Report to Strategic Priorities and Policy Committee

To: **Chair and Members**
Strategic Priorities and Policy Committee
From: **Kelly Scherr, P.Eng., MBA, FEC**
Deputy City Manager, Environment & Infrastructure
Subject: **2023 Climate Emergency Action Plan Update Report**
Date: **January 16, 2024**

Recommendation

That, on the recommendation of the Deputy City Manager, Environment & Infrastructure, this report **BE RECEIVED** for information.

Executive Summary

Purpose of this Report
Council directed staff to create an update report for CEAP designed to provide current information and address any new items directed by Council or items of significance to climate change. The update report is in addition to the annual Progress Report that will be submitted in May/June each year. The same five key outcome areas used in the 2022 Progress Report are the foundation for the update:

1. CEAP Actions by Area of Focus
2. Climate Actions by Others in the Community (and Interested Parties)
3. Climate Actions by Other Levels of Government
4. Greenhouse Gas Emissions
5. Weather Trends and Impacts

The update report does not contain details on London's greenhouse gas emissions for 2023 as data for these measurements rely on sources that are only published once per year. These data will be provided in the next Progress Report.

1. CEAP Actions by Area of Focus (Subsection 2.1)
Annual Progress Reports, like the 2022 CEAP Progress Report presented in May 2023, provide a detailed analysis of the progress and completion status of the actions. This update report does not go into the same level of detail, but instead includes highlights of actions and activities for the Areas of Focus.

Use of the Climate Lens Framework on Corporate Projects and Programs
The City's Climate Lens Framework was used to inform decision-making in a number of areas across the enterprise in 2023 and informed changes in processes to ensure that climate change issues were embedded in key areas. Examples include the additional integration of climate considerations in the ReThink Zoning project, the Master Mobility Plan project and others, and processes that evolved with the help of the Climate Lens Framework included the Multi-Year Budget process, the Information Technology Services intake process, and the process to review and revise the Design Specifications and Requirements Manual (DSRM).

Sample of CEAP Actions in 2023
Many activities and initiatives contributed to the advancement of actions in the CEAP in early 2023, including the creation of climate change awareness training modules for staff, completion of the Connected and Automated Vehicle Plan, and finalization of the Transportation Management Association. Tangible improvements to the climate performance of City assets were also made, including deep energy retrofits of the Kinsmen Recreation Centre, which was undertaken with funding support of $2.19 million (80 per cent of costs) from the Government of Canada's Green and Inclusive Community Buildings Program.

Work also continued on key initiatives like the Mobility Master Plan, climate adaptation plan (Discussion Primer), and the integration of natural assets into corporate asset management planning. In addition, City staff engaged with researchers and participated in knowledge mobilization events for two large-scale, federally funded initiatives led by academics to find innovative solutions to multi-solve the climate, housing, and biodiversity crises, and ensure that emissions reduction projects, policies and programs align with Canada's national reduction commitments.

Details specific to London Hydro and how it continues to support the London's CEAP through a variety of programs and actions are contained in Appendix A.

A Few Upcoming Activities in 2024
Green in the City, an awareness and education initiative focusing on the environment and climate change will proceed from November 2023 to April 2024 by traveling to different libraries and City facilities across London.

Continued deep energy retrofits of City facilities will be prioritized, including work at Earl Nichols Recreation Centre which will proceed with additional Federal funding. Physical flooding resilience measures to bolster the West London Dyke and the Broughdale Dyke will also advance in 2024 with funding support from the Federal Disaster Mitigation and Adaptation Fund.

2. Climate Actions by Others in the Community (Subsection 2.2)
Achieving the goals of the CEAP requires effort from all sectors in London and is influenced by actions of others outside London. Several recent examples in the Businesses and Institutions sectors and Households, Individuals and Community Groups are listed in this SPPC report.

Evidence of continued progress on climate action in the Business and Institutional sectors can be found in the actions of Green Economy London (GEL), Enbridge's continued support of the residential hybrid home heating pilot, the expanded offerings of sustainability-themed courses and support for student-led pilot initiatives addressing climate action at Western University, and London Hydro's continued prioritization of grid resilience improvements and participation in a local microgrid pilot project.

Individuals, Households and Community Groups have similarly been active in climate change action, as evidenced by recent work in London including the London Environmental Network (LEN), ReForest London, Climate Action London and the creation of the new London Greening Health Collaborative. Individual Londoners have shown higher-than-expected interest in the residential Ontario Clean Home Heating Initiative (hybrid heating) and increasing interest in zero emissions vehicles ownership, with a 21 per cent increase in the number of zero emission vehicles registered in London during the first half of 2023.

3. Climate Actions by Other Levels of Government (Subsection 2.3)
Actions taken at the provincial and federal government levels directly or indirectly influence climate change actions and greenhouse gas emissions in London.

In 2023, nine federal and five provincial actions are noted in this SPPC report. Some of these actions are directly related to the City of London, such as the federally funded pilot projects being undertaken by Western University and Comcor Environmental pilot projects for innovative monitoring systems to detect methane emissions at Canadian landfills, using the W12A Landfill as a test site. Reducing methane emissions is a federal priority, given its higher global warming potential.

In November, the Commissioner of the Environment and Sustainable Development from the Auditor General to the Parliament of Canada issued a report that Canada is not on track to meet the 2030 target to reduce Canada-wide greenhouse gas emissions by at least 40 per cent below the 2005 level by 2030.

Ontario still maintains a 2030 greenhouse gas emission reduction target (30 per cent reduction from 2005 levels) that is less ambitious than the target for Canada (40 to 45 per cent reduction from 2005 levels).

Ontario increased its use of natural gas for power generation in 2023 compared to 2022 (as of September) and this is expected to increase further between now and 2030. Actions being taken by the federal government as part of their goal to decarbonize electricity grids Canada-wide by 2035, as outlined in their draft Clean Electricity Regulations, would require the province to accelerate plans to phase out and/or employ carbon capture and storage for the use of natural gas for power generation should this draft regulation be enacted.

4. Greenhouse Gas Emissions (Subsection 2.4)

London's corporate and community greenhouse gas emissions for 2022 were reported on May 30, 2023, as part of the 2022 CEAP Progress Report; corporate energy-related greenhouse gas emissions were 58% lower compared to 2007 and community greenhouse gas emissions were 24% lower than 2005 levels.

London's methodology for reporting community greenhouse gas emissions allows for the presentation of results earlier than other jurisdictions. No other Ontario municipality has reported 2022 community greenhouse gas emissions at the time of writing this report (December 2023). Available details from 11 peer municipalities and 6 selected municipalities and emerging trends with respect to greenhouse gas emission generation in Canada are contained in Appendix B.

5. Weather Trends and Impacts (Subsection 2.5)

As discussed in the previous Progress Report, documenting weather events and trends that will eventually influence the evolution of London's climate is part of Areas of Focus 8, Adapting and Making London More Resilient, and part of the development of the Climate Change Adaptation Discussion Primer. Wind, rain and higher overall temperatures are examples of how severe weather will impact the ability of London to adapt and become more resilient.

Locally, the significant weather events in 2023 were based on extreme variations. January and February were warmer than normal, March and April experienced heavy rains followed by a drought in May and more July rainfall than normal. September and October were both well above average temperatures.

Across Canada the weather was dominated by wildfires with several occurring on both coasts, Alberta and in northern Ontario and Quebec. Wildfire smoke travelled to southern Ontario and Northeastern U.S. creating poor local air quality. Eastern Ontario and Quebec are becoming the new Canadian 'tornado alley' experiencing one-half (being 37) of Canada's tornadoes in 2023.

Third Party Assessments of London's Climate Actions (Subsection 2.6)

The City of London participates in a number of initiatives to help gauge the relative strengths and weaknesses of London's climate actions compared to other municipalities in Canada and around the world. This allows for sharing of best practices, other knowledge transfer, and optimizing the use of human and financial resources. These include the following initiatives:

- Global Covenant of Mayors – In 2023, a preliminary assessment indicates that the City of London is compliant with all mitigation and adaptation requirements as well as two of three requirements related to energy access and poverty.

- CDP Cities – The CDP Cities Score is based around questions on both climate change mitigation and adaptation in the areas of governance, assessment, planning and actions with some detail on sector-specific metrics. In 2023, the City of London received an overall score of A-, with a score of A for adaptation measures and a score of A- for mitigation measures.

- WWF One Planet City Challenge – 2023 is the first year that the City of London has participated in this initiative. For 2023, the City of London received an overall score of 119 out of 150 (79%).

- Corporate Knights Sustainable Cities Index - 2023 is the first year that the City of London has participated in this initiative involving 70 cities world-wide and 10 in Canada. London received a B grade overall and ranked 29th.

- Partners for Climate Protection – Operated by the Federation of Canadian Municipalities and ICLEI Canada, the City of London achieved the final milestone (Milestone 5) in 2013 for both Corporate and Community activities and this milestone remains unchanged.

- National Climate League – Operated by The Climate Reality Project Canada, the London participates in this citizen-led initiative through the volunteer efforts of members from Climate Action London. Information from between 50 and 60 cities is compiled each year by volunteers on a number of climate, sustainability and social justice indicators.

Linkage to the Corporate Strategic Plan

Municipal Council recognizes the importance of climate change mitigation, climate change adaptation, sustainable energy use, related environmental issues and the need for a more sustainable and resilient city in its 2023-2027 Strategic Plan for the City of London. Specifically, London's efforts in both climate change mitigation and adaptation address these areas of the Strategic Plan, at one level or another:

- Reconciliation, Equity, Accessibility and Inclusion
- Housing and Homelessness
- Economic Growth, Culture, and Prosperity
- Mobility and Transportation
- Wellbeing and Safety
- Climate Action and Sustainable Growth
- Well-Run City

Analysis

1.0 Background Information

1.1 Purpose of this Update Report

Council directed staff to create an update report for CEAP designed to provide current information and address any new items directed by Council or items of significance to climate change. The update report is in addition to the annual Progress Report that will be submitted in May/June each year. The same five key outcome areas used in the 2022 Progress Report are the foundation for the update:

1. CEAP Actions by Area of Focus
2. Climate Actions by Others in the Community (and Interested Parties)
3. Climate Actions by Other Levels of Government
4. Greenhouse Gas Emissions
5. Weather Trends and Impacts

The update report does not contain details on London's greenhouse gas emissions for 2023 as data for these measurements rely on sources that are only published once per year. These data will be provided in the next Progress Report.

1.2 Previous Reports Related to this Matter

Relevant reports that can be found at www.london.ca under Council meetings include:

- May 30, 2023, 2022 Climate Emergency Action Plan Progress Report, Report to the Strategic Priorities and Policy Committee (SPPC)
- April 5, 2022, Overview of Engagement and Feedback on Draft Climate Emergency Action Plan, Report to the SPPC
- February 8, 2022, Draft Climate Emergency Action Plan Report to the SPPC
- April 27, 2021, Update – Development of the Climate Emergency Action Plan to the SPPC
- August 11, 2020, Climate Emergency Action Plan Update Report to the SPPC
- November 26, 2019, Climate Change Emergency Update Report to the SPPC
- April 23, 2019, Climate Emergency Declared at Municipal Council

1.3 Current Goals and Milestone Targets

This SPPC report covers climate change action updates in 2023 in addition to what was provided in the May 2023 CEAP Progress report. Funding and resources for implementing the CEAP was based on approved budgets for 2022 and 2023. It was recognized that several existing approved projects and programs were able to proceed, while other initiatives need to wait until funding and resources could be considered as part of the 2024-2027 Multi-Year Budget deliberations. No new or additional budget or increased resources were assigned in 2022 or 2023 to CEAP actions.

The CEAP is a community-wide plan that was unanimously approved by Council in April 2022 following the declaration of a climate emergency in 2019. The CEAP sets out actions to drive progress towards these goals:

- Net-zero community greenhouse gas (GHG) emissions by 2050;
- Improved resilience to climate change impacts; and
- Bring everyone along (e.g., individuals, households, businesses, neighbourhoods).

The implementation of the CEAP is guided by milestone greenhouse gas emission targets for both London as a whole and the Corporation of the City of London:

- For London as a whole (community-wide):
  - 55 per cent below 2005 levels by 2030;
  - 65 per cent below 2005 levels by 2035;
  - 75 per cent below 2005 levels by 2040; and
  - Net-zero emissions by 2050.

- For the Corporation of the City of London:
  - 65 per cent below 2007 levels by 2030;
  - 75 per cent below 2007 levels by 2035;
  - 90 per cent below 2007 levels by 2040; and
  - Net-zero emissions by 2045.

The implementation of the CEAP is intended to be a whole community effort, with actions identified for the City, the community, businesses and institutions, and leaders throughout and near London.

1.4 Actions and Areas of Focus in CEAP

The CEAP includes 59 Categories of Actions and contains 200 individual actions, ranging from basic to complex, across ten Areas of Focus. A breakdown of the type of actions within each Area of Focus are included in Table 1. Some actions in the CEAP address specific deliverables or achievements that can be tied to a timeline (e.g., Transforming Buildings and Development's Action 2.a. "Reduce or eliminate parking minimums within the Zoning by-law") while other actions require ongoing efforts and do not have a specific targeted end date (e.g., Transforming Transportation and Mobility's

Action 2.c. “Continue to Support the Active and Safe Routes to School Program”). Table 1 differentiates between these two types of actions and categorizes them as “timeline” actions and “ongoing” actions.

Table 1: Area of Focus Workplan Actions Identified as Timeline or Ongoing

Area of Focus	Total Actions	Timeline Actions	Ongoing Actions
1. Engaging, Inspiring and Learning from People	9	2	7
2. Taking Action Now (Household Actions)	18	6	12
3. Transforming Buildings and Development	22	19	3
4. Transforming Transportation and Mobility	30	22	8
5. Transforming Consumption and Waste as Part of the Circular Economy	21	19	2
6. Implementing Natural and Engineered Climate Solutions and Carbon Capture	15	7	8
7. Demonstrating Leadership in Municipal Processes and Collaborations	44	24	20
8. Adapting and Making London More Resilient	9	4	5
9. Advancing Knowledge, Research and Innovation	9	8	1
10. Measuring, Monitoring and Providing Feedback	23	2	21
Total	**200**	**113**	**87**

1.5 Recent Council Directions

Following the receipt of the 2022 Climate Emergency Action Plan Progress Report by Council on June 6, 2023, direction was provided to staff as follows:

“…That the following actions be taken with respect to the 2022 Climate Emergency Action Plan Progress Report, dated May 30, 2023:

a) the above-noted report BE RECEIVED; and

b) the Civic Administration BE DIRECTED to include the following specific actions as part of the implementation of the Climate Emergency Action Plan (CEAP):

i) develop and deliver CEAP training to all current and future staff through the onboarding and continued learning processes in a manner consistent with current internal learning and development programs (e.g., Anti-Racism, Anti Oppression) to ensure that all staff members understand how to align their work to CEAP outcomes and make changes in their everyday routine work to align with targets;
ii) bring a CEAP update to SPPC twice a year; a comprehensive progress report in May and an update report in the fall;
iii) develop a Net-Zero Emission Plan for Corporate Assets to ensure Fleet & Facilities can achieve 2045 corporate targets subject to the approval of appropriate funding in the 2024-2027 Multi-Year Budget;
iv) ensure that asset management projects such as retrofits, replacements, renewals, and rehabilitations of City infrastructure make significant and visible efforts to be in line with net zero emission 2045 corporate targets, consistent with CEAP Area of Focus 7, 6a and 6b, while the plan noted above is being developed subject to the approval of appropriate funding in the 2024-2027 Multi-Year Budget. (4.1/16/SPPC) (E02-2023)”

This does not include Council recommendations that are specific to Standing Committee reports where directions support increased climate actions, adaptation and/or resiliency.

2.0 Discussion and Considerations

Reporting progress on CEAP on an annual basis (May/June each year) and the update occurs by examining five key outcome areas (Table 2).

Table 2: Reporting Progress on CEAP

Progress Reporting Outcome Area	Subset of Outcome Area
1. CEAP Actions by Area of Focus	• Actions identified in CEAP • Indicators of progress towards 2030 Expected Results
2. Climate Actions by Others in the Community (and Interested Parties)	• Business and institutional sectors • Individuals, households and community groups • Others nearby
3. Climate Actions by Other Levels of Government	• Provincial • Federal • International
4. Greenhouse Gas Emissions	• Corporate greenhouse gas emissions • Community-wide greenhouse gas emissions
5. Weather Trends and Impacts	• London and area • Canada • Global

The following subsections, 2.1 to 2.5, provide updates under each of the Outcome Areas and conclude with subsection 2.6 Third Party Assessments and/or Reporting of London's Climate Actions.

2.1 CEAP Actions by Areas of Focus

As noted, the CEAP includes 59 Categories of Actions and contains 200 individual actions. Annual Progress Reports, like the 2022 CEAP Progress Report presented in May 2023, provide a detailed analysis of the progress and completion status of the actions across ten Areas of Focus. This update report does not go into that level of detail. It does include highlights of actions and activities in each Area of Focus.

2.1.1 Use of the Climate Lens Framework on Corporate Projects and Programs

Use of the Climate Lens Framework enterprise-wide is a goal that supports London's climate change goals in the CEAP. The implementation of the Framework supports tangible outcomes but also the evolution of the culture of sustainability within the City. Examples of the use of the Climate Lens Framework in 2023 include:

- The 2024-2027 Multi-year Budget (MYB) process included requirements for staff to address environmental, social and governance (ESG) issues when preparing both business plans and business cases. The set of questions included in each ESG section were identified through the use of the Climate Lens Framework during budget guidance document development. Issues addressed in the ESG sections included whether corporate or community GHG emissions are expected to be affected by the business case or changes to the business plan, and whether community climate change resilience and adaptation capacity will be affected.

- ReThink Zoning, the project focusing on the creation of a new zoning bylaw to implement The London Plan and replace the existing Z-1 zoning bylaw, includes the deliberate consideration of climate change issues throughout. With the City's recent approval of the CMHC Housing Accelerator Fund (HAF), the priority to advance certain housing initiatives have ignited a change to the ReThink Zoning work plan and project schedule, which will result in the implementation of the ReThink Zoning By-law in a series of phases. A first draft of the new by-law is targeted to be presented to Council in the third quarter of 2024.

- The development of the Mobility Master Plan (MMP) includes ongoing input and assessment relating to climate change considerations. As this project advances alongside the ReThink Zoning project, the fundamental connection between the two (including their joint potential impact on GHG emissions) is being collaboratively addressed. One such example is the work currently underway to align high-density zoning with the planned rapid transit routes to ensure that appropriate densification can occur where necessary to support increased active and public transportation infrastructure.

- The Design Specifications and Requirements Manual (DSRM) provides information which is to be utilized for the design of works within London on municipally owned road allowances, municipally owned property and for municipally owned infrastructure on easements. As part of the process to update the DSRM in 2023, the Climate Lens Framework was used to evaluate proposed changes for their potential impact on, or from, climate change.

- Staff in the Parks and Forestry Division employed the Climate Lens Framework to initiate the creation of a multi-component climate change metric that approximates the climate change mitigation and adaptation characteristics of each property. This metric is intended to be used for tracking the progress towards more resilient and productive natural lands in the Corporate Asset Management Plan.

- Starting in March 2023, development application reports presented to the Planning and Environment Committee contained a climate and environmental impact summary appendix where pertinent information to evaluate a proposed development's alignment with London's climate action commitments were made readily available. The presentation of consolidated climate change related information for decision-makers is the first step towards applying a climate lens to development proposals.

- The Technology Investment Strategy intake process now includes a section wherein project proponents must review all potential projects through the Climate Lens Framework and sign-off accordingly.

2.1.2 Sample of Activities in 2023

In addition to the early 2023 activities identified in 2022 CEAP Progress Report, the following additional items have advanced or are in the process of advancing:

- Staff have created a 1-hour training module on climate change awareness, London's climate change targets, the CEAP, and the Climate Lens Framework using the same software and process for development as other internal training programs for City staff. Companion pieces have also been developed for inclusion in new City staff corporate on-boarding training programs. (Area of Focus (AoF) 1 and in response to the June 6, 2023 Council direction)

- London Hydro, Plug 'N Drive, and the City co-hosted a two-day community engagement event at London Hydro's office to promote electric vehicles. Almost every London area automobile dealer was in attendance, offering over 40 vehicles for test drives. (AoF 2)

- Working with the Canadian Home Builders' Association (CHBA) and the London Home Builders' Association (LHBA) to provide training to local renovators for the Towards Cost-Effective Net-Zero Energy Ready Residential Renovations project (AoF 3)

- Finalization and preparation for the launch in early 2024 of a Transportation Management Association, under the name Smart Commute London, to support the mobility needs of Londoners and London's employers. (AoF 4)

- Pilot projects on the use of personally owned electric kick-style scooters and electrically assisted cargo bikes in London were initiated, including the collection of information regarding their use on streets and multi-use pathways. (AoF 4)

- The Connected and Automated Vehicle Plan was approved by Council in June 2023, which will be used by decision-makers who are responsible for the implementation and maintenance of public infrastructure which will be impacted by the emergence of connected and automated vehicles. (AoF 4)

- The Mobility Master Plan process is progressing through Phase 2: "Explore Solutions and Make Connections". Community engagement continues via website feedback forms and surveys, social media, community events, advisory committee, and individual meetings. (AoF 4)

- Supply chain delays have been overcome and the preparation and roll-out of the Green Bin program is occurring for residential source-separated organics collection (households with curbside or common collection service) and management to commence in January 2024. (AoF 5)

- Undertaking deep energy retrofits of the Kinsmen Recreation Centre with funding support of $2.19 million (80 per cent of costs) from the Government of Canada's Green and Inclusive Community Buildings Program. Measures include heat recovery from the ice pad's refrigeration plant, building automation systems, construction of a new central heat pump plant, and installation of a new modified bitumen roof with structural upgrades for a future solar project. Total estimated energy savings of 43% are expected along with an estimated GHG emissions reduction of over 160 tonnes per year. (AoF 7)

- Future London Fire Department Firehall 15 is currently in the design phase, which includes the requirement that the facility be a net-zero emissions building. (AoF 7)

- City staff are undertaking a Greenhouse Gas Reduction Roadmap and Action Plan (GRRAP) study for up to one million square feet of municipal buildings including administrative offices, community centres, fire halls, and recreation facilities. (AoF 7 and in response to the June 6, 2023 Council direction)

- City staff are undertaking a solar power feasibility study for the Greenway Wastewater Treatment Plant, Adelaide Wastewater Treatment Plant, Pottersburg Wastewater Treatment Plant, Vauxhall Wastewater Treatment Plant, and the Arva Water Reservoir and Booster Pump Station. (AoF 7)

- The City was accepted as a participant in the Natural Asset Management Roadmap Program administered by the Municipal Natural Assets Initiative with funding from the Federation of Canadian Municipalities. The program is an opportunity for local governments to recognize, account for, and ultimately manage natural assets (e.g., wetlands, forests, and rivers) as a part of their formal asset management process. (AoF 7)

- City staff have undertaken a municipal scan of a number of cities that are examining options to reduce, restrict, or phase out landscaping equipment (e.g., lawnmowers, trimmers, leaf blowers) using two-stroke gasoline engines. Due to limited available

information from other municipalities, an update and next steps report is scheduled for the April to June (Quarter 2) 2024. (AoF 2,7)

- The development of a Climate Change Adaptation Discussion Primer is undergoing its final stages of internal review before it is released for broader community engagement in early 2024. (AoF 8)

- City staff continue to engage with researchers and participate in knowledge sharing events for two large-scale, federally funded initiatives:

    - The Residential Development Impact Scorecard for the Environment (RISE) project led by academics at the University of Waterloo and including input and participation from four Ontario municipalities, three environmental non-profit organizations, environmental consultants, several development industry associations and some of Ontario's largest land developers and builders. The project aims to find innovative solutions to multi-solve the climate, housing, and biodiversity crises.

    - The Municipal Net-Zero Action Research Partnership (N-ZAP) project with the main goal of supporting Canadian municipalities to monitor, measure and achieve net-zero emissions goals. The aim of the work is to ensure emissions reduction projects, policies and programs are aligned with Canada's national reduction commitments. London is one of 13 pilot cities across Canada participating in the project. (AoF 9)

- An enterprise-wide team of staff are working with Sustainability Solution Group (SSG) to implement a tailored CityInSight emissions reduction and financial model for climate actions in London to identify the financial impacts of potential community low-carbon pathways. (AoF 10)

2.1.3 Sample of Upcoming Activities in 2024

Many activities either underway and finishing or starting later in 2024 will build upon the initial CEAP implementation progress in 2023. A sample of those items include:

- Green in the City, an awareness and education initiative focusing on the environment and climate change will proceed from November 2023 to April 2024 by traveling to different libraries and City facilities across London. The initiative is an active collaboration between London Public Library, London Environmental Network and the City. (AoF 1)

- Depending upon the outcome of the Multi-Year Budget process, working with the Clean Air Partnership to submit a FCM Community Efficiency Financing Grant and Loan Preliminary Application for the development of a Residential Energy Efficiency Retrofit Pilot Program in London. (AoF 2)

- Developing a bicycle parking plan to guide the build-out of both short-term and secure, longer-term bicycle parking infrastructure as input into the MMP. (AoF 3)

- Updating the Urban Forest Strategy and the associated Tree Planting Strategy is underway and additional information is expected to be presented to the Planning and Environment Committee in Q2 of 2024 outlining the plans for a comprehensive update that will modernize the previous Urban Forest Effects (UFORE) study completed in 2012. Urban Forestry is actively gathering baseline information and will be installing permanent sample plots in City-owned woodlands over the next three years to inform Corporate Asset Management and CEAP. There are challenges to achieving the pace of tree planting required to meet the 2065 tree canopy goal of 34% within the built area boundary that will be considered in the update. Significant City efforts have been made to maximize plantings on City-owned lands, so a primary focus of the forthcoming strategy update is expected to be on enabling, encouraging and supporting tree planting on private property. The former TreeMe

and Tree Canopy Conservation Programs will be refreshed in 2024 to assist in this goal. (AoF 6)

- Finalization of the Biosolids Management Master Plan is expected in 2024 with an expanded scope to include refined analysis of preferred location for sludge digestion and renewable natural gas generation. The potential for digested sludge to be used to create renewable natural gas and the potential use of alkaline stabilization of remaining solids to be used as an approved agricultural fertilizer will be investigated. (AoF 5, 7)

- Undertaking deep energy retrofits of Earl Nichols Recreation Centre with proposed funding support of $2.35 million (80% of costs) from the Green and Inclusive Community Buildings Program. Measures include heat recovery from the ice pad's refrigeration plant and the replacement of gas-fired heating with heat pumps. (AoF 7)

- Developing the 2024-2027 Corporate Energy Conservation and Demand Management (CDM) Plan, as required by provincial regulations, to outline near-term corporate energy conservation and renewable energy actions in support of the CEAP. (AoF 7)

- Through continued participation in the Canadian Collaboration for Sustainable Procurement (CCSP), City Procurement staff have networked and learned from other municipalities and agencies further along the path of implementing sustainable procurement policies. Information collection continues to inform the development of the City's sustainable procurement initiatives that will be developed in coordination with a review and update of the Procurement of Goods & Services Policy in 2024. (AoF 7)

- Strengthening the protection provided by the Broughdale Dyke, which protects 190 properties north of downtown from Thames River flooding, is expected to move to construction in 2024 in addition to the final stretches of the West London Dyke, each of which is supported by Federal funding from the Disaster Mitigation and Adaptation Fund (DMAF). (AoF 7, 8)

- Federal DMAF funding will also be used in 2024 to move from design to construction of earthen dyke structures to improve resilience to flooding at Greenway and Adelaide Pollution Control Plants. This climate adaptation measure will help keep these key elements of London's wastewater system operational during flooding events. (AoF 7, 8)

2.2 Climate Actions by Others in the Community

Achieving the goals of the CEAP requires effort from all sectors in London and is influenced by actions of others outside London. A few recent examples of climate actions from businesses, institutions, community groups, and individuals are listed below.

2.2.1 Businesses and Institutions

London Hydro started construction on a 1 megawatt (MW) battery storage facility to support a microgrid that will include 9 MW of solar photovoltaic energy generation at Sifton's West 5 development. The neighbourhood-scale microgrid powering West 5 is a federal funding-supported innovation paving the way for future net zero emissions developments. Additional details on London Hydro climate change, sustainability and resiliency activities are contained in Appendix A.

The Upper Thames River Conservation Authority (UTRCA) works with many partners throughout London and the upper Thames River watershed to reduce the impacts of climate change. Examples include:

- partnering with local agricultural producers and rural landowners in sequestering carbon through conservation farming practices, planting trees, creating wetlands, and other projects to mitigate impacts of changing weather patterns;

- working with schools from elementary to post-secondary in London and elsewhere, through in-class learning and on-the-ground projects (examples include GREEN Leaders, STEM, Climate Change - A Hot Issue & Climate Change Helpers);
- updating and maintaining information on flood hazards and the watershed's natural features; and
- working with community groups, landowners, small business, industry, and the City of London to protect, restore, and create natural features through naturalization projects and planning and regulations.

In addition, the UTRCA's large tracts of natural spaces increase resilience to more frequent and severe weather events. The 1,200 hectares at Fanshawe Conservation Area and 172 hectares of flood plain properties within London also lower urban temperatures and provide cooling opportunities for residents.

Green Economy London (GEL) continues to use a collaborative, cost-effective and practical approach when working with small to medium-sized businesses, non-profits, larger companies, and community organizations to set and achieve sustainability targets. Currently GEL has 45 member businesses and another 14 outside of London.

Western University continues to prioritize sustainability and climate action through academic offerings, research, and facilities management. Examples include the support for an initiative called “Thinking Globally, Acting Locally”, which is an innovative new pilot program aimed at supporting student-led initiatives that engage with local communities to collaboratively advance sustainability. Western also coordinated and hosted Clean Tech 2023 in November, a multi-partner conference approach to support Canada’s clean tech goals. The conference included industry booths, presentations and panels with notable contributions from London organizations including London Hydro, StormFisher, BioNext, London Economic Development Corporation, Ivey Business School, Techalliance, and 3M.

Enbridge Gas continues to be an active partner with the City of London on local climate actions. Bi-monthly meetings are held with Enbridge Gas and City staff to share updates on activities and explore opportunities for collaboration. The hybrid home heating pilot in London is one high-profile example of a project that originated from these regular meetings. Enbridge’s conservation programs, such as Home Efficiency Rebate Plus and Savings By Design, form the backbone of many climate actions undertaken by Londoners and London businesses.

2.2.2 Individuals, Households and Community Groups

The London Environmental Network (LEN) has continued collaborations with partners and members to engage Londoners on climate action with events like Green in the City, Earthfest, and Green Drinks - reaching over 15,000 Londoners through events and outreach as of late November 2023. LEN has continued to build capacity in the community for environmental projects and emission reductions, including:

- Distributing funds for Green Economy London members to implement projects such as waste audits, low-flow plumbing fixtures, and energy-efficient HVAC systems (via London Community Recovery Network);
- Distributing rebates for homeowners that have implemented home retrofits such as attic insulation, air source heat pumps, and basement insulation (via London Community Recovery Network);
- Completed over 350 home energy assessments to support household emission reductions; and
- Working with 8 non-profits that provide housing to equity-denied groups to implement clean energy projects in their buildings.

ReForest London (RFL) continued its positive impact on London’s urban trees and forests in 2023 with numerous tree planting events, tree giveaways and through advancing ideas, visioning and strategy development for the Westminster Ponds Centre for Sustainability. Due in large part to the collaborative work of RFL and the Million Tree

Challenge partner organizations, over 500,000 trees have been planted in London since January 2011.

Climate Action London, a not-for-profit community group and member of the London Environmental Network, hosted researchers from an international research project titled GOGREEN. The GOGREEN research project is a global initiative led by Roskilde University and funded by the Danish independent Research Council from 2022 to 2026. The project's objective is to identify the range of governance factors driving the successful co-creation of green transitions. City staff, community members and representatives from various environmental non-profit organizations in London participated in interviews to inform the researchers on initiatives and strategies being employed to create and implement the CEAP. London is the only Canadian jurisdiction in the international study.

The London Greening Health Collaborative (LGHC) began to meet in May 2023 following Earthfest and brings together knowledgeable parties with extensive experience in London's healthcare, environmental non-profit, and community health sectors. The LGHC originated in response to the observed activity in academia and the London health ecosystem around the intersection of health, climate and climate change (planetary health). It was observed that the different players in the community often work in isolation and a space where parties could meet to begin to identify and understand who was doing what in the intersection between climate and health would be beneficial. Following initiation and reaching out at senior levels in the London health ecosystem and academia, focus for 2023 was on three areas.

1. London as a National Urban Park;
2. Connecting Londoners to Nature for Healing; and
3. Earthfest 2024.

In terms of actions taken by individual households, a few examples include:

- Enbridge Gas has reported that Londoners participation in Ontario's Clean Home Heating Initiative (hybrid heating) is exceeding expectations. As of November 6, there have been 295 sign ups in London, exceeding the program target of 179 set for London.

- There was a 21 per cent increase in the number of zero emission vehicles registered in London during the first half of 2023 (January to June) compared to the first half of 2022. This pace was slightly faster than Ontario overall (19% increase) but behind the pace seen across Canada (27% increase) during the same period.

2.3 Climate Actions by Other Levels of Government

Canada – Federal Government

In June, Environment and Climate Change Canada launched the National Adaptation Strategy which lays out a framework to reduce the risk of climate-related disasters, improve health outcomes, protect nature and biodiversity, build and maintain resilient infrastructure, and support a strong economy and workers. It also identifies common goals, objectives, and targets to focus the efforts of governments and communities across these key areas and to help ensure future investments are targeted and effective.

In July, Environment and Climate Change Canada announced an investment from the Decarbonization Incentive Program (pollution pricing proceeds) to Western University to undertake critical infrastructure improvements that directly reduce greenhouse gas emissions. Western University will receive $4,745,000 for a four-year project to replace natural gas boilers with electric steam boilers.

In July, Infrastructure Canada and the Canadian Urban Transit Research & Innovation Consortium announced a joint investment of $400,000 to plan for the transition to zero emission buses. Through this investment, the London Transit Commission will complete

planning activities, including feasibility, implementation and market studies, to support future procurement and deployment of zero emission buses and related infrastructure.

On August 3, Natural Resources Canada and the Federation of Canadian Municipalities (FCM), announced an investment of $175,000 to Indwell Community Homes to assess the revitalization of two heritage buildings in the City of London for use as affordable housing.

In August, Natural Resources Canada released Powering Canada Forward, the Government of Canada's vision for transforming Canada's electricity sector and to decarbonize electricity grids by 2035, keep electricity systems reliable and ensure household energy costs are affordable. In support of this, Environment and Climate Change Canada collected feedback on the draft Clean Electricity Regulations. The final regulations are expected to be published in the Canada Gazette, Part II, in 2024.

In September, Environment and Climate Change Canada announced the launch of the Food Waste Prevention and Diversion: Research and Capacity Building Fund. This $570,000 Fund will help support local government research and capacity-building initiatives to prevent and divert food waste from landfills.

In September, Environment and Climate Change Canada announced funding for five pilot projects for innovative monitoring and automation systems to reduce methane emissions at Canadian landfills, two of which involve the City of London:

- Comcor Environmental Limited received $49,748 to work to identify methane surface emissions and compare field method approaches and detectors at three Canadian landfills including the City of London's W12A Landfill.
- Western University received $200,000 to monitor methane emissions from the City of London's W12A Landfill using several emerging technologies. This project is also coordinating activities with the Comcor-led project above.

In September, Natural Resources Canada released Canada's Carbon Management Strategy, which outlines the role of carbon management in Canada's path to a net-zero economy and the federal actions that are being taken to support carbon management technologies to capture carbon dioxide from point sources or the atmosphere to be durably stored or transformed into goods.

In October, the Federal Government announced a pause in the application of its carbon pricing backstop on fuel oil used for home heating due to high global petroleum prices. This will have limited impact in London given that natural gas has replaced fuel oil in those areas that have access to gas lines. The number of homes still using heating oil in London is not known but expected to be very small.

In November, the Commissioner of the Environment and Sustainable Development from the Auditor General to the Parliament of Canada issued a report that Canada is not on track to meet the 2030 target to reduce Canada-wide greenhouse gas emissions by at least 40 per cent below the 2005 level by 2030. It is also noted that Canada has been the worst performer of all Group of Seven countries (Germany, France, Italy, Japan, the United Kingdom, the United States and Canada) for reducing emissions.

The Commissioner noted that Environment and Climate Change Canada has projected that Canada would miss the target for reducing emissions and is currently expected to achieve a 34 per cent reduction in emissions. The Commissioner also noted that the current 2030 Emissions Reduction Plan does not include a target or expected emission reductions for 95 per cent of its measures and that federal government organizations expected only 43 per cent of measures to have some direct impact on emissions. The Commissioner noted the strengths of the current plan including:

- Carbon pricing;
- Regulations related to electricity grids, oil & gas sector, zero emission vehicle mandates, and clean fuels; and

- Some exemptions from carbon pricing and targeted support for groups such as farmers, fishers, and rural residents.

In December, Environment and Climate Change released its latest forecasts for future Canada-wide greenhouse gas emissions showing that, with existing and planned policies and programs, emissions in 2030 are projected to decline to 34 per cent below 2005 levels when including the sequestration contributions of land use and forestry as well as credits purchased under the Western Climate Initiative. It is projected that Canada-wide emissions will reach 40 per cent below 2005 levels (the current reduction target for 2030) by 2035.

Ontario – Provincial Government

Ontario still maintains a 2030 greenhouse gas emission reduction target (30 per cent reduction from 2005 levels) that is less ambitious than the target for Canada (40 to 45 per cent reduction from 2005 levels). Also, Ontario has not formally adopted net-zero emissions' targets, referring only to its 2030 target in its plans.

Enbridge Gas, with the support and funding from the Government of Ontario, expanded the Clean Home Heating Initiative in 2023 to include homeowners in Ajax, Barrie, Pickering, and Whitby after the successful rollout of the initiative last year in London, Sault Ste. Marie, St. Catharines and Peterborough.

In July, the Ministry of Energy released the Powering Ontario's Growth plan, outlining the actions the province is taking to meet the increasing demand for electricity driven by strong economic growth and electrification through the 2030s and 2040s. These actions include new zero-emissions electricity generation (nuclear and renewables), long duration storage, and transmission lines.

Connected to this, the Ministry of Energy is starting pre-development work for the first large-scale nuclear build in over three decades. Bruce Power will start community consultations and conduct the environmental assessment for federal approval to determine the feasibility of siting up to 4,800 megawatts (MW) of new nuclear generation on its current site. In addition, the Ministry of Energy is working with Ontario Power Generation to commence planning and licensing for small modular reactors at the Darlington nuclear site. Once deployed, these four units would produce a total 1,200 megawatts (MW) of electricity.

In August, the provincial government released Ontario's Climate Change Risk Assessment, a comprehensive review of the risks anticipated from the changing climate in the province by 2080 and beyond. The work included detailed regional climate change impact assessments on five themes:

- Infrastructure;
- Food and agriculture;
- People and communities;
- Natural resources, ecosystems, and the environment; and
- Business and the economy.

The assessment included a set of recommended climate adaptation priorities for each theme as well as a series of cross-sectoral considerations relating to food security, energy security, water security, human health, safety and well-being, and community function.

In September, the provincial government reversed a decision to remove nearly 3,000 hectares of protected lands from the Green Belt for urban development as a result of significant pushback from municipalities and members of the public. The lands are expected to be returned to protected status.

Climate Actions by Some Major Environmental Non-Government Organizations

The City of London is an active participant in the Clean Air Council, administered by the Clean Air Partnership, which supports climate action in 41 Ontario municipalities and health units. This organization continues to provide support for the City of London climate actions through activities such as:

- Coordinating municipal feedback on federal and provincial climate actions, such as Independent Electricity System Operator's (IESO's) proposed Clean Electricity Fund, the IESO's Pathways to Decarbonization Study, and the Ministry of Energy's Consultation on the future of natural gas expansion and home heating affordability.

- Providing training and webinars on a wide range of topic such as the Governance, Accountability, and Implementation Series and New Design Resources for Embodied Carbon Targets.

- Providing resources to assist municipal climate action, such as the Briefing Note on Municipal Green Development Standards and the State of Climate Actions in Ontario Municipalities.

The City of London also participates in the Ontario caucus of QUEST Canada, an organization that brings together municipalities, energy utilities, and energy service providers to promote efficient and integrated energy systems that best meet community needs. QUEST Canada often collaborates with other organizations, such as the Clean Air Partnership and Pollution Probe, on the delivery of training and webinar sessions as well as resources.

City staff have been actively participating and contributing to the Regional Public Works Commission of Ontario's (RPWCO's) Climate Change subcommittee in 2023. The subcommittee includes staff from across Ontario's larger municipalities and is a forum for sharing information, best practices and emerging ideas and solutions to climate change. Recent topics and presentations have included the review and assessment of the Ontario Provincial Climate Change Impact Assessment, integrating climate change into municipal asset management, and presentations sharing best practices and challenges from several municipalities including Toronto and Guelph.

2.4 Greenhouse Gas Emissions

London's corporate and community greenhouse gas emissions for 2022 were reported on May 30, 2023, as part of the 2022 CEAP Progress Report:

- Corporate energy-related greenhouse gas emissions were 18,900 tonnes of equivalent carbon dioxide. This is 58% lower compared to 2007, the baseline year for measuring progress.

- Community greenhouse gas emissions were 2.96 million tonnes of equivalent carbon dioxide. This is 24% lower than 2005 levels, the baseline for measuring progress.

City staff prepare an annual report detailing corporate and community emissions which relies on a set of data provided by energy utilities, transportation fuels market analysis, and other related sources. These data are provided to City staff on an annual basis usually by mid-to-late spring of the following year. The 2023 corporate and community greenhouse gas emission data will be reported in the May/June CEAP Progress Report.

London's methodology for reporting community greenhouse gas emissions allows for the presentation of results earlier than other jurisdictions. No other Ontario municipality has reported 2022 community greenhouse gas emissions at the time of writing this report (December 2023). The City of Burlington is the only other peer municipality that has reported corporate greenhouse gas emissions for 2022.

As part of CEAP development, 11 Ontario municipalities were identified as peer municipalities for the purpose of comparing, learning and sharing information on climate action. Another 6 municipalities (5 outside of Ontario) were selected for the same reasons (Table 3). The latest information on emissions estimates from the Ontario peer municipalities are identified in Appendix B.

Table 3: London's Peer Municipalities in Ontario and Selected Municipalities in Canada

Peer Municipalities in Ontario	Selected Municipalities in Canada
1. City of Burlington	1. City of Calgary
2. Region of Durham	2. City of Edmonton
3. Municipality of Greater Sudbury	3. City of Halifax
4. City of Guelph	4. City of Toronto
5. City of Hamilton	5. City of Vancouver
6. City of Kingston	6. City of Winnipeg
7. City of Mississauga	
8. Town of Oakville	
9. City of Ottawa	
10. Region of Waterloo	
11. City of Windsor	

Initial 2023 Trends in Energy Use

There are partial data for a few indicators that can be used to provide some sense of where 2023 community-wide greenhouse gas emissions may be heading in London. Specifically:

- Ontario's electricity grid is using more natural gas for electricity generation – Ontario is on track to increase its use of natural gas for power generation in 2023 compared to 2022. As of September 2023, based on data provided by the Independent Electricity System Operator, natural gas power plants have provided 12% of Ontario's electricity supply over the last 12 months, compared with 10% in 2022. As a result, greenhouse gas emissions from electricity use are expected to be about 15% higher than they were in 2022. This change will likely make community-wide emissions in London almost 1% higher overall than they would have been had Ontario's electricity supply mix not changed.

- Canada's gasoline use is increasing – Based on data collected by Statistics Canada, gasoline consumption in Canada in the first half of 2023 (January to June) was 4.7% higher than the first half of 2022. Note that COVID-related measures were still in place in the first half of 2022 which reduced some driving activity. The final percentage change will likely be lower. Increased use of gasoline in London would cause an increase in emissions from this energy source.

- Warmer winter and cooler summer will reduce building energy demand – Compared to 2022, as of October 2023, London is likely to see both lower heating degree-days and lower cooling degree-days in 2023 overall. As a result, natural gas use for heating and electricity use for cooling should be lower compared to 2022 which could decrease household emissions.

2.5 Weather Trends and Impacts

As noted earlier, compared to 2022, as of October 2023, London saw both lower heating degree-days and lower cooling degree-days in 2023 overall. The relatively cooler weather in London is an anomaly compared to record temperatures set around the world in 2023.

The City commissioned a report from Western University climatologists from the Northern Tornadoes Project and Geography Department to provide a synopsis of weather trends in 2023 with a focus on three geographical areas; London and area, provincially and nationally, and globally. The report highlights are:

- London and area
  The London area experienced low wind events and a warm January/February and September/October. Hot summer days (temperature greater than 30 degrees C.) continued the steady rise in number (2023 = 8 days) as reflected by the historical record for London.

  The region received both flooding and drought conditions including heavy March and April rains leading to flooded basements followed by a drought in May and above average rain in July. August 23 saw a major storm causing flooding in Warwick Township and with one fatality triggering the declaration of a local state of emergency.

- Ontario and Quebec
  These two provinces are grouped together in this description due to their severe and extreme weather often straddling the border. 2023 saw freezing rain and high winds creating the worst power outage since the 1998 ice storm and resulting in 1.3 million people without electrical power. This area is becoming the new 'tornado alley' for Canada with 37 tornadoes in 2023 which is half of the tornadoes experienced nation-wide. Wildfires in northeastern Ontario and Quebec in June and the associated smoke created air quality concerns province-wide.

- Canada
  The national story in 2023 was the record number of wildfires in British Columbia, Alberta, Quebec and Nova Scotia. The west coast wildfires were aided by the Vancouver area and Vancouver Island drought. The prairies saw an unusual lack of tornadoes, while the East Coast experienced wildfires, an atmospheric river, and Tropical Hurricane Lee.

- Globally
  The predominant weather phenomena globally was excessive heat with 2023 appearing to be the warmest year on record (e.g., July was warmest month in recorded history and August 2nd was the warmest day on record). Warmer sea surface temperatures are creating more hurricanes in the Atlantic Ocean and a stronger El Nino in the Pacific Ocean. Low sea ice concentrations continue to melt the Polar Ice Caps at both Poles.

  As of October, 86 days were recorded with temperatures over 1.5°C above pre-industrial levels. September was the hottest recorded month, with global average temperatures 1.8°C above pre-industrial levels. In summary, 2023 is likely to be the warmest year on record to date.

2.6 Third Party Assessments and/or Reporting of London's Climate Actions

The City of London participates in a number of initiatives to help gauge the relative strengths and weaknesses of London's climate actions compared to other municipalities in Canada and around the world. These include the following:

- Global Covenant of Mayors – The City of London submits information to this global program on an annual basis. In 2023, a preliminary assessment indicates that the City of London is compliant with all mitigation and adaptation requirements as well as two of three requirements related to energy access and poverty (identifying energy poverty exposure and developing a plan to address it). The missing requirement was setting targets related to reducing energy poverty. This item is going to be further examined by City staff.

- CDP Cities – The City of London submits information to this global program on an annual basis. The CDP Score is based around questions on both climate change

mitigation and adaptation in the areas of governance, assessment, planning and actions with some detail on sector-specific metrics. In 2023, the City of London received an overall score of A-, with a score of A for adaptation measures and a score of A- for mitigation measures. London's scores were higher than the North American average for participating municipalities (A- and B respectively), but behind those leading Canadian jurisdictions that received the full A score such as Halifax, Toronto, and Windsor.

- WWF One Planet City Challenge – 2023 is the first year that the City of London has participated in this initiative. Their evaluation is based on the data submitted through CDP Cities and each participant is provided a Gaps Report. For 2023, the City of London received an overall score of 119 out of 150 (79%). There is no comparative information available at this time. Topics noted for needing improvement included establishing a consumption-based GHG emissions inventory, establishing city-specific renewable energy targets, and reporting on the status of climate adaptation targets.

- Corporate Knights Sustainable Cities Index - 2023 is the first year that the City of London has participated in this initiative involving 70 cities world-wide and 10 in Canada. London received a B grade overall and ranked 29th out of 70 cities participating.

- Partners for Climate Protection – Operated by the Federation of Canadian Municipalities and ICLEI Canada, the City of London has participated in this program since 1997. In 2013, the City of London achieved the final milestone (Milestone 5 – Monitoring and Reporting Results) for both Corporate and Community activities and this milestone remains unchanged.

- National Climate League – Operated by The Climate Reality Project Canada, London has participated in this citizen-led initiative through the volunteer efforts of members at Climate Action London. Launched in 2018, the program was designed to engage citizens in municipal climate action and provide comparative information, where possible, on climate performance for Canadian municipalities. Information from between 50 and 60 cities is compiled each year by volunteers on a number of climate, sustainability and social justice indicators.

3.0 Financial Impact/Considerations

There are no specific financial impacts or financial considerations tied to this update report. A Climate Emergency Action Plan (CEAP) Business Case is part of the 2024-2027 Multi-Year Budget submission that was released on December 12, 2023, which will be considered by Council as part of 2024-2027 Multi-Year Budget deliberations.

Similar to what has been previously reported, investment in climate action over the full term of the CEAP (to 2050) by the City, businesses and residents is anticipated to be significant. Investments must also come from other levels of government to assist local government. Some of these investments are anticipated to align with and sometimes replace planned future spending. In some cases, investments to achieve CEAP goals may result in opportunities for net savings, though additional up-front capital costs may be required to realize lower lifetime asset costs. Several other short term and longer terms activities are underway at the City including:

- A project for energy, emissions, land-use, and financial scenario modelling to map possible growth and land use scenarios to determine how to reduce emissions, create jobs, and optimize land use to create equitable, decarbonized, healthy communities;

- A project to review and advance City staff estimates for reaching net-zero emissions for Corporate assets (e.g., fleet, facilities, street lights, wastewater, water, landfill);

- Ongoing work on the City's Corporate Assessment Management Plan; and

- The creation of Climate Change Investment and Implementation Plan which plans out potential investments over multiple multi-year budgets, including 10 and/or 20 years capital plans, funding strategies, etc.

4.0 Key Issues and Considerations

One of the key issues driving the pace of climate actions is the awareness and desire to act among businesses, institutions, community groups and Londoners in general. Engaging with potential partners in action and encouraging households and individuals to make changes in their lives that align with the CEAP goals remains a major challenge. Differing and often conflicting media coverage and on-line information, lack of clear understanding of the scope and breadth of the climate crisis, significant political differences, the politics of climate change, and the acute nature of other pressures on Londoners (e.g., affordability, homelessness) makes it difficult to meaningfully engage with residents.

These issues and considerations are not isolated to London. They exist in all provinces in Canada. In addition to the challenge of engaging with Londoners in the current socio-economic and technology climate, additional key issues and considerations have emerged and are noted in the next few subsections.

4.1 Other Municipalities' Climate Action Update – Learning from Others

Significant strides in climate action and sustainability were made in the year 2023 by the City of London's eleven peer Ontario municipalities and six selected municipalities (the same municipalities highlighted in the 2022 CEAP supporting document titled "Learning from Other Municipalities"). From the progressive efforts of Guelph, becoming the first municipality in Canada to achieve a corporate-wide energy management certification, to the innovative programs launched by municipalities like Ottawa, Burlington, and Halifax, local governments demonstrated a commitment to fostering green, more resilient communities.

Of note are the growing number of peer municipalities (7 of 11) who now either have or are in the process of developing a green development standard and the number of municipalities who have launched or are in the process of launching a residential energy retrofit support program (8 of 11). A more detailed overview of the peer municipalities' progress can be found in Appendix C.

4.2 New and Emerging Climate Change Considerations and Issues

Human Health and Climate Change
On October 25, 2023, a group of over 200 leading academic medical and health journals, including the Canadian Medical Association Journal, simultaneously published an article urging national, international and health sector leaders to treat the climate and nature crisis as a global health emergency (Time to treat the climate and nature crisis as one indivisible global health emergency | The BMJ). This effort emphasizes the growing body of knowledge linking climate change and biodiversity loss to human health impacts and the fundamental interconnection of planetary health.

Household Income and Greenhouse Gas Emissions
A recent research article published in the PLOS Climate Journal entitled "Income-based U.S. household carbon footprints (1990–2019) offers new insights on emissions inequality and climate finance" (August 2023) showed significant and growing consumption-based greenhouse emissions inequality across economic and racial lines in the United States. These findings are also likely applicable to Canada. Specifically:

- People in the bottom 50% income bracket were responsible for about 14% of GHG emissions;
- People in the 50% to 90% income bracket group were responsible for about 42% of GHG emissions; and,
- People in the top 10% income bracket group were responsible for about 45% of emissions.

In addition to direct emissions from home heating and transportation as well as consumption-related emissions from purchasing goods and services used in the study, the calculation included emissions from investments held by people (i.e., if a person owns shares in an oil producer, they also own the emissions associated with their share of that oil producer's emissions).

It is important to note that the recent Ontario Provincial Climate Change Impact Assessment (2023) has identified that the impacts from climate change are not equally distributed, rather, "Climate risks are highest among Ontario's most vulnerable populations and will continue to amplify existing disparities and inequities."

This research offers unique information to help focus the City's climate action and engagement efforts. A stronger focus on promoting adaptation and resilience actions for lower income Londoners and a stronger focus on promoting mitigation actions for upper income Londoners appears to be warranted. City participation and focus of climate action outreach at events like the Lifestyle Home Show and EV test drive events already align with these findings, since events like these tend to draw the higher-consuming, higher-emitting above-median income residents.

This does not take away the importance of addressing the impact of high energy and fuel costs for those Londoners struggling with affordability and directing them towards incentives and other resources to reduce these costs, such as free home insulation and draft-proofing.

The Impact of New Housing and Green Building Policies
In response to the affordable housing crisis, in Fall 2023, the Task Force for Housing & Climate commissioned three distinct greenhouse gas modelling reports to assess the modeling of the greenhouse gas implications of adding 5.8 million new homes Canada-wide under business-as-usual approaches versus the use of aggressive green building policies.

These reports looked at the three largest sources of greenhouse gas emissions associated with new housing: building energy performance; embodied emissions from construction materials and supportive infrastructure; and land use planning decisions. Collectively, these reports showed that:

- With weak policy approaches, adding 5.8 million homes Canada-wide could create as much as 142.7 million tonnes in new annual greenhouse gas emissions by 2030 (Table 4).
- With strong policy approaches, adding 5.8 million homes could generate as little as 43 million tonnes of annual greenhouse gas emissions by 2030 (Table 4).

Table 4: Climate Impacts of Adding 5.8 Million Homes Across Canada by 2030

Area of Action	Weak Policies (million tonnes/year)	Strong Policies (million tonnes/year)
Building Performance	12.9	4,2
Building Materials	94.2	8.0
Land-use Decisions	35.6	30.8
Total	142.7	43.0

Source: Task Force for Housing & Climate (2023, www.housingandclimate.ca)

The reports showed that strong green building policy leadership at the federal, provincial, and municipal levels could prevent almost 100 million tonnes of annual greenhouse gas emissions from new housing, equal to about 34 per cent of Canada's 2030 GHG reduction target. In particular, the choice of building materials used can have a significant impact on emissions (e.g., using mass timber instead of concrete and steel can significantly reduce construction-related emissions for a multi-family building).

Global Progress on Reducing Emissions
In advance of the 2023 COP28 meeting in Dubai in December, the 2023 edition of the Emissions Gap Report from the United Nations Environment Programme (UNEP) noted that global-scale greenhouse gas emissions continued to rise in 2022 and the world's ability to limit global warming to within 1.5°C is rapidly diminishing. Specifically:

- Global greenhouse gas (GHG) emissions increased by 1.2% from 2021 to 2022;
- Similarly, GHG emissions across the G20 countries increased by 1.2% in 2022;
- If mitigation efforts implied by current policies are continued as is, global warming will be limited to 3°C above pre-industrial levels throughout this century;
- In the most optimistic scenario, where all national net zero pledges are met, limiting global-scale temperature rise to 2.0°C could be achieved. However, net-zero pledges are not currently considered credible given that none of the G20 countries are currently reducing emissions at a pace consistent with their net-zero targets; and
- Countries with greater capacity and responsibility for emissions – particularly high income and high-emitting countries among the G20 – will need to take more ambitious and rapid action and provide financial and technical support to developing nations.

Incorporation of Climate Risks in Financial Disclosures
In November 2023, the Institute and Faculty of Actuaries (IFoA) (the UK-based organization regulating and representing over 32,000 members worldwide) released a report entitled "The Emperor's New Climate Scenarios – Limitations and assumptions of commonly used climate-change scenarios in financial services" adding to the body of knowledge and understanding of climate risk in financial disclosures. In this report, the IFoA and researchers from the University of Exeter emphasize that:

1. Many climate-scenario models in financial services are significantly underestimating climate risk;
2. Carbon budgets may be smaller than anticipated and risks may develop more quickly; and
3. Regulatory scenarios introduce consistency but also the risk of group think, with scenario analysis outcomes being taken too literally and out of context.

The report reveals that "a disconnect exists between climate science and the economic models that underpin financial services climate-scenario modelling," and that "…real-world impacts of climate change, such as the impact of tipping points (both positive and negative, transition and physical-risk related), sea-level rise and involuntary mass migration, are largely excluded from the damage functions of public reference climate-change economic models." As a result, many corporate financial disclosures of climate risk paint a misleadingly optimistic picture of future risks and opportunities associated with the impacts of climate change.

These considerations will be key for any municipalities choosing to report sustainability and climate-related disclosures alongside financial reporting requirements. London will benefit as a member of the Municipal Net-Zero Action Research Partnership (N-ZAP) which includes the development of a second-generation guide to Task Force on Climate-related Financial Disclosure (TCFD) reporting for municipalities that builds upon the 2019 guide prepared by Chartered Professional Accountants Canada. The guide development work is currently being conducted and piloted alongside climate budgeting approaches through the N-ZAP in Toronto, Montreal, Vancouver, Edmonton, Mississauga, and Calgary.

Conclusion

To address Council's direction, a second SPPC report referred to as an update report for CEAP has been created. The update report is in addition to the annual Progress Report that will be submitted in May/June each year. The same five key outcome areas used in the 2022 Progress Report are the foundation of the update:

1. CEAP Actions by Area of Focus
2. Climate Actions by Others in the Community (and Interested Parties)
3. Climate Actions by Other Levels of Government
4. Greenhouse Gas Emissions
5. Weather Trends and Impacts

This update report and future Progress Reports and Update Reports fulfill an important interaction with SPPC (all members of Council in a committee) and City staff. It also assists with furthering engagement in the community, with institutions and businesses.

Prepared by:	**Michael Fabro, P.Eng., MEB, Manager, Climate Change Planning**
	Jamie Skimming, P.Eng., **Manager, Energy & Climate Change**
	Patrick Donnelly, M.SC., RPP, Manager, Watersheds & Climate Change
Prepared and Submitted by:	**Jay Stanford, MA, MPA, Director Climate Change, Environment & Waste Management**
Recommended by:	**Kelly Scherr, P.Eng., MBA, FEC, Deputy City Manager, Environment & Infrastructure**

Appendix A Overview of Recent London Hydro Climate, Sustainability and Resiliency Plans

Appendix B Greenhouse Gas (GHG) Emissions Information from Peer Ontario Municipalities

Appendix C Snapshot of Recent Peer and Selected Municipalities' Climate Actions

c Lynne Livingstone, City Manager
Anna Lisa Barbon, Deputy City Manager, Finance Supports
Kevin Dickins, Deputy City Manager Social Health Development
Scott Mathers, Deputy City Manager, Planning and Economic Development
John Paradis, Deputy City Manager, Enterprise Supports
Cheryl Smith, Deputy City Manager, Neighbourhood and Community-Wide Services
Tara Pollitt, Deputy City Manager, Legal Services

Appendix A
Overview of Recent London Hydro Climate, Sustainability and Resiliency Plans

London Hydro continues to support the London's Climate Emergency Action Plan through a variety of programs and actions. Overall, London Hydro focuses on prudent continual investment in a resilient and adaptable electricity distribution system that can meet future demands and minimize power interruptions.

Climate Change Resilience and Adaptation

- London Hydro routinely monitors and analyzes the resiliency of the distribution system. A recent study by London Hydro analyzed weather related power interruptions over the past three and a half years (January 2020 – July 2023) and determined the following:
  - The largest contributor and greatest risk to the electrical system in our "Forest City" is related to tree contacts. For example, a tree limb or an uprooted tree that falls on the electrical infrastructure can result in a long duration power interruption to thousands of customers.
  - To reduce the impact of tree contacts (i.e. customer power interruptions, costs associated with vegetation management, repairs, etc.) and to ensure a resilient and reliable electricity grid municipalities can play a role through partnership for a holistic view of tree planting and management practices (e.g. selecting appropriate tree species in proximity to hydro lines, identification of dead trees for early/prompt removal, etc.).

- To address the impact of severe weather, and to adapt and improve grid resiliency, London Hydro plans to enhance five areas. These areas are in line with industry best practices and have been identified to improve resiliency:
  - increased emphasis on vegetation management;
  - targeted insulated conductor installation;
  - targeted undergrounding of infrastructure (e.g. heavily treed backyards, areas with historical issues, accessibility challenges);
  - selected automated devices installation:
    - increases visibility of the grid for system operators;
    - reduces number of customers interrupted from main line faults; and
    - customers can be restored faster in masses; and
  - pole inspection and guying – reducing broken poles under extreme wind/loading conditions.

- London Hydro continues to ensure resilient operations through the following ongoing activities:
  - Contingency planning activities include:
    - increased quantities of safety stock;
    - supplier alliances (includes emergency supply of key components);
    - active members of mutual assistance groups with other utilities across Ontario to share crews and equipment;
    - extensive list of pre-qualified contractors; and
    - annual reviews of our emergency plan, including tabletop exercises of various scenarios such as ice storms, tornados, and floods.
  - Protection, control and automation investments include:
    - fusing radials to improve safety and reduce the number of customers interrupted;
    - installation of reclosers and other automated devices to provide more operational flexibility and improve outage response time; and
    - communicating faulted circuit indicators to locate and restore outages faster.
      - Distribution System Design activities include:
      - overhead rebuilds of older depreciated assets;
      - rebuild depreciated overhead areas in backyards by undergrounding the high voltage system;

    - undergrounding new subdivisions; and
    - exploring breakaway secondary overhead conductors.

- London Hydro has updated its flood contingency plan to ensure operational continuity, protection of assets and the environment as well as integrated procedures to respond to customer needs during flooding events.

System Planning

- To ensure the electrical system has capacity to accommodate City of London's growth projections and customers' decarbonization and electrification plans, London Hydro developed a Planning Outlook to year 2050, by considering the City of London's Planning and Economic Development group's forecasts, historical consumption and demand trends and latest developments and inquiries from large customers.

- Three future gross demand projection scenarios (i.e. high, medium and low growth) were derived for London Hydro's region. These scenarios range from 0.35% (low growth) to 2.84% (high growth). The most probable projection is the medium growth rate of 1.85%, that is anticipated to add 476 MW of new demand by 2050 which would require additional capacity in the years 2033-2037. However, additional capacity may be required at specific Transformer Station locations sooner depending on the pace and geographic location of the demand growth.

- The potential impacts of new conservation and demand management and distributed generation forecasts are also planned to be included in joint regional planning initiatives with the provincial Independent Electricity System Operator. As well, energy conservation and distributed energy resource installation (i.e. generators, batteries, demand response) in the future can offset the distribution system gross demand needed and may potentially defer additional capacity investments.

- London Hydro is actively working to bring IESO programs to energy consumers in London such as the Strategic Energy Management (SEM) program as well as to help define and potentially deliver future Save on Energy Programs in the coming years. London Hydro will continue to support programs that lead to efficiency, electrification, climate action mitigation projects, and as always, help customers manage their energy wisely and cost effectively.

- London Hydro will continue to monitor system demand trend(s) and reevaluate the complex assumptions that impact all the industry peers and stakeholders, at the next regional planning cycle in 2024.

- In preparation for anticipated load growth due to increased electrification such as electric vehicle adoption, London Hydro has developed:
    - a program to monitor transformer loading leveraging smart meter data from customers to identify overloaded transformers;
    - new standards with higher capacity for servicing new and rebuilt residential neighbourhoods; and
    - Continued investigation into various load control technologies.

Enabling Technology Investments

- London Hydro supports integrating renewable energy into the distribution system. There are currently over 470 generators and grid connected battery energy storage systems connected with a capacity of 112 MW of which 22% is renewable generation. London Hydro continues to connect renewable energy generators through Net Metering connections and has supported customers using the City of London's MyHEAT Solar website.

- London Hydro has replaced aging distribution equipment to reduce the electricity losses thus making the electricity system more efficient.

- London Hydro has worked closely with the West 5 Net Zero Community to connect solar generation and microgrid technology as well as implementing Ontario’s first Community Net Metering billing method.

- London Hydro has delivered customer facing energy management applications such as the myLondonHydro portal, the Interval Data Centre, Green Button data API, the Trickl mobile app, and the Property Management Portal to help customers track, report and understand their utility usage.

- London Hydro has supported the Enbridge hybrid heat pump pilot for over 100 London customer installations that has served as a basis for program expansion elsewhere in the province.

Appendix B
Greenhouse Gas (GHG) Emissions Information from Peer Ontario Municipalities

The latest information on greenhouse gas emission targets and available estimates from the Ontario peer municipalities are identified on Table B-1. London GHG targets and 2022 emission data are also noted.

Table B-1: London's Peer Municipalities in Ontario – Available Details on GHG Targets and Progress

Municipality	Emission Reduction Targets	Latest GHG Inventory
London	Community: 55% below 2005 levels by 2030 65% below 2005 levels by 2035 75% below 2005 levels by 2040 Net-zero emissions by 2050 Corporate: 65% below 2007 levels by 2030 75% below 2007 levels by 2035 90% below 2007 levels by 2040 Net-zero emissions by 2045	Community: 2022 - 24% below 2005 levels Corporate: 2022 – 58% below 2007 levels
Burlington	Community: Net carbon neutral by 2050 Corporate: 21% below 2018 levels by 2024 Net carbon neutral by 2040	Community: 2021 – 17% below 2011 levels Corporate: 2022 – 5% below 2018 levels
Durham Region	Community: 5% below 2007 levels by 2015; 20% below by 2020 80% below by 2050 Corporate: 20% below 2019 levels by 2025 40% below by 2030 100% below by 2045	Community: 2022 – 1% above 2015 levels (as per TAF report only) Corporate: 2021 – 14% below 2019 levels
Greater Sudbury	Community: Net zero emissions target by 2050 Corporate: Net zero emissions target by 2050	Community: 2016 – baseline year Corporate: 2017 – 34% below 2011 levels
Guelph	Community: Net zero carbon by 2050 Corporate: City facilities and operations to use 100% renewable energy by 2050	Community: 2020 – 17% below 2018 levels Corporate: 2021 – 10% below 2018 levels
Hamilton	Community: 50% below 2006 levels by 2030 carbon neutral before 2050 Corporate: 50% below 2005 levels by 2030 80% below by 2050	Community: 2019 – 33% below 2006 levels Corporate: 2019 – 43% below 2005 levels (corporate)

Municipality	Emission Reduction Targets	Latest GHG Inventory
Kingston	Community: 30% below 2011 levels by 2030 carbon neutral by 2040 Corporate: 15% below 2018 levels by 2022 30% below by 2030 carbon neutral by 2040	Community: 2021 – 8.5% below 2018 levels Corporate: 2021 – 9.3% below 2019 levels
Mississauga	Community: 40% below 1990 levels by 2030 80% below by 2050 Corporate: 1% below 2018 levels per year from 2019-2023	Community 2021 – 11% below 1990 levels Corporate: 2021 – 2% below 2018 levels
Oakville	Community: Enable transition to a goal of carbon neutrality by reducing greenhouse gas emissions by at least 50% by 2041 Corporate: 30% below 2015 levels by 2024 net zero carbon by 2050	Community: 2016 – baseline year Corporate: 2021 – 33.7% below 2014 levels, excluding fleet
Ottawa	Community: 43% below 2012 levels by 2025 68% below by 2030 96% below by 2040 Net zero carbon by 2050 Corporate: 30% below 2012 levels by 2025 50% below by 2030 Net zero carbon by 2040	Community: 2020 – 15% below 2012 levels Corporate: 2020 – 43% below 2012 levels
Waterloo Region	Community: 30% below 2010 levels by 2030 80% below by 2050 Corporate: 80% below 2010 levels by 2050	Community: 2015 – 5.2% below 2010 levels Corporate: No public report on corporate GHG emissions reduction progress
Windsor	Community: 40% below 2014 levels by 2041 Corporate: 40% below 2014 levels by 2041	Community: 2021 – 20% below 2014 levels Corporate: 2021 – 2.5% below 2014 levels

The Atmospheric Fund (TAF) releases an annual community greenhouse gas emissions inventory for the Greater Toronto-Hamilton Area (GTHA) region including the upper-tier and single-tier municipalities within that area in late November each year. The 2022 report shows that the GTHA region’s emissions increased by eight per cent in 2022 from the previous year.

Appendix C
Snapshot of Recent Peer and Selected Municipalities' Climate Actions

Background work conducted to support the creation of the Climate Emergency Action Plan in 2020 and 2021 included the detailed review of progress on climate change action by other municipalities considered to be appropriate peers to London. The analysis was summarized in the supporting document titled "Learning from Other Municipalities", which is available at London.getinvolved.ca/climate. The same group of 11 peer Ontario municipalities and 6 additional selected municipalities in Canada are being followed by staff to continue to learn about and share best practices and emerging trends pertaining to addressing climate change.

Progress information for 2023 for peer and selected municipalities is identified in section A below. Additional details on two key items - Green Development Standards (section B) and Home Energy Retrofits (section C) – are also found in this appendix.

A. 2023 Progress for Peer and Selected Municipalities

Municipality	Sample of 2023 Initiatives and/or Status
Burlington	• Received a grant from The Atmospheric Fund (TAF) to install 16 level two charging ports at community facilities by the end of 2023. • In 2023, BurlingtonGreen Eco Hub will showcase heat pump benefits and promote electric mobility with an air source heat pump and EV charging station. • Recognized as a Tree City of the World (April 24, 2023). • Homeowners can now apply for an interest-free loan of up to $10,000 for the purchase and installation of an air-source heat pump (September 11, 2023). • Created the Urban Forest Master Plan draft report which replaces the City's Urban Forest Management Plan created in 2010 (September 28). • Completed the Plains Road bike facilities and resurfacing project, featuring protected bike intersections, new bikeways, rain garden, road resurfacing, curb/sidewalk replacement, transit stops, hydro pole relocations, and streetlight upgrades (November 3, 2023).
Durham Region	• Launched Flood Ready Durham website which provides residents with information and resources on flood risk and resilience (May 10, 2023). • Secured over $600,000 for 85 new electric vehicle (EV) charging stations by the end of 2024 (June 20, 2023). • Hosted its first annual Environment and Climate Forum (November 7, 2023).
Greater Sudbury	• The Community Climate Change Adaptation Plan was developed (June 13, 2023). Launched its new rideshare program, Smart Commute (June 27, 2023).
Guelph	• Introduced the City's first electric bus for Clean Air Day (June 6, 2023). • Launched Greener Homes program offering zero-interest loans (July 31, 2023). • Planted 500 canopy trees using Miyawaki technique, a method designed to create faster growth and a denser forest (September 6, 2023). • Implemented Gold Star program for waste sorting (October 31 2023). • City of Guelph became the first municipality in Canada to earn corporate-wide ISO 50001 energy management certification (November 1, 2023).

Municipality	Sample of 2023 Initiatives and/or Status
Hamilton	• Hamilton City Council approved $2.55 million in new climate change initiatives. • The City plans to launch of the Better Homes Hamilton home energy retrofit pilot this year. • Distributed over 3,500 native trees to homeowners and planted 3,600 trees on City land by volunteers in 2023.
Kingston	• The Kingston Regional Biosolids and Biogas Facility project proceeded to its next step which included public consultation and vendor engagement (March 14, 2023). • Planted 40,000 trees through Tree Canada and Cataraqui Region Conservation Authority partnership (May 1, 2023).
Mississauga	• Awarded the Forest Stewardship Council® (FSC®) certification for the management of 36 woodlands (April 17, 2023). • Mississauga businesses participating in the Mississauga Climate Leaders Program (MCLP) started their GHG Training Program (October 5, 2023).
Oakville	• Received Oakville Transit's first batch of zero-emission battery-electric specialized buses in January 2023, replacing diesel-run buses.
Ottawa	• Adopted Budget 2023, which, for the first time, applied a climate lens to capital budget requests, and provided stable, consistent funding of $5 million annually for the Climate Change Master Plan. • Planted 10,000 trees in collaboration with the Government of Canada at Pinhey's Point Park (February 17, 2023). • Approved the Wastewater Energy Transfer (WET) system pilot program which will capture thermal energy from wastewater for a low carbon heating and cooling system (March 21, 2023). • Funded a free GHG calculator tool to calculate the GHG impacts from capital projects and municipal policies (April 2023).
Waterloo Region	• Introduced a new e-scooter and e-bike share program, which will include up to 500 e-bikes and 500 e-scooters for community members to rent (April 14, 2023).
Windsor	• Conducted an urban forest management survey which gave Windsor residents who were worried about the future of tree cover in the city a way to voice their concerns (January 30, 2023).
Calgary	• Introduced its Clean Energy Improvement Program which offers flexible financing to homeowners looking to reduce utility bills and improve energy efficiency (January 31, 2023). • Introduced its first Home Upgrades Program to help homeowners reduce their energy consumption (June 19, 2023). • Hosted its 5th annual Calgary Climate Symposium in October 2023.
Edmonton	• Celebrated 12 Building Owners and Managers Association (BOMA) BEST verifications in 2023. BOMA BEST encourages smart and sustainable solutions for existing buildings, promoting health, efficiency, cost-effectiveness, and low-carbon performance. • Introduced its Change for Climate Solar Program (May 8, 2023) for Edmontonians looking to add solar panels to their rooftops. • Launched a review of Climate Change marketing plan including a review of what selected cities in Canada have done and propose to do (November 2023).

Municipality	Sample of 2023 Initiatives and/or Status
Halifax	• Ranked the 11th most sustainable city in the world in the 2023 Corporate Knights' Sustainable Cities Index. • Plans to plant around 2,500 trees on municipally owned land by November 2023. • Halifax's climate action plan, HalifACT 2050, had its community update in March 2023 and August 2023. • Scheduled the installation of 18 electric vehicle (EV) charging stations across the Halifax region in Spring of 2023.
Toronto	• Published the 2022 Annual Report of the TransformTO Net Zero Climate Action Strategy and the Carbon Accountability Report. • Announced PollinateTO Grants recipients, enabling the creation of 110 new gardens. (April 18, 2023). • Announced its Taking Action on Tower Renewal (TATR) program, a financing and grant program for older apartment buildings (May 15, 2023). • Announced grants of up to $20,000 to support local Indigenous communities in undertaking projects and initiatives that help to address the climate emergency and protect the environment (June 8, 2023). • A report to ban gas-powered leaf blowers to reduce noise and air pollution was endorsed by Council for further input and engagement for action (June 21, 2023). • Launched a new bike pilot program as part of its net zero strategy. The pilot involves 18 refurbished Toronto fleet bicycles and a team of 21 certified bylaw enforcement officers, who will use bicycles at parks and major events to minimize vehicle use (September 22, 2023).
Vancouver	• Increased local climate leadership with its fourth annual Women4Climate mentorship program (September 7, 2023). • Opened Canada's first ever zero-carbon firehall (September 6, 2023). • Distributed 250 trees to people living in canopy-deficient areas of Vancouver as part of its Branch Out program (February 13, 2023).
Winnipeg	• Opened applications for the Compost Support Program (March 24, 2023). • Began its first phase of public engagement on its Comprehensive Integrated Waste Management Strategy (CIWMS) (October 30, 2023). • Opened applications for the 2024 Home Grown Grant.

B. Green Development Standards (GDS) and Home Energy Retrofit Summary for Peer and Selected Municipalities

- Burlington's Sustainable Building and Development Guidelines (2021) outline which guidelines are voluntary and which are required.

- GDS in the Durham Region are implemented at local level. The lower-tier municipalities: Whitby, Pickering, and Ajax have GDS plans in place. Currently the region and lower-tier municipalities are working on a Region Incentive Program.

- Hamilton is currently carrying out consultations for the development of a Green Development Standard.

- Mississauga came out with its Green Development Standards document back in 2012 which is currently being updated.

- Oakville issued a Sustainable Design Guidelines document in April 2010 which approaches construction and design projects with sustainability as a core principle.

- Ottawa has High Performance Development Standards in place that consists of three tiers of performance: the metrics in Tier 1 are mandatory. Tiers 2 and 3 contain higher-level voluntary standards. Tier 2 will become mandatory in 2026-2027.

- The Regional Municipality of Waterloo is committed to work with lower-tier municipalities to develop a regional GDS and has completed Phase 1 of collaborative development of the standard.

- The Toronto Green Standard (TGS) V4, implemented in 2021, comprises performance tiers, with Tier 1 being obligatory in the planning approval process. The Development Charge Refund Program provides financial incentives for Tier 2, 3, or 4 projects demonstrating high performance and low emissions.

C. Home Energy Retrofit Programs and Local Improvement Charge (LIC)/Property Assessed Clean Energy (PACE) financing programs

- Burlington Better Homes Pilot program provides a finance service to assist Burlington homeowners in installing an air-source heat pump and air-sealing their homes.

- Durham launched its Durham Greener Homes Program in 2022.

- Guelph introduced its Greener Homes program in Spring of 2023 which offers zero-interest loans for homeowners for solar panels and energy efficient upgrades.

- Hamilton is scheduled to launch its Better Homes Hamilton (BHH) program before the end of 2023 to help property owners reduce greenhouse gas (GHG) emissions and improve energy efficiency within their homes.

- Kingston launched its Home Energy Retrofit Program in 2021. This program aims to decrease costs and GHG emissions for homeowners, by retrofitting 25-50% of homes built before 1991 by 2040.

- Mississauga is currently working with the City of Brampton and Town of Caledon as part of the Peel Residential Energy Program to design a home energy retrofits program for single-family homes.

- Ottawa launched their BetterHomesOttawa program in November 2021.

- Windsor provides financial incentives to encourage strategic investments for improvements within a number of core neighbourhoods across the City.

- Calgary has a Clean Energy Improvement Program (CEIP), which helps homeowners in covering initial expenses for energy-efficient and renewable energy improvements. Property owners can access convenient financing options from The City, repaying the costs through their property tax bills.

- Halifax's Solar City, the first PACE program in Canada, provided exclusive financing for solar projects, including direct installation of water conservation measures for all applicants

- Toronto launched dual-stream Residential Energy Retrofit Programs in 2014: the Home Energy Loan Program (HELP) for houses; and the High-rise Retrofit Improvement Support Program (Hi-RIS) for multi-unit residential buildings.