climate change could potentially affect assets and levels of service in future.

- Asset Management Plans (AMPs) for core services (water, wastewater, stormwater, and transportation) are being developed to meet the 2022 regulatory deadline.
- The inter-departmental approach to identifying climate risks and opportunities for the initial set of AMPs enables further assessment to be done through the development of Master Plans and the Climate Resiliency Strategy.

#### Next Steps:

- Asset Management Plans for core infrastructure (water, wastewater, stormwater, and transportation) continue to be developed to meet the 2022 provincial deadline, with AMPs for all other City assets to follow by 2024.
- Additional analysis of mitigation and adaptation strategies will be integrated into subsequent Asset Management Plans, Master Plans, and the Climate Resiliency Strategy.
- A climate lens will also be applied to the upcoming update of the City's Strategic Asset Management Plan, which is scheduled to begin in 2022.

### **5. Explore the feasibility of setting corporate carbon budgets, including piloting them in a small portion of the organization**

To prevent dangerous levels of global warming, scientists have determined that there is a finite amount of carbon dioxide that can be emitted into the atmosphere. This is the global carbon budget. The latest science data indicates that to limit global warming to 1.5°C, the world has a strict global carbon budget of 420 gigatonnes of carbon dioxide equivalent (CO<sub>2</sub>e).

Around the world, more and more cities are adopting or exploring the implementation of a carbon budget to support projects that reduce GHG emissions and can be applied to both city-wide and corporate emissions. Developing a carbon budget for Ottawa would involve establishing a local emissions budget and making decisions about how we “spend” our corporate GHG budget within that context. Corporately, a carbon budget could be embedded within the financial budgetary framework. For a carbon budget in Ottawa to be successful, an implementation and monitoring framework would be required.

Progress to date:

- As a first step in developing a carbon budget framework, staff are developing a carbon accounting tool with a shadow carbon price in collaboration with other Canadian municipalities.
- The tool will help staff embed climate considerations within City business, including project development, procurement processes, the Climate Implications section of Committee reports, Long-Range Financial Plans, and Asset Management Plans.
- A funding application has been submitted to the Federation of Canadian Municipalities to develop the tool.

Next steps:

- Staff will develop and pilot the carbon accounting tool within the corporation in early 2022.
- Staff will bring forward a report to Committee and Council later in 2022 with recommendations on how the carbon accounting tool and the shadow carbon price can be embedded in City business.

## **6. Explore carbon sequestration methods and the role of green infrastructure**

Carbon sequestration is the process through which forestry, agricultural, and wetlands practices capture carbon dioxide caused by activities such as burning fossil fuels and stores it over the long-term. It does not replace the need for action to mitigate climate change and transition off fossil fuels; rather, it complements it. The value of carbon sequestration was identified in both the City's Urban Forest Management Plan and the Significant Woodlands Policy. Additionally, understanding and quantifying the climate benefits of trees, forests and wetlands will support the justification for the active management of the City's forests and wetlands.

To help better understand the potential for carbon sequestration in Ottawa, a number of initiatives should be undertaken. These include:

- Inventorying forests as carbon sinks
- Monitoring and evaluating changes in carbon in agricultural soils
- Mapping wetlands as functioning carbon sinks

- Exploring carbon market options

Progress to date:

- Staff have adjusted their work plan to reflect competing priorities
- Staff are keeping apprised of carbon sequestration accounting best practices
- Tree inventory for wooded urban parks underway
- Completion of city-wide canopy cover data collection and preliminary analysis

Next Steps:

- Staff have been working to complete the recommendations of the first management period of the Urban Forest Management Plan by the end of 2021.
- Staff will include exploring carbon sequestration as part of the second management period of the Urban Forest Management Plan to be initiated in 2022.

**7. Encourage private action through education, direct and indirect incentives, municipal support, and advocacy for support of individuals and private organizations by senior levels of government**

To mobilize climate mitigation and adaptation actions across all sectors, the City of Ottawa is playing a leadership and coordinating role in:

- Climate education that helps people understand the causes and implications of climate change, the actions we can take now to reduce emissions and build resilience against a changing climate, and the benefits in doing so
- Leveraging other resources where feasible
- Communicating what resources are available
- Recommending, advocating for, and promoting incentives to catalyze action (e.g., utility rebates, home protection grants, etc.)
- Assessing municipal tools to support action (e.g., High-Performance Building Standards, Local Improvement Charges, Community Improvement Plans, etc.)

- Setting policies and procedures that facilitate a shift to low carbon and resilient future (e.g., through the Official Plan and other Master Plans)

Progress to date:

- Communications and outreach initiatives:
  - Developed and implemented an annual climate change communications and engagement plan to support private action and the roll out of community focused Energy Evolution and climate resiliency projects.
  - Circulated a monthly climate change newsletter with over 6,000 subscribers that features climate change news, engagement opportunities and events.
  - General climate change education and outreach included presentations to 12 community organizations which attracted over 1,100 attendees, over 75 social media posts on City and Ottawa Public Health channels, and three feature stories on ottawa.ca focused on private action.
  - Energy Evolution education and outreach included a joint public presentation with Public Works and Environmental Services for Earth Day, a public presentation on Home Energy Audits in collaboration with SmartNet Alliance and a presentation on the Energy Evolution CityInSight dashboard. These events attracted over 360 attendees and have over 500 views of the recordings available on YouTube.
  - Participated in Earth Day Canada's EcoHack-a-City initiative to brainstorm how to accelerate electric vehicle adoption in Ottawa. It included a public panel discussion with over 90 attendees and design thinking training for City staff and 12 local organizations. It resulted in two collaborative funding submissions to the Natural Resources Canada's Zero Emission Vehicle Awareness Raising Initiative.
  - Consultation for the Climate Resiliency Strategy included an Engage Ottawa page to educate residents, business, institutions, and organizations about Ottawa's changing climate and gather feedback; to date it has attracted over 3,000 views and 450 survey responses.
  - Consultation for Better Homes Ottawa - Loan Program and Better Buildings Ottawa on Engage Ottawa has attracted almost 3,000 page views and 200 survey responses to-date. This City also, partnered with EnviroCentre to



launch the Better Homes Loan Program and the Better Homes Ottawa website, a comprehensive resource for residents to help plan their home energy efficiency retrofit.

- An information session in February 2021 about climate change policies in the Draft Official Plan attracted over 160 attendees and the recording has been watched over 1,000 times.
- Sponsored EnviroCentre's Green Drive Week which featured a daily speaker series, pop up electric vehicle demos and virtual car tours.
- Launched Rain Ready Ottawa, an education and incentive program to support homeowners to manage rainwater on their property
- Funding initiatives:
  - Significant loan from Canada Infrastructure Bank and grant from Infrastructure Canada committed to purchase up to 450 electric buses by 2027 ([ACS2021-TSD-TS-0009](#))
  - \$12,169,500 from the Federation of Canadian Municipalities for the Better Homes Loan Program consisting of a grant up to \$4,056,500 and a loan up to \$8,113,000. An additional \$3.887 million in loans was committed from VanCity Community Investment Bank.
  - \$83,000 grant from the Federation of Canadian Municipalities to assess waste heat potential
  - \$10,000 grant from Enbridge to support the development of Community Energy Plans
  - Four additional funding applications are awaiting decision to support development or implementation of Energy Evolution projects.
  - Submitted nine letters of support provided for community led funding applications.
- Advocacy initiatives:
  - Staff submitted official comments through the Environmental Registry of Ontario on Ontario's long-term energy planning framework, the hydrogen strategy white paper, and community net metering

- Staff submitted a letter to the Ontario Energy Board requesting that Ottawa be selected for an enhanced gas demand side management pilot project
- Staff submitted comments to the Independent Electricity System Operator (IESO) on the phase out of natural gas electricity generation in Ontario and participated in IESO's Regional Electricity planning municipal engagement
- Staff have repeatedly reached out to Enbridge Gas' geothermal division to encourage them to take up geothermal heating projects in Ottawa

Next steps:

- Staff will continue to develop climate change education and outreach programs to support private action and the roll out of community focused Energy Evolution and climate resiliency projects
- Staff will continue to monitor and pursue funding and advocacy opportunities support implementation of the Climate Change Master Plan including Energy Evolution and climate resiliency projects.
- Staff will develop an overarching advocacy strategy to advance Energy Evolution and climate resiliency projects.
- Staff will provide comment on Enbridge's Demand Side Management Plans

**8. Develop a governance framework to build corporate and community capacity, align priorities, and share accountability in tackling climate change**

Transitioning to a clean, renewable, and resilient city will require broad and deep participation in mitigation and adaptation efforts. Through Energy Evolution, the City has identified a comprehensive and ambitious strategy to reduce GHG emissions. Following the development of local climate projections, the City will undertake a vulnerability assessment and develop a climate resiliency strategy to help adapt to the current and future changes of our climate.

Major stakeholders in the National Capital Region including the federal government, the National Capital Commission, the City of Gatineau, Hydro Ottawa, the conservation authorities, and institutions such as universities also have strategies underway to address climate change. However, there is currently no forum in which large or leading organizations can come together to coordinate efforts, align priorities, and mobilize the

broader community. This priority will explore governance approaches to support and encourage collaboration over the course of what will be a profound transition.

Progress to date:

- Continued to work with key stakeholders and technical working groups to advance Energy Evolution projects and the climate vulnerability and risk assessment
- Met with the Climate Change Council Sponsors Group four times
- Established a General Manager Climate Change Tiger Team and identified key climate advisors to embed climate considerations in City business
- Established monthly regular meetings with Hydro Ottawa and Envari to support information exchange with utilities
- The Chair of the Standing Committee on Environment, Waste and Water Management joined the Board of the [Ottawa Climate Action Fund](#)
- Supported the launch of the Ottawa Climate Action Fund in May 2021
- Partnered with the Ottawa Climate Action Fund to develop a group of climate communications leaders in Ottawa to align messaging and tactics to accelerate climate action
- Continued to participate in bi-weekly information exchanges with climate change colleagues across the country through the Canadian Urban Sustainability Practitioners
- Joined the international "[Race to Zero](#)" campaign and invited other large employers and energy consumers to do the same
- Selected as a participating city in the International Urban and Regional Cooperation program and will partner with Zaragoza, Spain to facilitate and promote cooperation on sustainable urban development and exchange international best practices

Next steps:

- Continue working internally with the Council Sponsors Group, General Manager Tiger Team, and key advisors and externally with key stakeholders, municipal colleagues, and partners to:
  - Coordinate implementation of climate mitigation and adaptation actions

- Scale up of community wide projects, programs, or policies resulting in observable increase in action to reduce GHG emissions (e.g., community wide EV charging network, retrofit program, etc.) or to increase resiliency
- Influence and mobilize organizations and residents that would not otherwise be and motivate to take action
- Finalize the climate vulnerability and risk assessment to identify shared risks
- Provide a memo to Council in December 2022 with a status update on the Climate Change Master Plan to support Council transition and inform strategic priorities

### **Recommendations, as required, to advance the Climate Change Master Plan priorities**

Staff are implementing recommendations approved in previous Council reports as described above.

### **New budget pressures, if required**

Staff and resource pressures will be identified as each of the Climate Change Master Plan priority projects are further developed and brought to Committee and Council, where required. Opportunities to embed financial considerations will be explored in relevant long-range financial plans and future annual budget processes. Staff will also continue to identify and apply for external funding opportunities.

### **Recommendation #2: Approve that the 2020 Hydro Ottawa dividend surplus of \$800,000 be used to fund the proposed spending plan attached as Document 3 and summarized in this report.**

In March 2019 ([Motion No 9/3](#)), Council directed that any surplus in the Hydro Ottawa dividend received in the 2018-2022 Term of Council be directed toward energy efficiency, conservation or renewable energy programs within Ottawa, with specific projects to be recommended by staff and approved by the Standing Committee on Environmental Protection, Water & Waste Management and Council once the specific dollar amount, if any, is known.

In June 2021 ([ACS2021-OCC-HOH-0001](#)), Council received the Hydro Ottawa Holding Inc. 2020 Annual Report which identified a dividend of \$20.8 million to the City of Ottawa in 2021. The 2020 Hydro Ottawa dividend surplus is \$800,000. In accordance with the March 2019 Council-approved dividend policy to direct any surplus in the Hydro

Ottawa dividend received in the 2018-2022 Term of Council toward energy efficiency, conservation or renewable energy programs within Ottawa, staff have identified specific projects to be approved by the Standing Committee on Environmental Protection, Water & Waste Management and Council.

Document 3 proposes a total spending plan of \$800,000 funded through the 2020 Hydro Ottawa dividend surplus. The spending plan proposes funding to support 6 of 20 Energy Evolution priority projects, leverage federal and provincial funds where possible, and implement energy efficiency, conservation, and renewable energy generation projects. Projects include, but are not limited to, municipal energy conservation, public and municipal electric vehicle charging infrastructure, district energy, and solar panels on municipal facilities. The spending plan also proposes to extend one existing temporary full-time position to support communication and outreach associated with implementation of Energy Evolution projects. The spending plan and associated funding is for all project related costs including feasibility and design studies, pilots, construction, and equipment acquisition or installation.

### **FINANCIAL IMPLICATIONS**

Recommendation 1: There are no direct financial implications associated with receiving the status update.

Recommendation 2: Funds are available from the 2020 Hydro Ottawa dividend surplus. Pending Council approval of the proposed spending plan, budget authority of \$800,000 will be added to 908880 Energy Evolution, 100 per cent funded from the dividend surplus.

### **LEGAL IMPLICATIONS**

There are no legal impediments to Committee and Council's approval of the recommendations of this report.

### **COMMENTS BY THE WARD COUNCILLORS**

This is a city-wide report – not applicable.

### **ADVISORY COMMITTEE COMMENTS**

A presentation will be given to the Environmental Stewardship Advisory Committee on October 7, 2021.

## **CONSULTATION**

No public consultation was required for this status update report. Public consultation was completed in each of the relevant projects.

## **ACCESSIBILITY IMPACTS**

Accessibility impacts will be assessed as part of the development and implementation of the Climate Change Master Plan's eight priorities.

## **ASSET MANAGEMENT IMPLICATIONS**

As per the status update for Priority #4, Climate Change considerations are being actively integrated into the City's CAM Program through direct inclusions in the updated CAM Policy and the Framework for developing the Asset Management Plans (AMPs). Work is already well underway on the AMPs for core services (water, wastewater, stormwater, roads, and bridges). There has been close collaboration between Asset Management Branch and the Climate Change and Resiliency Section to ensure that climate change considerations are being appropriately addressed and embedded in these key documents.

## **CLIMATE IMPLICATIONS**

This report covers climate implications associated with significant policies, programs, and plans being developed to achieve the vision of the Climate Change Master Plan to take unprecedented collective action to transition Ottawa into a clean, renewable and resilient city by 2050. Climate implications associated with Climate Change Master Plan projects will be explored as the priorities continue to be further developed in 2022.

## **ECONOMIC IMPLICATIONS**

There are no economic implications associated with the recommendations of this report.

## **ENVIRONMENTAL IMPLICATIONS**

There are no environmental implications associated with the recommendations of this report. Environmental implications associated with the Climate Change Master Plan will be explored as the priorities continue to be further developed in 2022.

## **INDIGENOUS GENDER AND EQUITY IMPLICATIONS**

There are no indigenous, gender or equity implications associated with the recommendations of this report. Indigenous, gender and equity implications associated

with the Climate Change Master Plan will be explored as the priorities continue to be further developed in 2022.

## **RISK MANAGEMENT IMPLICATIONS**

There are no risk implications for this report. Risk implications associated with implementation of the Climate Change Master Plan has been and will continue to be identified and addressed in each of the relevant priority projects.

## **RURAL IMPLICATIONS**

All regions of Ottawa, including the city's rural areas, are key to meeting the goals of the Climate Change Master Plan. The Climate Change Council Sponsors Group includes a rural Councillor.

## **TERM OF COUNCIL PRIORITIES**

The Climate Change Master Plan aligns with the current 2019-2022 Term of Council priority, Environmental Stewardship, to grow and protect a healthy, beautiful, and vibrant city that can adapt to change. Identified outcomes in support of this priority include:

- The City has climate change mitigation and adaptation plans in place
- The City is a leader in energy management and in conserving, recycling, and reusing resources
- The City's long-term plan for solid waste includes more diversion from landfills
- The City reduces its greenhouse gas output and embeds climate change considerations across all operations.

## **SUPPORTING DOCUMENTATION**

Document 1 Results of the 2020 Community and Corporate GHG Inventories (Issued separately and held on file)

Document 2 Status Update of Energy Evolution projects (Immediately follows this report)

Document 3 Proposed 2020 Hydro Ottawa Dividend Surplus Spending Plan

**DISPOSITION**

The Planning, Infrastructure and Economic Development Department will continue to coordinate the Climate Change Master Plan with input from various departments to implement the eight priority actions.



## Document 2 – Status Update of Energy Evolution Projects

Document 2 provides a status update of the 20 projects identified in Energy Evolution to accelerate action and investment towards achieving Ottawa's GHG emission reduction targets. Annual updates include the current status of the project, project achievements to-date, next steps, and timelines. Most of the projects are led by the municipality and are being undertaken in collaboration with community partners. In many cases, implementation of projects is contingent on future Standing Committee and Council approval, where required, and future staff and budget (capital and operating) pressures.

The project milestones and timelines proposed in October 2020 were based on the best available data and information at that time. Since then, some project milestones and timelines have changed; revised milestones and timelines are identified in Table X. Looking ahead, there are risk to achieving these milestones and timelines. These risks may include:

- Insufficient financial support from different levels of government and the private sector to meet the budgetary and staffing needs of the 20 projects and beyond;
- Higher capital and operating costs, as well as lower than expected saving and revenues, beyond what's currently estimated for project implementation and municipal operations;
- Regulatory barriers and compliance issues that impede the municipality from action and innovation, either by impeding the municipality directly through its own operations or impeding how the municipality can enact change in the community;
- Lack of uptake or buy-in from residents, businesses, industry, or the municipality that impacts the viability of a new program or new standard;
- Diverging interpretations between stakeholders on how best to achieve the 100% scenario;
- Competing Council priorities or processes associated with other projects across the corporation;

- Competing departmental priorities including current operational mandates of impacted services, and how their mandates will need to change in order to work to achieve the emissions reductions in Energy Evolution;
- Lack of alignment between what the Energy Evolution model calls for and recommendations that come forward for plans and strategies that directly relate to Energy Evolution. Note that although it is expected that the range of options evaluated will include one or more scenarios that achieve the GHG reductions required in the 100% scenario, those scenario(s) may not ultimately be recommended;
- Aggressive implementation timelines which may not account for typical City processes including capital budget approval, Long-Range Financial Plan, planning, consultation, approvals, design, construction, and commissioning or account for provincial or federal approval processes that are out of the City's control;
- Changes in behavior, policy, and best practices related to COVID-19.

### Sector: Land Use

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
<b>Integration of energy and climate mitigation policies in the new Official Plan and supporting master plans</b> to address multiple challenges being faced by the city over the next 25 years, climate change being one of the most critical. The Official	City	Ongoing / On-track	<ul style="list-style-type: none"> <li>• Q4 2020: Draft Official Plan released</li> <li>• Q4 2021: Council adoption</li> <li>• Q1 2022: Ministry approval</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> November 2020: Draft Official Plan released for review</li> <li><input checked="" type="checkbox"/> September 2021: Public Open House</li> <li><input type="checkbox"/> October 2021: Draft Official Plan tabled at Joint Planning and Rural Affairs Committee</li> </ul>

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
Plan and supporting master plans will be guided by the Climate Change Master Plan with Council approved targets to reduce GHGs by 2050.				<p>and Council for adoption</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Q1 2022: Official Plan approval by the Ministry of Municipal Affairs and Housing</li> </ul>

## Sector: Buildings

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
<b>Residential Building Retrofit Accelerator Program</b> to accelerate small residential building retrofits through marketing, information, and financial mechanisms.	City & Community	Ongoing / On-track	<ul style="list-style-type: none"> <li>2020: Decision on Federation of Canadian Municipalities funding for the Better Homes Loan Program.</li> <li>2021: If successful, launch the Better Homes Loan Program and retrofit education campaign</li> <li>2021: Explore an efficiency utility<sup>4</sup>. Develop a bulk heat pump program. Advocate for authorities necessary for this project</li> <li>2022: Develop a retrofit portal and energy labeling tool.</li> <li>2023: Develop renovation</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> March 2021: City approved for \$12,169,500 from the Federation of Canadian Municipalities for the Better Homes Loan Program</li> <li><input checked="" type="checkbox"/> July 2021: Council approves launching of the Better Homes Loan Program to support residential retrofits (<a href="#">ACS2021-PIE-EDP-0029</a>)</li> <li><input type="checkbox"/> October 2021: Targeted launch of the Better Homes Loan Program</li> <li><input type="checkbox"/> 2022: Develop a bulk heat pump program. Advocate for authorities necessary for this</li> </ul>

<sup>4</sup> Based on discussion with utilities, key stakeholders and leaders in the field, staff are not currently pursuing the concept of an efficiency utility. Staff will continue to monitor efficiency utilities and revisit the concept in the future, if helpful.

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
			standard, as municipal authority allows	project <input type="checkbox"/> 2022: Develop a retrofit portal and energy labeling tool. <input type="checkbox"/> 2023: Develop renovation standard, as municipal authority allows
<b>Commercial Building Retrofit Accelerator Program</b> to accelerate multi-unit residential, commercial, industrial, and institutional building retrofits through marketing, information, and financial mechanisms	City & Community	Ongoing / On-track	<ul style="list-style-type: none"> <li>• 2020-2021: Develop a strategy for commercial retrofits with stakeholder consultation</li> <li>• 2021-2023: Increase uptake of benchmarking and transparency</li> <li>• 2021: Launch marketing and education programs</li> <li>• 2022: Launch programs for accelerating retrofits</li> <li>• 2025: Launch energy retrofit standard</li> </ul>	<input type="checkbox"/> October 2021: Better Buildings Ottawa Strategy and Benchmarking and Auditing program to be considered by Committee and Council <input type="checkbox"/> 2021-2023: Increase uptake of benchmarking and transparency <input type="checkbox"/> 2022: Publish the Commercial Retrofit Roadmap and launch marketing and education programs <input type="checkbox"/> 2022: Launch financing

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
				<p>program(s) for accelerating retrofits</p> <p><input type="checkbox"/> 2025: Launch regulations for benchmarking, auditing and/or energy performance</p>
<p><b>Building Retrofits through Local Improvement Charge Program</b> to accelerate and finance deep energy retrofits of buildings through the local improvement charge mechanism.</p>	City	Ongoing / On-track	<ul style="list-style-type: none"> <li>• 2020: Program designed, capitalized, and partners confirmed; decision on Federation of Canadian Municipalities funding for the Better Homes Loan Program</li> <li>• 2021: Pilot handful of neighbourhoods while leaving the program open to all residents. Recoup admin costs through financing and admin fee.</li> <li>• 2022: Develop and launch commercial building Local Improvement Charge (LIC)</li> </ul>	<p><input checked="" type="checkbox"/> March 2021: City approved for \$12,169,500 from the Federation of Canadian Municipalities for the Better Homes Loan Program</p> <p><input checked="" type="checkbox"/> July 2021: Council approves launching of the Better Homes Loan Program to support residential retrofits, which includes an LIC bylaw (<a href="#">ACS2021-PIE-EDP-0029</a>)</p> <p><input type="checkbox"/> 2022: Develop and launch commercial building financing program that may utilize the Local Improvement Charge</p>

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
			<p>Program.</p> <ul style="list-style-type: none"> <li>2022: Recapitalize. Scale up to retrofit 15,000 homes and 900,000m2 of commercial space retrofitted per year (not all expected to use the LIC program but will be encouraged to use the online retrofit portal for tracking).</li> </ul>	<p>(LIC) mechanism</p> <ul style="list-style-type: none"> <li>2023+: Recapitalize. Scale up to retrofit 15,000 homes and 900,000m2 of commercial space retrofitted per year (not all expected to use the LIC program but will be encouraged to use the online retrofit portal for tracking).</li> </ul>
<p><b>Energy Community Improvement Plans (CIP)</b> to incentivize superior energy performance and deep energy retrofits using tax grants.</p>	City	Ongoing / On-track	<ul style="list-style-type: none"> <li>2021<sup>5</sup>: Retrofit accelerator roadmap</li> <li>2022: Draft policy and program</li> <li>2023: Policy reviewed and approved by council</li> <li>2023: Enabling by-laws enacted by Council</li> </ul>	<ul style="list-style-type: none"> <li>2021: Official Plan includes policies to support energy retrofits through CIP mechanism under the <i>Planning Act</i></li> <li>2022: Research and identify opportunities to use CIP mechanism to advance energy</li> </ul>

<sup>5</sup> The Retrofit Roadmap is being completed as part of the foundation of the Better Buildings Ottawa Strategy, so it has been moved to the Commercial Building Retrofit Accelerator Program section above.

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
				retrofits <input type="checkbox"/> 2023: Table recommendations for energy focused CIP program at Committee and Council I
<b>Community Building Heating Strategy</b> to address infrastructure and utility requirements for new ways of heating buildings.	City & Community	Ongoing / Delayed	<ul style="list-style-type: none"> <li>• 2021: Engage with industry and consultant to develop roadmap for Community Building Heating Strategy</li> <li>• 2022 and beyond: Implementation of the strategy</li> </ul>	<input checked="" type="checkbox"/> 2021: Signed an MOU with Ottawa Community Housing to explore the concept of a greenhouse gas (GHG) Neutral district energy system at Gladstone Village <input type="checkbox"/> 2021 Community Energy Plan Terms of References completed to support community energy planning in new communities as part of the High Performance Development Standard <input type="checkbox"/> 2021: Completion of a waste



Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
				heat study <input type="checkbox"/> 2022: Develop a Community Building Heating Roadmap
<b>High-Performance Development Standard</b> to improve building design and construction across the community and support an industry-wide transition of new buildings to net zero emissions.	City	Ongoing / On-track	<ul style="list-style-type: none"> <li>• 2020: Draft High-Performance Development Standard metrics; consult with industry</li> <li>• 2022: Program comes into effect in line with the new Official Plan</li> <li>• 2026: Adopt 2<sup>nd</sup> Version of the Standard</li> </ul>	<input type="checkbox"/> November 2020-November 2021: Consulted and collaborated with internal and external stakeholders to develop new standards <input type="checkbox"/> December 2021: New High-Performance Development Standard to be tabled at Committee and Council <input type="checkbox"/> 2022: High Performance Development Standard comes into effect following approval <input type="checkbox"/> 2026: 2 <sup>nd</sup> version of High Performance Development Standard to be brought forward.

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
<p><b>Municipal Buildings Renewal and Retrofit Program</b> to achieve higher building energy performance improvements in City owned buildings.</p>	City	Ongoing / Delayed	<ul style="list-style-type: none"> <li>• 2020: Establish a working group, develop criteria to prioritize deep building retrofits and apply it to the asset list of buildings and establish a preliminary schedule to direct deep building retrofits</li> <li>• 2021: Set standards and guidelines for deep building retrofit and complete first City building deep retrofit</li> <li>• 2022: As funding permits, conduct deep retrofits on up to two more City buildings</li> <li>• 2023: Complete a performance review of the first buildings retrofitted and adjust actions as required</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> 2021: Replaced aging fossil fuel-based heating systems at Fitzroy and Dunrobin community centers with heat pumps</li> <li><input type="checkbox"/> 2021: Submit funding applications to the Green and Inclusive Community Building Program</li> <li><input type="checkbox"/> 2021: Complete a Project Charter and establish a working group to support the program's development</li> <li><input type="checkbox"/> 2022: Identify, evaluate, and prioritize building candidates and potential funding sources</li> <li><input type="checkbox"/> 2022: Set standards and guidelines through program for deep building retrofits</li> <li><input type="checkbox"/> 2022-2023: Start deep retrofits</li> </ul>

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
				and adjust program as required
<p><b>Update Municipal Green Building Policy</b> to align with corporate GHG reduction targets</p>	City	Ongoing / Delayed	<ul style="list-style-type: none"> <li>• 2020: Where possible influence upcoming and ongoing projects with these new criteria, complete policy impact analysis</li> <li>• 2021: Propose new policy and if approved, new green building policy would begin to transition into effect</li> <li>• 2025: Net zero emissions required for all new City facilities</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> 2020-2022: Where possible, influence upcoming and ongoing projects</li> <li><input type="checkbox"/> 2022: Update to Municipal Green Building Policy to be tabled at Committee and Council</li> <li><input type="checkbox"/> 2025: Net zero emissions required for all new City facilities</li> </ul>

## Sector: Transportation

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
<p><b>Personal Vehicles Electrification Strategy</b> to enable and encourage personal electric vehicle adoption.</p>	City & Community	Ongoing / On-track	<ul style="list-style-type: none"> <li>• 2020 onwards: City participates in advocacy and monitors adequacy of local public charging.</li> <li>• 2020 to 2023: City to apply for expected EV funding programs undertaken by Natural Resources Canada and others</li> <li>• 2021: Update the Corporate Electric Vehicle Charging Station Policy; develop a City public charging infrastructure and building retrofit charging plan</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> 2021: City installing 12 double-headed Level 2 charging stations in the right-of-way, a Level 2 charging station at the renovated Blackburn/Lois Kemp Arena, and one 150kW charger at Bob MacQuarrie Recreation Complex</li> <li><input type="checkbox"/> 2021-2023: Continue monitoring and applying for expected EV funding programs undertaken by Natural Resources Canada and others</li> <li><input type="checkbox"/> 2022: Proposed Personal Electric Vehicle Strategy to be tabled at Committee and Council.</li> <li><input type="checkbox"/> 2022: Update to the Corporate Electric Vehicle Charging</li> </ul>

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
				<p>Station Policy to be tabled at Committee and Council</p> <p><input type="checkbox"/> Ongoing: Continue advocacy and monitoring adequacy of local public charging</p>
<p><b>Zero Emissions Commercial Vehicles Strategy</b> to enable and encourage commercial electric vehicle adoption.</p>	<p>City &amp; Community</p>	<p>Not started</p>	<ul style="list-style-type: none"> <li>• Q1 2021: Consult with commercial fleets and support advocacy</li> <li>• 2022: Report on encouraging electrification of light-duty fleets</li> <li>• 2022: Summary report with recommendations on zero emission commercial vehicles</li> </ul>	<p><input type="checkbox"/> 2022: Consult with commercial fleets and support advocacy</p> <p><input type="checkbox"/> 2022: Report on encouraging electrification of light-duty fleets</p> <p><input type="checkbox"/> 2022: Summary report with recommendations on zero emission commercial vehicles</p>
<p><b>Municipal Green Fleet Plan Update</b> an updated plan to continue the conversion of City vehicles to lower emission vehicles where possible.</p>	<p>City</p>	<p>Ongoing / On-track</p>	<ul style="list-style-type: none"> <li>• 2022: Update of the Municipal Green Fleet Plan</li> <li>• To be determined</li> </ul>	<p><input checked="" type="checkbox"/> September 2021: PIED applied to Natural Resources Canada for funding to support electrical and infrastructure requirements in the Green Fleet Plan; Fleet Services applied to FCM for</p>

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
				<p>funding to support transition to greener fleet options.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Q2 2022: Update of the Municipal Green Fleet Plan tabled at Committee and Council</li> <li><input type="checkbox"/> 2022 - 2024: Implement the Municipal Green Fleet Plan in coordination with the PIED project to install supporting charging infrastructure</li> </ul>
<p><b>Alternative Energy Sources for Transit Program</b> to build a 100% zero emissions Concept Transit Network by 2030.</p>	City	Ongoing / On-Track	<ul style="list-style-type: none"> <li>• 2020: TMP Update environmental scan completed</li> <li>• 2021: TSD study of alternative energy sources for transit fleet options to feed into the Fleet Strategy update; Alternative Energy Transit Project to be completed</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> June 2021: Zero-Emission Buses for OC Transpo report carried at Council (<a href="#">ACS2021-TSD-TS-0009</a>)</li> <li><input type="checkbox"/> 2021: Four electric buses are added to the bus fleet</li> <li><input type="checkbox"/> 2023: Up to 74 electric buses are added to the bus fleet</li> </ul>

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
			<ul style="list-style-type: none"> <li>Fall 2023: Transportation Master Plan Update completed</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> 2024: Part 2 of Transportation Master Plan Update (Capital Infrastructure Plan for Transit, Active Transportation and Roads) to be tabled at Committee and Council</li> <li><input type="checkbox"/> 2024-2027: Up to 450 electric buses in operation by 2027 (based on funding availability and operational needs)</li> </ul>
<p><b>Transportation Mode Shift</b> to reduce the reliance on personal vehicles in favour of sustainable modes including public transit, walking, cycling, and carpooling.</p>	City	Ongoing / Partially Delayed	<ul style="list-style-type: none"> <li>Fall 2023: Transportation Master Plan Update completed</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> 2022: Part 1 of Transportation Master Plan Update (Policy) and Active Transportation capital project list to be tabled at Committee and Council</li> <li><input type="checkbox"/> 2024: Part 2 of Transportation Master Plan Update (Capital Infrastructure Plan for Transit, Active Transportation and Roads) to be tabled at</li> </ul>

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
				Committee and Council

### Sector: Waste

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
<p><b>Organics Resource Recovery Strategy</b> to reduce emissions associated with managing waste and enable energy from waste.</p>	City & Community	Ongoing / Partially Delayed	<ul style="list-style-type: none"> <li>2022: Complete a baseline assessment of the industrial, commercial, and institutional waste in Ottawa with a view to reducing amounts generated and recovering organics from this stream</li> <li>2022: Solid Waste Master Plan completed</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> July 2021: Solid Waste Master Plan – Phase 2 report was carried by Council (<a href="#">ACS2021-PWE-SWS-0003</a>)</li> <li><input type="checkbox"/> Fall 2021: Solid Waste Master Plan Engagement Series 2</li> <li><input type="checkbox"/> 2022: Draft Solid Waste Master Plan tabled for Council consideration and further public consultation</li> <li><input type="checkbox"/> 2023: Final Solid Waste Master Plan tabled at</li> </ul>



Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
				Committee and Council <input type="checkbox"/> 2023: Complete an assessment of the industrial, commercial, and institutional waste in Ottawa with a view to reducing amounts generated and recovering organics from this stream
<b>Renewable Natural Gas Strategy</b> to supply GHG neutral gas to the community.	City	Ongoing / On-track	<ul style="list-style-type: none"> <li>2020-2022: Identify key issues and opportunities; complete Biogas Optimization Study, Solid Waste Master Plan and ROPEC Site Master Plan; assess interest in renewable natural gas (RNG) from the agricultural community and private landfills; look for opportunities to expedite RNG projects; look for way to minimize the release of fugitive or other waste related emissions</li> </ul>	<input checked="" type="checkbox"/> November 2020: City approved for \$82,450 from the Federation of Canadian Municipalities for the Robert O. Pickard Environmental Centre (ROPEC) Biogas Optimization Study  <input checked="" type="checkbox"/> September 2021: ROPEC Biogas Optimization Study completed

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
			<ul style="list-style-type: none"> <li>2022-2025: Develop a Renewable Natural Gas Strategy and implement plans</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> 2021-2022: RNG market study</li> <li><input type="checkbox"/> 2022-2023: Complete a feasibility study for a RNG production facility at ROPEC</li> <li><input type="checkbox"/> 2022-2025: Develop a Renewable Natural Gas Strategy and implement plans</li> </ul>

### Sector: Electricity

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
<b>Electricity Resource Strategy</b> to develop local or regional renewable electricity supplies.	City	Ongoing	<ul style="list-style-type: none"> <li>2020: Provide input to and comment on the Hydro Ottawa five-year direction plan to align it with Energy Evolution targets</li> <li>2020 onwards: Remain active in</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> 2020: Provide input to and comment on the Hydro Ottawa five-year direction plan to align it with Energy Evolution targets</li> </ul>

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
			<p>planning at the Independent Electricity System Operator and the Ontario Energy Board</p> <ul style="list-style-type: none"> <li>• 2021: Establish a stakeholder working group to evaluate distributed generation and storage options and encourage private and community investment</li> <li>• 2021 onwards: Implement additional smart grid showcases in several parts of the City</li> <li>• 2020-22: Install power to thermal at City facilities which have access to low cost wholesale priced power</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> 2020 onwards: Remain active in planning at the Independent Electricity System Operator and the Ontario Energy Board</li> <li><input checked="" type="checkbox"/> 2020 onwards: Install power to thermal at City facilities which have access to low cost wholesale priced power</li> <li><input type="checkbox"/> 2021-2023: Staff participate in OEB's stakeholder working group to evaluate distributed generation and storage options and encourage private and community investment</li> <li><input type="checkbox"/> 2022: Complete first round of solar panel installations at City facilities</li> </ul>

## Sector: Enabling Projects

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
<p><b>Climate Ambassadors Network</b> to engage commercial and institutional champions to meet long term GHG reduction targets.</p>	City & Community	Ongoing / Delayed	<ul style="list-style-type: none"> <li>• 2021 Q1: Identify and determine level of interest from large energy consumers and employers</li> <li>• 2021 Q1: Review Ethical Purchasing Policy to support network objectives</li> <li>• 2021 Q2: Develop network activities and programs</li> <li>• 2021 Q3: Launch network and initial activities</li> <li>• 2022: Participants publish GHG reduction targets and carbon budgets and implement significant carbon reduction activities</li> <li>• 2023: If successful, expand</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Q3 2021: Ottawa joined the Race to Zero and encouraged other large employers and energy consumers to join their respective streams</li> <li><input type="checkbox"/> Q4 2021: Launch the Better Buildings Ottawa Network. Offer network activities, education opportunities, and perform thermal scans mainly focused on large commercial buildings.</li> <li><input type="checkbox"/> Work with the Network participants to develop an effective commercial building retrofit financing program.</li> <li><input type="checkbox"/> 2022: Continue to review Ethical Purchasing Policy to</li> </ul>

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
			network to include small medium enterprises	support Network objectives <input type="checkbox"/> 2022 - ongoing: Participants publish GHG reduction targets and carbon budgets and implement significant carbon reduction activities <input type="checkbox"/> 2023: If successful, expand network to include small medium enterprises <input type="checkbox"/>
<b>Climate Change Education and Outreach Program</b> to engage the public in collective private action to meet long term GHG reduction targets.	City & Community	Ongoing	<ul style="list-style-type: none"> <li>• 2020: Develop program materials and engage community partners, launch campaign</li> <li>• 2021: Expand campaigns; monitor effectiveness</li> <li>• 2021: Presentations to support on-going alignment of priorities,</li> </ul>	<input checked="" type="checkbox"/> 2021: Developed and implemented communications and engagement plan in support of Energy Evolution projects. This included presentations, Engage Ottawa surveys and engagement, climate change newsletter,

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
			<p>workplans, and budgets to internal and external stakeholders</p> <ul style="list-style-type: none"> <li>• 2022: Adjust as necessary for effectiveness</li> </ul>	<p>and social media</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 2022 - ongoing: Develop and implement annual communication and engagement plan in support of Energy Evolution projects</li> </ul>
<p><b>Fund the Evolution</b> to further assess potential sources of municipal funding.</p>	<p>City</p>	<p>Ongoing</p>	<ul style="list-style-type: none"> <li>• 2021: Consult on potential revenue sources advocate for mechanisms not in City's control, if required and provide input into Long Range Financial Plan and bylaws as opportunities arise</li> <li>• 2022: Begin to implement revenue and funding mechanisms per council direction</li> <li>• 2023: Measure success and continue to pursue revenue and</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> 2021 - ongoing: Continue consulting on potential revenue sources advocate for mechanisms not in City's control, if required and provide input into Long Range Financial Plan and bylaws as opportunities arise</li> <li><input type="checkbox"/> 2020 - ongoing: Work with senior levels of government to accelerate ambition and action to meet the urgency of climate change and provide additional resources for municipalities</li> </ul>

Project Description	Lead (City / Community)	Status	Estimated Project Milestones (October 2020)	Project Achievements / Next Steps & Updated Timelines
			funding opportunities	and the public to reduce their GHG emissions and build resiliency to climate impacts.

### Document 3 – Proposed 2020 Hydro Ottawa Dividend Surplus Spending Plan

Document 3 proposes a spending plan for 2020 Hydro Ottawa dividend surplus to support Energy Evolution priority projects, leverage federal and provincial funds where possible, and implement energy efficiency, conservation, and renewable energy generation projects. Energy Evolution projects include, but are not limited to, municipal energy conservation, public and municipal electric vehicle charging infrastructure, district energy, solar panels on municipal facilities, and communication, education and engagement programs that support Energy Evolution objectives. Funds could also be used to implement other energy efficiency, conservation, and renewable energy generation projects as they emerge. The funding is for all project related costs including feasibility and design studies, pilots, construction, and equipment acquisition or installation.

Energy Evolution Project	Project Name	Project Description	Estimated Cost
<b>Municipal Buildings Renewal and Retrofit Program</b>	High Performance Windows	High performance windows to support deep retrofit work.	\$175,000
<b>Municipal Buildings Renewal and Retrofit Program</b>	Renewal Opportunities	Leverage federal funding opportunities and take advantage of GHG reduction as opportunities occur. Opportunities may be identified during audits, by City staff or during breakdown repair work.	\$175,000
<b>Municipal Buildings Renewal and Retrofit Program and Municipal Green Fleet Plan</b>	Green Fleet Electrical Upgrades	Leverage federal funding opportunities and support electrical work and upgrades required to support the Municipal Green Fleet Plan including charging and associated infrastructure.	\$100,000



Energy Evolution Project	Project Name	Project Description	Estimated Cost
<b>Personal Vehicles Electrification Strategy</b>	EV Charging Infrastructure	Leverage funding opportunities for new EV charging stations.	\$100,000
<b>Community Building Heating Strategy</b>	Gladstone/Somerset District Energy Study	Study to assess district energy options for new Gladstone development.	\$70,000
<b>Electricity Resource Strategy</b>	Solar on Municipal Facilities	Aim to identify 6-8 potential municipal solar sites, complete structural assessments, and assess prospective leaser's installation proposals.	\$50,000
<b>Climate Change Education and Outreach Program</b>	Education and Outreach Staff	Extend temporary staff to support the communication, education and outreach campaigns that support implementation of the Climate Change Master Plan priority "Private Action". This position would support other Climate Change Master Plan priorities including the roll out of community focused Energy Evolution projects and the Climate Resiliency Strategy.	\$130,000
		<b>TOTAL</b>	<b>\$800,000</b>