Agenda Including Addeds
Strategic Priorities and Policy Committee

13th Meeting of the Strategic Priorities and Policy Committee

August 15, 2024

1:00 PM

Council Chambers - Please check the City website for additional meeting detail information. Meetings can be viewed via live-streaming on YouTube and the City Website.

The City of London is situated on the traditional lands of the Anishinaabek (AUh-nish-in-ah-bek), Haudenosaunee (Ho-den-no-show-nee), Lūnaapéewak (Len-ah-pay-wuk) and Attawandaron (Add-a-won-da-run).

We honour and respect the history, languages and culture of the diverse Indigenous people who call this territory home. The City of London is currently home to many First Nations, Métis and Inuit today.

As representatives of the people of the City of London, we are grateful to have the opportunity to work and live in this territory.

Members

Councillors S. Lewis (Chair), H. McAlister, P. Cuddy, S. Stevenson, J. Pribil, S. Trosow, C. Rahman, S. Lehman, A. Hopkins, P. Van Meerbergen, S. Franke, E. Peloza, D. Ferreira, S. Hillier, Mayor J. Morgan

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6.1 Labour Relations/Employee Negotiations / Land Acquisition/Disposition

/ Solicitor-Client Privileged Advice

A matter pertaining to reports, advice and recommendations of officers and employees of the Corporation carried on or to be carried on by or on behalf of the municipality concerning employee negotiations and labour relations, proposed acquisitions and dispositions of land, and advice that is subject to solicitor-client privilege, including communications necessary for that purpose.

6.2 Personal Matters/Identifiable Individual / Solicitor-Client Privileged Advice

A matter pertaining to personal matters about an identifiable individual, including municipal or local board employees and advice that is subject to solicitor-client privilege, including communications necessary for that purpose.

7. Adjournment

Report to Strategic Priorities and Policy Committee

To: **Chair and Members,**
Strategic Priorities and Policy Committee

From: **Cheryl Smith, Deputy City Manager, Neighbourhood and Community-Wide Services**

Subject: **City of London Community Grants Program Grassroots, Innovation, and Capital Funding Allocations (2024)**

Date: **August 15, 2024**

Recommendation

That, on the recommendation of the Deputy City Manager, Neighbourhood and Community-Wide Services, the report dated August 15, 2024, titled “City of London Community Grants Program Grassroots, Innovation, and Capital Funding Allocations (2024)”, **BE RECEIVED** for information.

Executive Summary

This report presents the 2024 Grassroots, Innovation, and Capital funding allocations for the City of London Community Grants Program. It outlines the launch of the new Grassroots program, program implementation including the application process, promotional and awareness efforts, and details of the applications supported by the Community Review Panel for funding.

Linkage to the Corporate Strategic Plan

The City of London Community Grants Program is aligned with the Strategic Area of Focus Wellbeing and Safety, as presented in the City of London Strategic Plan 2023-2027.

- Outcome: London is an affordable and supportive community for individuals and families.
- Expected Result: Londoners have access to quality, affordable, and timely services.
- Strategy: Support community-led initiatives and partnerships through grants, collaboration and community plans that promote the wellbeing of Londoners.

Analysis

1.0 Background Information

1.1 Previous Reports Related to this Matter

- City of London Community Grants Program Multi-Year Funding Allocations (2024-2027) (SPPC - March 26, 2024)
- London Community Grants Program Policy Update (SPPC - July 19, 2023)
- London Community Grants Program Innovation and Capital Funding Allocations (2023) (SPPC - June 20, 2023)
- London Community Grants Program Innovation and Capital Funding Allocations (2022) - Update (SPPC - December 6, 2022)
- London Community Grants Program Innovation and Capital Funding Allocations (2022) (SPPC - July 27, 2022)
- Anonymized Application Review for the London Community Grants Program (SPPC - February 8, 2022)
- London Community Grants Program Policy Update (SPPC - January 26, 2021)
- London Community Grants Program Allocations (SPPC - November 25, 2019)

2.0 Discussion and Considerations

2.1 Background and Purpose

For several decades the City of London has provided a wide range of organizations with capital and/or operational funding to assist in the delivery of services that are considered by the community to be essential to a healthy and vibrant city.

In 2015, Council directed Civic Administration to modernize the municipal granting process for not-for-profit organizations to create a transparent model that is fair to all applicants. This resulted in the development of a policy and evaluation criteria to guide program implementation and advance the goals of Council's Strategic Plan.

In 2023, Council approved an update to the City of London Community Grant Policy. The update was based on results from a comprehensive review and engagement process aimed at further removing barriers that racialized and marginalized groups may face when applying to the City of London Community Grants Program. As part of the update, a tiered funding model was developed that included a new Grassroots grant program.

The new Grassroots program launched this year (2024) and was aimed at providing a more equitable funding opportunity to grassroot organizations/groups by reducing competition with larger more established organizations. The amount of funding available through the Grassroots program is $100,000, which was reallocated from the annual Innovation and Capital program. The Grassroots Grant is intended to support new and less established groups to become stable, grow, and be well-positioned to apply for grants in the future.

The purpose of this report is to:

1. provide details on the launch of the new annual Grassroots program;
2. provide an update on the implementation of the City of London Community Grants Program; and
3. provide details about the 2024 Grassroots, Innovation, and Capital funding allocations.

2.2 Grassroots, Innovation, and Capital Grant Program Implementation (2024)

The 2024 Grassroots, Innovation, and Capital application period launched on April 25, 2024, and was open for four weeks closing on May 27, 2024. A detailed communications strategy was launched to inform the community about the annual funding programs and support applicants through the process. This included promotion on the City's communication platforms, circulating information to community networks and past participants, and hosting information sessions. In addition, various supports and resources were offered to better assist organizations through the application process including:

- three community information sessions (59 attendees);
- registered one-on-one consultation sessions (29 attendees); and,
- adding new resources to the City's website, including an information video.

A total of 85 applications were received for the annual grant program, with requests totaling $5.8 million. A total of 32 applications were received for the Grassroots program, with requests totaling $1.2 million. In addition, 38 Innovation applications and 15 Capital applications, totaling $4.6 million in requests were received. This is a 26% increase in applications received from the previous 2023 Innovation and Capital program.

The Community Review Panel evaluated applications and supported funding nine Grassroots projects totaling $100,000. The Panel also supported funding six Innovation projects and four Capital projects totaling $396,000 for one year. Of the 10 organizations funded through Innovation and Capital, four have not been previously funded through the City of London Community Grants program. Of the nine organizations funded through Grassroots program, all nine have not been previously funded through the City of London Community Grants Program.

Each applicant project must align with the Strategic Areas of Focus. The number of funded projects that align to each Strategic Area of Focus is as follows:

- Reconciliation, Equity, Accessibility, and Inclusion – 9 projects;
- Housing and Homelessness – 1 project;
- Wellbeing and Safety –6 projects;
- Safe London for Women, Girls, and Gender-Diverse and Trans People – 1 project;
- Economic Growth, Culture, and Prosperity – 0 projects;
- Mobility and Transportation – 0 projects; and,
- Climate Action and Sustainable Growth – 2 projects.

According to the City of London Community Grants Policy, a total of 25% of funding will be allocated to applications whose proposals support anti-racism, anti-oppression, diversity, equity and inclusion (ARAO) initiatives. Proposals may be inclusive of all equity-denied groups including but not limited to: Black, Indigenous and Muslim communities. If no applications are

received that would support these initiatives, the funding may be allocated to those applications that meet the City of London Community Grants Program Policy.

Of the nine projects that will be funded through Grassroots, seven scored highly on evaluation questions related to supporting anti-racism, anti-oppression, diversity, equity, and inclusion with focused efforts on equity-denied groups. The seven projects total $80,000 in annual funding or 80% of the total 2024 Grassroots program.

Of the 10 projects that will be funded through Innovation and Capital, five scored highly on evaluation questions related to supporting anti-racism, anti-oppression, diversity, equity, and inclusion with focused efforts on equity-denied groups. The five projects total $229,890 in annual funding or 58% of the total 2024 Innovation and Capital program.

In summary, of the $496,000 allocated to the annual Grassroots, Innovation, and Capital fund, $319,890 of funding is allocated to projects supporting anti-racism, anti-oppression, diversity, equity, and inclusion with focused efforts on equity-denied groups. This totals 64% of annual City of London Community Grants funding.

Finally, for the 2024 annual City of London Community Grant investment, an additional $670,225 in funding was leveraged in the community.

Please see Appendix A for allocation details.

Next Steps

Civic Administration will work with all successful applicants to create and sign grant agreements for funding to be released as soon as agreements are signed by both parties. Through the formal grant agreement, financial and outcome reporting expectations are clearly defined.

Financial Impact/Considerations

Annual funding to support the City of London Community Grants Program currently exists in the Neighbourhood and Community-Wide Services base budget. Through the 2024-2027 Multi-Year budget process, $496,000 was allocated to the Grassroots, Innovation, and Capital grants program.

On July 23, 2024, Council resolved that the Civic Administration BE DIRECTED to bring forward a Budget Amendment to the 2025 Annual Budget Update for the Mayor's consideration to reflect the following:

A) the London Community Grants, annual Grassroots, Innovation, and Capital Grants stream for the 2025, 2026, and 2027 years to be funded to a maximum of $250,000/year through the Community Investment Reserve Fund while the program is undergoing further review. It being noted that this funding is contingent on the Community Investment Reserve Fund having a minimum remaining balance as of December 31st of each year of at least $1M; and,

B) the Civic Administration BE DIRECTED to undertake a comprehensive review of the London Community Grants Program, including the multi-year stream and the Neighbourhood Decision Making Program and bring forward a report prior to the end of Q2, 2027 with options for consideration on rightsizing and scope of these programs; including the alignment or conflict of NDM with regard to the Parks and Recreation Master Plan and new Parks Reserve Fund, should Council choose to reinitiate the programs for the 2028-2031 Multi-Year Budget.

Should the Budget Amendment be approved through the 2025 Budget Update Process, the annual allocation of $496,000 would be reduced to $250,000 and be funded from the Community Investment Reserve Fund conditional upon a minimum remaining balance as of December 31st of each year of at least $1M.

Conclusion

The City of London Community Grants Program is an investment in community, providing not-for-profit organizations and groups with opportunities to strengthen neighbourhoods and build the health and well-being of local communities in alignment with the City of London's Strategic Plan.

Prepared by:	**Janice Walter, Senior Coordinator, Community Grants**
Submitted by:	**Kristen Pawelec, Director, Community Development and Grants**
Recommended by:	**Cheryl Smith, Deputy City Manager, Neighbourhood and Community-Wide Services**

Appendix A: City of London Community Grants Program Grassroots, Innovation, and Capital Allocations (2024)

Legend

Strategic Area of Focus	**SAF**
Projects that scored highly on evaluation questions related to supporting Anti-Racism, Anti-Oppression, Diversity, Equity, and Inclusion	**ARAO**
Reconciliation, Equity, Accessibility, and Inclusion	**REAI**
Housing and Homelessness	**H&H**
Wellbeing and Safety	**W&S**
Safe London for Women, Girls, and Gender-Diverse and Trans People	**SL**
Economic Growth, Culture, and Prosperity	**EGCP**
Mobility and Transportation	**M&T**
Climate Action and Sustainable Growth	**CASG**

Grassroots			
Organization Funding Description	**SAF**	**ARAO**	**Total Funding**
London's Queer Muslim Association- Hosted by Anova (Rainbow Ummah: A Safe Space for 2SLGBTQIA+ Muslims) • Funding will support London's Queer Muslim Association to establish a safe social space for 2SLGBTQIA+ youth and adult Muslims, through regular social gatherings within the community in London to cultivate a sense of well-being, community, and belonging to combat social isolation.	REAI	✓	$10,000
Hindu Legacy (Hindu Resource Centre) • Funding will support the development of a Hindu Resource Centre to support newcomers to feel welcomed and connected to the London community.	REAI	✓	$10,000
Climate Action London- Hosted by London Environmental Network (Connecting with Diverse Londoners) • Funding will support the engagement and connection of Londoners with the Climate Emergency Action Plan at various environmental community events and expand outreach and communications to develop new connections with diverse communities.	CASG		$10,000

Grassroots			
Organization Funding Description	**SAF**	**ARAO**	**Total Funding**
London Venom Basketball Association (Basketball and Leadership Training Program) • Funding will support a basketball and leadership program for young adults, with emphasis on those from equity-denied groups such as Black youth and those from low socioeconomic backgrounds to develop life and leadership skills.	REAI	✓	$5,000
Arqam Social Innovation Lab- Hosted by Muslims For Humanity Inc. (Muslim Community Social Innovation Capacity Building) • Funding will support the Arqam Social Innovation Lab to develop a project that addresses social exclusion through a series of workshops and activities developed for and by local Muslims to empower connections within the Muslim and London community.	REAI	✓	$10,000
Pride 55 group- Hosted by Pride London Festival (Pride55+ Inclusive, Safe Community) • Funding will support the Pride 55 group to foster community cohesion through facilitation of various activities for the 2SLGBTQIA+ older adult community in inclusive and affirming spaces.	REAI	✓	$10,000
Queer Intersections (Rainbow Family Program) • Funding will support the 2SLGBTQIA+ families and individuals in providing in a safe space to develop peer support groups, volunteer requirement and training, and intergenerational programming.	REAI	✓	$30,000
Kensington Village Association- Hosted by Thames Region Ecological Association (The Edible Neighbourhood project) • Funding will support the Kensington Village Association in various food security projects and events related to maintenance of food forests, pollinator gardens, vegetable gardens, the community food pantry and other activities that engage the neighbourhood in these greenspaces.	W&S		$10,000
Why We March LGBTQ (2SLGBTQIAPS+ Sharing Circle) • Funding will support experiential programs, provide resources and a safe space to build meaningful relationships and partnerships and create a supportive and inclusive space for 2SLGBTQIAPS+ individuals.	REAI	✓	$5,000

Innovation			
Big Brothers Big Sisters of London and Area (BBBS Summer Mentoring Program (in partnership with London and Middlesex Community Housing) • Funding will support programs, in partnership with London and Middlesex Community Housing to provide mentoring for youth with an intentional focus on prevention and early intervention for youth at risk of homelessness, personal challenges and other identified risk factors.	W&S	✓	$19,890
Boomerz Boxing (Boomerz Cares) • Funding will support at-risk youth to access fitness and boxing activities and mentoring to foster well-being and belonging in a safe, inclusive environment.	W&S	✓	$33,000
Canadian Mental Health Association Thames Valley - Addiction & Mental Health Services (Transforming service delivery and increasing housing stability through lived experience leadership) • Funding will support a new opportunity for women with lived experience of survival sex work and long-term chronic homelessness to contribute directly to the lives of the Street Level Women at Risk participants through peer mentoring, support and creating positive social and recreational activities, leading to increased housing stability.	H&S	✓	$60,000
Glen Cairn Community Resource Centre (Food For All) • Funding will support the purchase of a commercial composting unit to process unsalvageable rescued food in a timely manner, transforming otherwise wasted food into compost to support food insecurity. In addition this funding will support efficient waste management and provide compost for other community agencies use.	CASG		$10,000
London Abused Women's Centre (London-Middlesex Community High-Risk Femicide Prevention Action Table) • Funding will support the London-Middlesex Community High-Risk Femicide Prevention Action Table, which engages multi-sectoral agencies to implement direct intervention, develop comprehensive safety plans to women and girls who are survivors and/or at risk of femicide.	SL	✓	$38,000

Capital			
Organization Funding Description	**SAF**	**ARAO**	**Total Funding**
Boys' & Girls' Club of London (BGC London Café Renovation Project) • Funding will support renovations to the BCG London Café to update kitchen cabinetry and counter tops to accommodate vulnerable children, youth and seniors with disabilities participating in programs and volunteering at the Club.	W&S		$40,000
Jet Aircraft Museum (Enhanced Access for Mobility Challenged Visitors) • Funding will support the museum in adding accessible parking spaces for patrons, the addition of parking for buses to increase safety, allowing the organization to provide increased programming for children, seniors and individuals requiring accessible parking to access the facility.	W&S		$29,750
Royal Canadian Legion Victory Branch 317 (Parking Lot Upgrades) • Funding will support the Legion's parking lot resurfacing to enhance visitor safety, increase access for patrons, and increase opportunities and programming for veterans and community groups to access the facility.	REAI		$68,360
Urban Roots London (Elevating Well-being and Safety through Accessible Infrastructure) • Funding will support installation of an accessible pathway to allow patrons and volunteers to participate in farming activities, as well as the purchase of a storage shed to house farming and food processing equipment supporting food security through urban farming.	W&S		$18,000

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Oneida Nation of the Thames, hosted by Association of Iroquois and Allied Indians (Oneida London Connect) • Funding will support the engagement of Oneida Nation of the Thames community members living in London to strengthen ties between culture and language through workshops, community gatherings, and youth outreach activities, fostering a sense of community and cultural pride.	REAI	✓	$79,000

Capital			
Organization Funding Description	**SAF**	**ARAO**	**Total Funding**
Boys' & Girls' Club of London (BGC London Café Renovation Project) • Funding will support renovations to the BCG London Café to update kitchen cabinetry and counter tops to accommodate vulnerable children, youth and seniors with disabilities participating in programs and volunteering at the Club.	W&S		$40,000
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Report to Strategic Priorities and Policy Committee

To: **Chair and Members**
Strategic Priorities and Policy Committee

From: **Cheryl Smith, Deputy City Manager, Neighbourhood and Community-Wide Services**

Subject: **Secondary School Student Transit Pass Pilot Program**

Date: **August 15, 2024**

Recommendation

That, on the recommendation of the Deputy City Manager, Neighbourhood and Community-Wide Services,

a) the report dated August 15, 2024, with respect to the Secondary School Student Transit Pass Pilot Program **BE RECEIVED**; and,

b) that the secondary school pilot project **BE DEFERRED** to school years beginning September 2025 and September 2026 to provide for Civic Administration together with London Transit Commission (LTC) to develop a Memorandum of Understanding (MOU) with the Thames Valley District School Board (TVDSB), for the purpose of partnering to deliver a pilot project to provide annual transit passes to secondary school students at Clarke Road Secondary School for Grade 9 students in year one and Grade 9 and Grade 10 students in year two, with a report back to Council on the MOU, appropriate source of financing, and metrics as previously directed.

Executive Summary

The purpose of this report is to provide an update regarding the establishment of a secondary school student transit pass pilot project. Given the time and resources required to develop a pilot program, as well as considerations outlined in this report, it is recommended that the pilot program launch be postponed from September 2024 to September 2025.

Linkage to the Corporate Strategic Plan

The secondary school student transit pass pilot program is aligned with the following Strategic Area of Focus and outcome from the 2023-2027 City of London Strategic Plan:

- Wellbeing and Safety - London is an affordable and supportive community for individuals and families.

Analysis

1.0 Background Information

1.1 Previous Reports Related to this Matter

- Subsidized Transit Program Update (CPSC: July 15, 2024)

1.2 Background

At its meeting on April 23, 2024 Council resolved: that the following actions be taken with respect to establishing a secondary school student transit pass pilot project:

a) the Civic Administration in collaboration with the London Transit Commission BE DIRECTED to initiate the development of a Memorandum of Understanding (MOU) with the Thames Valley District School Board (TVDSB), for the purpose of partnering to deliver a pilot project to provide annual transit passes to secondary school students at Clarke Road Secondary School, including the following:

i) the pilot project BE LIMITED to school years beginning September 2024 for all Grade 9 students and September 2025 for all Grade 9 and 10 students attending

Clarke Road Secondary School;
ii) the current post-secondary student annual transit pass agreements between the City of London, Western University and Fanshawe College and the current Children Under 12 Ride Free program BE CONSIDERED as templates to establish the framework for this pilot program; and

b) the Civic Administration BE DIRECTED to report back to Council with the MOU, an appropriate source of financing, and metrics reporting for the pilot program;

it being noted that the TVDSB has written the Minister of Education to ask for consideration for provincial funding support for a bussing pilot. Additionally, continuing the program beyond the pilot project would require a permanent source of ongoing operating funding from a variety of sources, including reallocation of funding or funding from senior levels of government that would need to be investigated.

On May 29, 2024, the LTC released a Staff Report, attached as Appendix A, outlining a number of outstanding questions and potential issues with respect to the pilot program that would need to be addressed prior to completing a Memorandum of Understanding (MOU).

On June 18, 2024, representatives from the City of London, the TVDSB, and the LTC met in response to Council's resolution. At this meeting the issues and questions outlined in the LTC's Staff Report about the secondary school student transit pass pilot program (Appendix A) were discussed.

The purpose of this report is to provide an update on the progress towards the resolution approved by Council on April 23, 2024.

Based on the time and resources required to develop a pilot program and issues outlined in Appendix A, this report recommends that the launch be postponed to September 2025. The following section discusses some of the factors that require more time to finalize before the pilot program can be initiated.

2.0 Discussion

2.1 Roles and Responsibilities

Generally, it is assumed that all parties will work together to develop the pilot program model and evaluation framework with each party taking on certain responsibilities. Below are the overarching responsibilities for which each party is likely to assume responsibility.

- City of London: two year pilot program funding, and support in identification of sustainable sources of funding.
- London Transit Commission: pilot program execution including operationalizing, administration, monitoring and reporting on data elements such as ridership.
- TVDSB: identification of participants, distribution of passes, student education and training, collection of data through surveys and observation, identification of sustainable sources of funding.

Considerations

- Education tools and training for students require time to develop.
- Evaluation framework including student surveys need to be developed and executed prior to initiating the pilot in order to establish a baseline for which to gauge impact.
- Establishment of a ridership tracking mechanism requires time to develop.

2.2 Funding Framework and Agreement

The City of London currently has two funding agreements with the LTC that could be amended to support the pilot program implementation. The agreements are used to provide grants to the LTC to cover the costs of providing transportation at reduced fares for the following:

a) Individuals who are visually impaired ride the bus for free (100% subsidy);

b) Children 12 years of age and under ride the bus for free (100% subsidy);
c) Youth 13 to 17 years of age have the ability to purchase a subsidized monthly bus pass (36% subsidy);
d) Individuals 65 years of age and over have the ability to purchase a subsidized bus fare (25% subsidy); and,
e) Income related subsidized transit passes for those 18 years of age and over (36% subsidized).

The Children 12 years of age and under ride the bus for free program was identified as a template to consider for the pilot program. This involves a grant from the City to the LTC for every ride taken by children under 12. More information about this model can be found in Appendix A under Pilot Program Funding. Also included in Appendix A are further details about the funding agreements between the LTC, Western University, and Fanshawe College. Appendix A notes that other similar programs have not been successful diverting funding from the "yellow bus" program or securing other senior government funding.

Considerations

- Funding would be designed to reimburse the LTC for the full cost of tickets used or monthly passes disbursed for the pilot group.
- The City of London's Subsidized Transit Program, which includes funding for a subsidized monthly bus pass for youth 13-17, is on track to exceed the allocated budget and does not have capacity to support the pilot program.

2.3 Pilot Design and Evaluation

Pilot design will set the foundation for achieving outcomes and demonstrating impact. Aligning the pilot to strategic objectives with the goal of collecting information that can be leveraged to secure funding, is key to sustainability.

Timing of the pilot launch should also be carefully considered to maximize uptake. It is anticipated that launching the program in September 2025 at the beginning of the next academic year would be ideal. This would allow time to promote the program leading into the new academic year and extend the opportunity to students prior the establishment of their travel habits.

Considerations

- Council may wish to consider several pilot options as well as the benefits and limitations of each before proceeding. There are a number of models that could be considered to help evaluate pilot outcomes, the viability of expansion, and lay a foundation for future funding requests. For example, expanding the pilot to a number of schools with smaller cohorts would allow a comparison of social risk factors, and neighbourhood characteristics with controls. If directed, Civic Administration will provide a report back on pilot options, identifying the benefits and limitations of each option.
- Pressure on crowed routes and impact to other riders is possible and will need to be closely monitored and assessed. Please see Appendix A, Pilot Program Impact on Ridership for more information.

2.3 Next Steps

Pending Council's approval, Civic Administration will work with the TVDSB and the LTC to design a pilot program at Clarke Road Secondary School for Grade 9 students in year one and Grade 9 and Grade 10 students in year two, as directed. Details including funding and evaluation frameworks would be reported to Council in early 2025.

Financial Impact and Considerations

The Secondary School Student Transit Pass Pilot Program is not included in the City of London's Multi-Year Budget for 2024-2027. It is estimated that a two-year pilot program at Clarke

Road Secondary School for Grade 9 students in year one and Grade 9 and Grade 10 Students in year 2 with unlimited ridership would cost approximately $900,000.

This assumes approximately 225 students in year one and 450 students in year two receiving a monthly pass for all twelve months of the year. A monthly pass costs $112 in 2024. Not accounting for any increased cost of passes, the total cost to offer a pass to all students for 12 months would be approximately $300,000 from September 2025 to August 2026 and $600,000 from September 2026 to August 2027.

It was also contemplated that this program could be funded on a per ticket basis, similar to the children under 12 program. In Appendix A, LTC noted that surveys with participating students would have to be conducted to get a good estimate on the cost under this model. Based on the current ticket cost of $2.12, assuming two trips per student every day including weekends, the total cost would be greater than the cost of the monthly pass option.

Through discussions with Civic Administration, the TVDSB, and the LTC, it is confirmed that there is currently no sustainable funding source to continue the pilot program after two years.

Should Council wish to pursue this pilot program, Civic Administration will likely recommend funding the two-year pilot program from September 2025 - August 2027 from the Community Investment Reserve Fund. Should Council wish to continue the program after the conclusion of the pilot (September 2027 and beyond), a budget amendment would need to be considered through the 2027 Budget Update process to secure funding for the 2027/2028 school year followed by a more fulsome business case for the 2028-2031 Multi-Year Budget process.

Conclusion

This report provided an update regarding the establishment of a secondary school student transit pass pilot project and recommended the launch of the pilot program be delayed to the following academic year. In addition, this report outlined a number of factors for Council's consideration.

Prepared by: Kristen Pawelec
Director, Community Development and Grants

Kyle Murray
Director, Financial Planning and Business Supports

Recommended by: Cheryl Smith,
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cc: Alan Dunbar, Manager, Financial Planning and Policy, Finance Supports
Cathy Lynd, Superintendent, Thames Valley District School Board
Christina McCreery, Solicitor, Legal Services
Kelly Paleczny, General Manager, London Transit Commission

Appendix A

Staff Report #6

May 29, 2024

To All Commissioners

Re: Secondary School Student Transit Pass Pilot Program

Recommendation

That the report be NOTED and FILED.

Background

At the April 23, 2024 meeting, Municipal Council passed the following motion:

That the following actions be taken with respect to establishing a secondary school student transit pass pilot project:

1. The Civic Administration in collaboration with the London Transit Commission BE DIRECTED to initiate the development of a Memorandum of Understanding (MOU) with the Thames Valley District School Board (TVDSB), for the purpose of partnering to deliver a pilot project to provide annual transit passes to secondary school students at Clarke Road Secondary School, including the following:
2. The pilot project BE LIMITED to school years beginning in September 2024 for all Grade 9 students and September 2025 for all Grade 9 and 10 students attending Clarke Road Secondary School;
3. The current post-secondary student annual transit pass agreements between the City of London, Western University and Fanshawe College and the current Children Under 12 Ride Free program BE CONSIDERED as templates to establish the framework for the pilot program;
4. The Civic Administration BE DIRECTED to report back to Council with the MOU, an appropriate source of financing, and metrics reporting for the pilot program;

It being noted that the TVDSB has written the Minister of Education to ask for consideration for provincial funding support for a bussing pilot. Additionally, continuing the program beyond the pilot project would require a permanent source of ongoing operating funding from a variety of sources, including reallocation of funding or funding from senior levels of government that would need to be investigated.

At the Commission's April 24, 2024, meeting, a verbal update was provided which outlined a number of outstanding questions and potential issues with respect to this initiative that would need to be answered/addressed prior to completing a Memorandum of Understanding (MOU) for Commission consideration. The remainder of this report provides commentary on these items.

<u>Pilot Program Objective</u>

The standard structure for a pilot program requires a number of key elements in order for the program to run as expected and collect the appropriate data/metrics required to measure success against the program objective. Neither the report approved by the TVDSB nor the motion approved by Municipal Council's articulate the underlying objective of the pilot program. Until such time as a clear objective is identified, it is impossible to determine the metrics that will be measured and reported on to determine whether the pilot has been successful. Potential benefits of the program have been communicated; however, not to the extent that provide the clarity required to develop actual measures.

By way of example, one of the potential benefits discussed is an increase in transit ridership; is this an increase in usage rates measured against the usage rate of other high school students who purchase a $72 monthly pass which would provide insight into whether the provision of a free pass results in higher usage; or is it to measure whether students provided with a free pass will use transit where they hadn't previously? Another potential benefit is that attendance at school will improve as students with this pass will have another option should they miss the yellow bus; will this be measured against historical data from a similar sample group at the same participating school (e.g. previous year's grade 9 cohort), and if so, what other factors could impact attendance rates in the comparison years? Finally, another potential benefit is improved access to the community for students with the free pass; will this be measured against what access the participating group would have had without the free pass, and if so, how will this be measured?

Reference has also been made to other programs of this nature that have been successful in other municipalities; however, it is important to understand the varying elements of these programs as well as the operating conditions of the transit system. In the case of the Kingston program, it was established at a time when ridership on the conventional service was extremely low. The program was launched under the pretense that the service in operation had significant capacity, so additional ridership generated from the program would potentially fill empty buses, but not be such that additional service hours would be required. While the program has been successful in increasing ridership, the limited transportation revenue that is collected from the paying riders places increased reliance on the municipality for funding of any growth in services. In addition, the school boards in Kingston have continued to offer yellow bussing twelve years after the introduction of the pilot, resulting in a duplication of service for the cohort group, both at a cost to taxpayers. It is the understanding of administration that the Kingston program is currently under review given issues with the funding model and the ability to respond to service demands within available budgets.

While it has not been confirmed, it is the understanding of administration that the TVDSB has no intention of adjusting yellow bussing during the period of the pilot program and as such there will be no ability to determine whether a shift to a city-wide transit pass program for high-school students could result in a reduction in the requirement for yellow bussing. In other municipalities, agreements have been set between school boards and transit systems for the provision of "school specials" which are essentially additional buses running before and after school to transport students instead of yellow bussing. In these agreements, the school board provides funding for the additional transit service rather than directing the funding to yellow bussing. In the event that a school board is able to reduce the costs of yellow bussing, but do not contribute in any way to the cost of the public transit delivery or any reduced fares associated with the program, the municipality would be taking on transportation costs that are currently covered by the Provincial government, in effect accepting downloading of costs to the municipal tax base.

If an objective is to determine whether the provision of free transit to a specific group will result in a future transit rider, consideration will need to be given to a follow up survey in 2026 with the two participating cohorts to determine whether they have chosen to purchase a Youth transit pass in the year subsequent to the pilot program. This undertaking would need to be done by the school board as they would have direct access to the students involved in the pilot program.

Determining the underlying objective(s) of the pilot program will be a key initial step in the discussions between the parties in order to ensure the program is structured around measuring success against the objective and to provide clear expectations for each of the parties involved as to the role they will be expected to play for the duration of the program.

Pilot Program Funding

The motion from Council requires a report back which includes the identification of an appropriate source of funding for the program. Prior to identifying a source of funding, the "cost" of the program needs to be determined. The motion from Council stipulates two agreements that should be utilized as templates for the MOU; however, the templates provided operate in very different manners. The tuition pass programs in place with Western

University and Fanshawe College require every full time student that is registered at either institution to pay an annual fee for a transit pass whether they use it or not. This type of program is referred to as a “universal” program in that the pricing is established based on the collective transit usage (i.e. those that do not use transit are offsetting those who use it very frequently as they are all paying the same price). From a revenue perspective, the goal of a program of this nature is to balance the percentage of transit usage (ridership) of the group with the percentage of revenue collected from the universal fees. In 2023, tuition pass holders represented approximately 54% of ridership and the revenue collected from the program represented approximately 45%. These contracts are established in a manner that includes annual increases to the fee and are typically re-negotiated every three years providing the opportunity for adjustments required to maintain the ridership to revenue balance. Estimating usage levels and impact on revenue for the high-school pilot will be extremely difficult given the limited available information regarding the participating cohort; however, regardless of the manner in which the cost of the program is determined, a survey of participating students with respect to prior transit usage will be required in order to establish baseline data.

The agreement in place between the City of London and London Transit regarding the free transit for children 12 and under requires the City of London to provide a “grant” to London Transit of $1.53 for every ride taken by a child 12 and under. This program is similar in nature to the other grant programs provided by the City of London (free rides for blind, discounted youth and low income passes, and discounts for youth and senior tickets), in which the grant is established in an effort to make London Transit whole on the fare collected. The basis of these programs is to recognize that the cost associated with subsidizing a specific group of transit riders with a reduced/free fare is a social service cost versus a cost of delivering transit. As such, all requests for discounted fares are referred to Social Services/Municipal Council for consideration during budget deliberations. Should this model be utilized for the MOU, the City of London would provide a grant of $2.12 per trip taken, which is the current youth ticket fare.

In addition to the lost revenue associated with the pilot program, additional costs will be incurred for the establishment of a ridership tracking mechanism. London Transit will require the smart card contractor to establish a new fare category for the pilot cohort in order to be able to track the usage levels specific to this group. The costs associated with this initiative cannot be determined until such time as the manner in which the passes will be created has been determined.

London Transit administration will be recommending a pass identification program similar to that which is in place for those participating in the tuition program for fare payment. Photo ID cards that are capable of interfacing with the smart card system will need to be issued to all participants and include the participating school and student name. This approach will mitigate potential fare fraud associated with students sharing/selling the free pass with others that are not part of the pilot program. Should the Operator question whether the rider is misusing the pass, the pass holder will be asked to show the ID card with the photo.

Pilot Program Impact on Provincial Gas Tax for Transit Allocations

Assertions have been made in relation to the potential for the ridership generated from a program of this nature to increase the annual allocation of Provincial Gas Tax for Transit (PGT) that London receives, which will help to offset the cost of the program.

The PGT program provides an annual allocation of funds ($0.02 from every litre of fuel sold in the Province in the previous year), which is split between all transit systems in the province based on a formula of 30% population in the municipality being served and 70% on the ridership from the transit system. Given this methodology, the only way in which a municipality can receive a higher share of the fund, is to have the combination of population and ridership increase at a higher rate than those municipalities currently receiving a greater share of the total allocation. The table below provides a summary overview of the allocations received for the 2023/24 PGT program in terms of percentage.

2023/24 Provincial Gas Tax for Transit Allocations

System	2022 Ridership	2023/24 PGT Allocation	% of PGT Allocation
Toronto	318,752,997	$ 178,222,229	47%
Ottawa	50,193,632	33,061,834	9%
Mississauga	35,672,982	23,363,091	6%
Brampton	31,314,940	21,064,218	6%
York Region	16,027,350	17,776,683	5%
Waterloo Region	17,783,913	13,772,622	4%
Hamilton	15,216,361	12,389,845	3%
London	13,366,417	10,158,287	3%
Durham Region	7,304,593	9,633,396	3%
All Others	70,759,289	57,809,187	15%
Total	**576,392,474**	**$ 377,251,392**	**100%**

The ridership in all systems for 2022 was still negatively impacted by the pandemic, and significant increases have occurred in all systems in 2023 (which will be utilized for the next round of PGT allocations). Assuming population growth across the municipalities in the table above remains consistent, London would need to see growth in ridership exceed rates in Hamilton, Waterloo Region, York Region, Brampton and Mississauga, all of whom have seen incremental investments in service at rates 3 to 7 times that which has been approved for London for 2024.

Pilot Program Impact on Ridership

The other potential costs to London Transit from a revenue perspective is any ridership/revenue losses that may occur as the result of the additional pressure placed on routes that will potentially be utilized by students attending Clarke Road Secondary School,

resulting in current paying riders being unable to rely on transit to get them to their destination when they need to be there. This is particularly problematic during morning and afternoon peak periods when many transit riders are utilizing the service to get to and from work.

Subsequent to the approval of the council motion, London Transit administration reached out the TVDSB representatives for further information with respect to the catchment area for Clarke Road Secondary School in an effort to gain a better understanding of what routes may be impacted by the ridership generated from this pilot program. Based on the catchment maps provided the following heat maps have been created to illustrate the current load levels during morning and afternoon peak periods on routes which have the potential to be impacted by students participating in this pilot program (see Enclosure I). The pink highlighted area on the maps represents the English catchment area for Clarke Road Secondary School, and the grey area represents the Tech-Emphasis catchment area, both of which it could be expected that students would travel from to attend school.

It is important to recognize that students will be attempting to utilize routes near their home to start/finish their day, and ridership from this program will not be limited to the routes/buses directly adjacent to Clarke Road Secondary School. Routes that could be impacted by this pilot program include Routes 1, 2, 3, 4, 5, 6, 7,10, 13,15,16,17, 20, 24, 35, 38, 90, 91, 92, 94, 95, 102, 104, and 106.

Based on the assessments outlined in the maps, the routes that are most concerning with respect to available capacity are routes 2, 10, 13, and 17; however, it should be noted that regardless of the routes impacted, there are no available resources in the 2024 budget to implement any service adjustments to address issues in the short term.

While it is not possible to predict when and where the actual ridership relating to the pilot program will occur, it is important to recognize that there will be no ability to respond to increased crowding/schedule adherence issues on impacted routes for the first year of the pilot noting that service changes are implemented in the fall of each year and consideration of changes to existing service levels/schedules is based on the previous year’s data.

While the maps in the enclosure illustrate the state of service during morning and afternoon peak periods, many routes are experiencing issues on weekends. Given this pilot program would provide access to London Transit during all operating hours, there is also the potential for this program to place additional pressure on already crowded routes with students utilizing the service for weekend activities.

The Toronto Transit Commission (TTC) just approved a pilot program for free transit for Grade 7 to 12 student field trips. In light of concerns with respect to capacity, the program will be limited to Monday through Friday between 9am and 3pm on routes operating at frequencies of 10 minutes or better, with some additional restrictions based on group size. This is an example of a pilot program that has given consideration to the state of the service in operation and has put parameters in place in an effort to mitigate negative impacts of the pilot on other riders. The pilot program at TTC will be assessed after one year and it will be determined whether to extend the program based on any service, financial and operational implications.

Given the uncertainty with respect to ridership impacts of this program, the MOU should provide the opportunity to amend/cancel the second year of the program based on experience in the initial year.

Pilot Program Start Date

The motion from Municipal Council sets out expectations for the pilot program to begin in September 2024 to commensurate with the beginning of the academic year. Given the number of program elements that need to be clarified, coupled with the time and resource requirements to put them in place, it may be prudent for the parties to consider a later start date. Given the understanding that there are no plans on behalf of the TVDSB to reduce

access to yellow bussing for the students involved in the pilot program, there will be no negative impact to the students participating in the program if the program were to start later in the academic year. This will be an important consideration of the parties as discussions progress, noting from an LTC perspective, resources that would be dedicated to this initiative are currently working on other critical issues on the Commission's annual work program including the rollout of smart cards on the specialized service.

Additionally, consideration should be given to postponing the launch of this pilot program until such time as improvements on the conventional service have been implemented that will address the current crowding and schedule adherence issues.

Other Issues/Items to be Addressed

A number of transit systems that have implemented programs with this age group have experienced issues on board buses with respect to behaviour and fare compliance which have resulted in negative experience for other transit users. The problem has become so significant that it was the topic of a session at the recent Ontario Public Transit Association conference, with systems sharing experiences and best practices with respect to dealing with the issues. The recent pilot program approved by the TTC incorporates expectations for the participating school boards to provide an education module to develop student skills, confidence, etiquette and fare compliance when riding the TTC. This material must be reviewed by teachers/students prior to accessing the TTC for field trips. London Transit administration will be seeking a similar commitment from the TVDSB for all students participating in the pilot program. London Transit has first-hand experience with issues of this nature going back to when the free transit for children 12 and under program was launched. Rider behaviour while on board was a significant issue in addition to many utilizing the service for extremely short distances (boarding at one stop and alighting at the next), resulting in operational slowdowns. Both of these behaviours resulted in numerous complaints from other transit riders and required significant London Transit resources to be stationed at problem areas to speak with offenders as well as to have multiple meetings with school principals in the most affected areas in an effort to seek assistance in mitigating the poor behaviours.

Additionally, unsanctioned sharing/use of the student pass by others who are not part of the pilot program will need to be closely monitored and managed. The expectation will be that a student card issued for the purpose of the pilot program that is used by anyone other than the student pictured on the card will be confiscated by London Transit, and repeated offences will result in the student being banned from the program.

Closing

Increasing transit ridership is a key objective in London Transit's Business Plan as well as in the City of London Strategic Plan and the current work underway in updating the City of London Mobility Master Plan. A key consideration in any ridership growth program assessment is the ability of the service to accommodate any increased ridership resulting from the program. A long standing and well supported fact about transit riders is that they will pay for and utilize a service that is affordable, safe and reliable and operates at frequencies that allow them to complete their trip in relative close comparison to that made by other modes. It is also proven that riders who have a poor experience on transit are less likely to try it again, and further, once a rider has made an alternative travel arrangement due to unreliable transit service, it is extremely difficult to get them back on transit. As such, it is imperative that programs intended to increase transit ridership are carefully planned to coincide with the capacity of the service to accommodate the growth.

In addition, the financial sustainability of new programs must be considered prior to implementation. The establishment of a pilot program with a one-time temporary source of funding is not ideal in that, should it be successful, a permanent source of funding will need to be identified to keep it in place. A program that increases overall ridership through waiving fares will, if successful, place additional burden on the tax base as any growth in service required to accommodate the new riders will need to be funded in part by the municipality. In

the case of free ridership, this growth is subsidized at a higher rate by the municipality given there is no source of revenue associated with the trip.

Public transit services in Ontario have three main sources of funding; revenue from the rider, PGT allocations, and the municipal tax base. As this report set out earlier, increased revenue from the PGT is unlikely given the rates at which other municipalities are investing in growth in their services, and as such, when fares are waived for a specific group, the rate of contribution from the municipality must increase. Pressures on the municipal tax base are not anticipated to diminish over the coming years, and as such, considerations should be given to whether the dollars available for investment in public transit services should be directed toward overall service improvements that will benefit all riders or to offset fares for a select group of riders in efforts to increase ridership.

As mentioned earlier in the report, there are a number of issues/concerns that need to be discussed between the parties relating to this pilot program, perhaps the most concerning being the capacity for the system to accommodate the new ridership without negatively impacting other riders who are paying a fare. While it has been proven in other jurisdictions that programs of this nature can be successful, they have been in cases where the transit system had demonstrated capacity to accommodate the new riders.

London Transit administration will be meeting with civic administration and representatives from the TVDSB in the coming weeks to begin discussions relating to a pilot program as set out in the recommendation approved by Municipal Council and will be raising the issues/concerns identified in this report. Updates will be provided to the Commission as they are available.

Enclosure

I – Average Load by Stop in Clarke Road Secondary School Attendance Area (AM and PM periods)

Recommended by:
Mike Gregor, Director of Finance
Katie Burns, Director of Planning
David Butler, Manager of Operations Administration

Concurred in by:
Kelly S. Paleczny, General Manager

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 Progress Report**
Date: **August 15, 2024**

Recommendation

That, on the recommendation of the Deputy City Manager, Environment and Infrastructure, the following actions **BE TAKEN** with:

a) This staff report dated August 15, 2024, providing a summary of progress and policy implications and opportunities pertaining to the Climate Emergency Action Plan as well as the appended 2023 Climate Emergency Action Plan Progress Report (Appendix “A”) **BE RECEIVED** for information;

b) Civic Administration **BE DIRECTED** to report back as part of the Climate Emergency Action Plan Update Report in January 2025 on revised timelines and completion dates for the actions that have been delayed or are under review including the rationale and potential impacts; and

c) The provincially required 2024-2028 Corporate Energy Conservation and Demand Management (CDM) Plan, attached within Appendix “B”, **BE APPROVED**.

Executive Summary

Part A – 2023 CEAP Progress Report

In April 2022, Municipal Council approved the Climate Emergency Action Plan (CEAP) with the goals of reducing community-wide emissions to net-zero by 2050, improving London’s resilience to climate change impacts and ensuring that everyone in London is able to participate in working to reduce emissions and adapting to change. This Strategic Priorities and Policy Committee (SPPC) report and the 2023 CEAP Progress Report (Appendix A, also known as the community report) covers the period from January to December 2023 and introduces some highlights and anticipated activities both underway and expected to commence in 2024.

Funding and resources for implementing the CEAP were based on approved budgets for 2022 and 2023, so the progress in 2023 discussed in this report is based on what could be accomplished within existing resources at the time.

The approach to reporting on progress on CEAP used for the first Progress Report is mirrored in this year’s report with one addition; Energy Use. CEAP progress is examined in six key outcome areas highlighted below:

1. CEAP Actions by Area of Focus
The CEAP includes 59 Categories of Actions and contains 200 individual actions, ranging from basic to complex, across the ten Areas of Focus. Some actions in the CEAP address specific deliverables or achievements that can be tied to a timeline while other actions require ongoing efforts and do not have a specific targeted end date.

For 2023, an expanded implementation status approach was used and included several internal and external factors. Each City Director responsible for actions in their division was part of the review. The actions were categorized as either on-track (including completed), delayed, or under review.

Of the 99 Timeline Actions scheduled to start in 2022 (71 actions) or 2023 (28 actions), 65 (66%) are on-track, 28 (28%) are delayed, and there are 6 (6%) actions under review. As of May 2024, 15 (15%) actions have been completed (up from only 3 actions having been completed by April 2023) and work has begun on an additional seven actions planned to be started in 2024.

Of the 77 Ongoing Actions scheduled to start in 2022 (63 actions) or 2023 (14 actions), 72 (94%) are on-track, 5 (6%) are delayed, and there are no actions under review. An additional six Ongoing Actions scheduled for 2024 have been started as of May 2024.

Use of the Climate Lens Framework on Corporate Projects and Programs
Use of the City's Climate Lens Framework has continued, with many work groups within different City of London Service Areas using the approach to embed climate considerations into decision-making. In addition to the continued use of the Climate Lens Framework in many work groups and applications, some notable projects and initiatives where portions of the Climate Lens Framework were or are actively being used include: the Multi-Year Budget process, Transportation Planning and Design projects, Harris Park shoreline improvements, Corporate Master Accommodation Plan and Alternative Work Strategy, technology investment strategy intake process, and continued use in the Mobility Master Plan.

Indicators of Progress Towards Expected Results
The 2023 Progress Report includes a subset of 75 indicators, up nine since 2022, to further track progress across the ten Areas of Focus in CEAP.

Early Activities in 2024 and Upcoming Activities
In addition to the activities detailed in the 2023 CEAP Progress Report, activities have continued in early 2024 and numerous are upcoming. This SPPC report highlights ten in the first few months of 2024 and five more later in the year.

In Summary
- Approximately 87 per cent of the 176 CEAP 2022 and 2023 actions, both Timeline and Ongoing Actions, have been started by City staff or by organizations in London;
- About 78 per cent of the combined Ongoing and Timeline Actions slated to start in 2022 or 2023 are on track; about 19 per cent are delayed and 3 per cent are under review; and
- Fifteen Timeline Actions have been completed, representing 15 per cent completion of actions with a defined completion target.

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. Several recent examples in the Businesses and Institutions sectors and Households, Individuals and Community Groups are listed in this SPPC report and the community report (Appendix A). In summary, continued activity on climate action was observed in most sectors in London throughout 2023.

3. Climate Actions by Other Levels of Government
Overall, in 2023 and early 2024, the provincial government's role in climate action has included activities in support of electric vehicles infrastructure development and standardization, the announcement of planned refurbishment of zero-emission nuclear power stations, and the approval for small-scale underground carbon storage projects on private land.

The federal government's role in climate action in 2023 and early 2024 has included the planned increase in the carbon price which is expected be the largest contributor to greenhouse gas emissions reduction this decade; efforts to increase the number and diversity of clean energy resources that can participate in delivery of electricity in Ontario; finalizing an Electric Vehicle Availability Standard to increase the supply of clean, zero-emission vehicles available to Canadians across the country; and publishing a Regulatory Framework for an Oil and Gas Sector Greenhouse Gas Emissions Cap.

4. Energy Use

Corporation of the City of London

The 2019-2023 Corporate Energy Conservation and Demand Management Plan was developed according to Ministry of Energy's direction to provide the City's annual energy consumption information to the public and set goals and actions for conserving energy and reducing greenhouse gas emissions from 2019 to 2023, using 2018 as a baseline year. Comparing 2023 to the 2018 baseline year, reductions in total energy use and energy use per capita have occurred in all areas of the Corporation. Key performance measures included:

Performance Measures	Overall Change from 2007	Change from 2018 (CDM Plan Baseline)	Change from 2022
Total energy use	-17%	-5%	1.3%
Energy use per capita	-35%	-16%	-2.5%
Facilities energy use per capita	-32%	-17%	-4.8%
Traffic signals and streetlights use per capita	-43%	-13%	-1.8%
Wastewater treatment energy use per capita	-44%	-18%	3.4%
Water supply energy use per capita	-18%	-8%	-8.4%
Fleet operations fuel use per capita	-16%	-13%	-4.5%

Community

Since 2005, the baseline year for the CEAP's greenhouse gas emission milestones and targets, total energy use has essentially been decoupled from population growth. London's population has also been growing faster than previously anticipated, with Statistics Canada estimating that the London Census Metropolitan Area's population grew by 3.0 per cent in 2022 and 3.8 per cent in 2023.

2023 can also be considered the first full year when pandemic-related measures were not in effect, with 2019 representing conditions before the pandemic. Weather also influences energy use, with 2023 seeing both a warmer winter, spring, and fall as well as a cooler summer. Comparing 2023 to the 2019 (pre-pandemic levels), reductions in total energy use and energy use per capita have occurred in all sectors in London. Key community energy use performance measures include:

Performance Measures	Overall Change from 2005	Change from 2019	Change from 2022
Total energy use	1%	-1%	0%
Energy use per capita	-22%	-10%	-3.9%
Residential energy use per capita	-28%	-15%	-9.4%
Industrial, commercial & institutional use per capita	-18%	-5%	-5.0%
Transportation fuel use per capita	-21%	-12%	1.8%

5. Greenhouse Gas Emissions

Corporate Energy-Related Emissions

Current corporate energy-related emissions have been influenced by the existing 2019-2023 CDM Plan as well as the past provincial actions to phase out the use of coal for electricity generation in the early 2010s. Compared to recent years though, Ontario's electricity grid relied more on natural gas power plants in 2023. Given that electricity represents 57 per cent of the corporate energy use, changes in Ontario's electricity grid had and will continue to have a big impact on future corporate energy-related

emissions. As a result, the City's greenhouse gas emissions in 2023 are about 21 per cent higher than they would have been if Ontario's grid emissions had remained the same that they were back in 2018.

Although the Corporation's use of energy has decreased, when comparing 2023 to the 2018 baseline year, increases in total and per capita greenhouse gas emissions have occurred. Key performance measures included:

Performance measurement	Overall Change from 2007	Change from 2018 (CDM Plan Baseline)	Change from 2022
Total GHG emissions	-53%	12%	8%
GHG emissions per capita	-63%	0%	4%
Facilities GHG emissions	-46%	7%	4%
Traffic signals & streetlights GHG emissions	-80%	120%	33%
Wastewater treatment GHG emissions	-74%	36%	34%
Water supply GHG emissions	-69%	76%	12%
Fleet operations GHG emissions	5%	-2%	-1%

Community-wide Emissions

Total greenhouse gas emissions in 2023 were 3.11 million tonnes of equivalent carbon dioxide, with half of the emissions coming from personal transportation and energy use at home. This is 20 per cent lower than 2005 levels, the baseline for measuring progress. When compared to 2022, there has been an increase primarily due to increased transportation emissions post-pandemic, combined with Ontario's electricity grid relying more on natural gas use.

Although the community's use of total energy has decreased slightly and per capita energy use has decreased, when comparing 2023 to the 2019 (pre-pandemic levels), total greenhouse emissions have increased. Key performance measures included:

Performance measurement	Overall Change from 2005	Change from 2019	Change from 2022
Total GHG emissions	-20%	1%	2.6%
GHG emissions per capita	-38%	-8%	-1.4%
Residential GHG emissions per capita	-48%	-11%	-7.1%
IC&I GHG emissions per capita	-41%	4%	-2.8%
Transportation GHG emissions per capita	-26%	-13%	1.4%
Waste sector GHG emissions per capita	-50%	-24%	7.0%

6. Weather Trends and Impacts

The year 2023 was a story of flooding and drought in London and area. Heavy spring rainfall at the end of March and beginning of April led to flooded basements in parts of London and the Thames River rising to the point that some homeless encampments were washed away. Then in May, London experienced an extremely rare drought, with only 17 per cent of normal precipitation. This was followed by a much wetter than normal July where precipitation was 260 per cent of normal, including 80 mm of rain falling on July 2 alone.

London and surrounding municipalities were affected by severe and climatologically extreme weather in 2023, though fortunately not to the extent of a number of other regions of Canada. A unifying climate event that affected Canada from coast to coast

(and far beyond) in 2023 was a record wildfire season in terms of burned area, and the resulting wildfire smoke.

7. Financial Impact/Considerations

Similar to what was reported when the CEAP was approved in 2022, 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.

The CEAP was approved in 2022 without additional budget assigned with the understanding that the 2024-2027 Multi-Year Budget (MYB) process would be used to allocate funding according to Council priorities. The outcome of the 2024-2027 MYB process included funding approval for three specific actions dealing with CEAP:

- Providing $1.5 million in capital to support the development of a home energy retrofit program;
- A funding amount of $60,000 annual operating and $40,000 capital over four years to support and grow a transportation management association called Smart Commute London; and
- The creation of a Climate Change Reserve Fund ($1 million per year) to accelerate implementation of climate actions.

Additional funding opportunities are being explored. One such opportunity was released in May 2024 when the Federal government announced $530 million in funding to support local governments to adapt and build long-term resiliency to the impacts of climate change.

Part B – Proposed 2024-2028 Corporate Energy Conservation and Demand Management (CDM) Plan

The Province of Ontario requires municipalities and other broader public sector organizations to update and publish their energy conservation plans every five years. The proposed 2024-2028 Corporate Energy Conservation and Demand Management (CDM) Plan builds on the successful foundation laid by the previous two CDM Plans. The 2024-2028 CDM Plan aligns with the City's 2023-2027 Strategic Plan, specifically the "Climate Action & Sustainable Growth" Strategic Area of Focus, as well as supports the CEAP and its "Demonstrating Leadership in Municipal Processes and Collaborations" Area of Focus. Primary goals the proposed plan are for a:

- 7% reduction in total corporate energy use from 2023 to 2028, and
- 56% reduction in energy-related GHG emissions from the 2007 baseline year by 2028.

Secondary goals involve fostering a culture of conservation for energy conservation within the Corporation as well as developing a pathway to achieve net-zero corporate energy-related emissions by 2045. The conservation initiatives contributing to the primary targets are categorized as Planned and Proposed initiatives:

- Planned initiatives: Measures with an approved business case that have been funded by City Council.
- Proposed initiatives: Projects under investigation that will be developed into business cases and requested for future funding approval.

Proposed initiatives could be supported through federal, provincial, and utility-based incentives as they become available, the new internal Climate Change Reserve Fund, as well as the existing Effectiveness, Efficiency and Economy (EEE) Reserve, where appropriate.

Linkage to the Corporate Strategic Plan

Municipal Council continues to recognize 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

The Climate Emergency Action Plan (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.

1.1 Previous Reports Related to this Matter

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

- January 16, 2024, 2023 Climate Emergency Action Plan Update Report, Report to the Strategic Priorities and Policy Committee (SPPC)
- May 30, 2023, 2022 Climate Emergency Action Plan Progress Report, Report to the 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

2.0 Discussion and Considerations

Part A – 2023 CEAP Progress Report

This SPPC report and the 2023 CEAP Progress Report to the community build upon the previous 2022 CEAP Progress Report and cover the period from January to December 2023 and introduces some highlights in 2024. Funding and resources for implementing the CEAP was based on approved existing budgets for 2022 and 2023. No new or additional budget or increased resources were assigned in 2022 or 2023 to CEAP actions. The outcome of the 2024-2027 Multi-Year Budget process and its anticipated impact on CEAP progress reflected in this section and in Section 3.0 of this report.

Reporting progress on the CEAP, by measuring where possible and following the activities of other key organizations where measurements are not possible, occurs by examining six key outcome areas (Table 1) noting that Energy Use was added for 2023 progress reporting.

Table 1: 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. Energy Use	• Corporate energy use • Community-wide energy use
5. Greenhouse Gas Emissions	• Corporate greenhouse gas emissions • Community-wide greenhouse gas emissions
6. Weather Trends and Impacts	• London and area • Canada • Global

The progress reporting areas on Table 1 are addressed in subsequent sections of this SPPC report with further details provided in the community report - 2023 CEAP Progress Report – contained in Appendix A.

2.1 Outcome Area #1 - CEAP Actions by Areas of Focus

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 2 differentiates between these two types of actions

and categorizes them as “timeline” actions and “ongoing” actions. Of the 200 actions, 56 per cent (111) have a Timeline and 44 per cent (89) are considered Ongoing Actions.

Table 2: 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	18	4
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	7	2
10. Measuring, Monitoring and Providing Feedback	23	2	21
Total	**200**	**111**	**89**

The approach to measuring progress on the CEAP’s 200 actions in the inaugural 2022 CEAP Progress Report focused on the number of actions started and/or completed during the first eight months following the plan’s approval. For the preparation of the 2023 Progress Report, an expanded implementation status approach was used and included knowledge available in the first half of 2024 as follows:

- CEAP activity in City Division and Service Area
- Adopted 2024-2027 Multi-Year Budget
- Council’s approved 2023-2027 Strategic Plan
- Other high priorities assigned by Council
- Other legislative priorities

Each City Director responsible for actions in their division was part of the review. The actions were categorized as either on-track (including completed), delayed, or under review. Considering the difference between implementing timeline and ongoing actions, each implementation status category is further defined as follows:

<u>Implementation Status: On-track</u>

- Timeline Action: The action has started by the intended start date, is progressing as expected and is projected to be completed by the intended completion date. A completed action is considered on-track.
- Ongoing Action: The action has started by the intended start date and has either reached the desired state (i.e., the change to business as usual or new effort is in place or underway) or is progressing towards the desired state as intended.

<u>Implementation Status: Delayed (from existing timeframe)</u>

- Timeline Action: Actions that have had their completion date extended during the reporting period beyond the intended completion date for a particular reason (e.g., funding, resourcing, shifting of, or competing priorities). Also, any action that has not started by its intended start date and achieving the completion of the action by the intended completion date is considered unlikely.

- Ongoing Action: Actions that were intended to have started but have not been started on time but are still going to be pursued on an adjusted schedule.

Implementation Status: Under Review (based on more current information)

- Timeline or Ongoing Action: Actions that have not been started and/or a clear plan to complete or implement the actions is not available (e.g., the action is no longer interpreted to produce beneficial outcomes or outcomes that have not been achieved already through other means or by other involved parties, legislation or regulations have changed in such a manner as to prevent the action from occurring, and/or discussion remains on responsibility for the action).

The number of Timeline Actions intended to start in 2022 or 2023 included in each Area of Focus and the implementation status of those actions are listed in Table 3. Of the 99 Timeline Actions schedule to start in 2022 (71 actions) or 2023 (28 actions), 65 (66%) are on-track, 28 (28%) are delayed, and there are 6 (6%) actions under review. As of May 2024, 15 (15%) actions have been completed (up from only 3 actions having been completed by April 2023) and work has begun on an additional seven actions planned to be started in 2024.

Table 3: 2022 and 2023 Timeline Actions – Status of Implementation

Area of Focus	Timeline Actions	Actions On-track	Actions Delayed	Actions Under Review	Actions Complete
1. Engaging, Inspiring and Learning from People	2	2	0	0	0 (0%)
2. Taking Action Now (Household Actions)	6	4	2	0	1 (17%)
3. Transforming Buildings and Development	13	8	5	0	1 (8%)
4. Transforming Transportation and Mobility	21	18	1	2	5 (24%)
5. Transforming Consumption and Waste as Part of the Circular Economy	16	16	0	0	3 (19%)
6. Implementing Natural and Engineered Climate Solutions and Carbon Capture	7	2	1	4	0 (0%)
7. Demonstrating Leadership in Municipal Processes and Collaborations	21	10	11	0	3 (14%)
8. Adapting and Making London More Resilient	4	1	3	0	1 (25%)
9. Advancing Knowledge, Research and Innovation	7	2	5	0	1 (13%)
10. Measuring, Monitoring and Providing Feedback	2	2	0	0	0 (0%)
Total	**99**	**65 (66%)**	**28 (28%)**	**6 (6%)**	**15 (15%)**

Note: The remaining 12 Timeline Actions are scheduled to start in 2024, seven of which were underway as of May 2024.

The number of Ongoing Actions intended to have started in 2022 or 2023 included in each Area of Focus and the implementation status of those actions are listed in Table 4. Of the 77 Ongoing Actions scheduled to start in 2022 (63 actions) or 2023 (14 actions), 72 (94%) are on-track, 5 (6%) are delayed, and there are no actions under review. An additional six Ongoing Actions scheduled for 2024 have been started as of May 2024.

Table 4: 2022 and 2023 Ongoing Actions – Status of Implementation

Area of Focus	Ongoing Actions	Actions On-track	Actions Delayed	Actions Under Review
1. Engaging, Inspiring and Learning from People	7	7	0	0
2. Taking Action Now (Household Actions)	12	12	0	0
3. Transforming Buildings and Development	3	3	0	0
4. Transforming Transportation and Mobility	8	8	0	0
5. Transforming Consumption and Waste as Part of the Circular Economy	2	2	0	0
6. Implementing Natural and Engineered Climate Solutions and Carbon Capture	5	5	0	0
7. Demonstrating Leadership in Municipal Processes and Collaborations	17	15	2	0
8. Adapting and Making London More Resilient	5	4	1	0
9. Advancing Knowledge, Research and Innovation	2	2	0	0
10. Measuring, Monitoring and Providing Feedback	16	14	2	0
Total	**77**	**72 (94%)**	**5 (6%)**	**0 (0%)**

Note: the remaining 12 Ongoing Actions are scheduled to start in 2024, six of which were underway as of May 2024.

Timeline and On-going Actions delayed and/or under review generally fall into these categories:

- Changes (or lack of changes) of policy at other levels of government. Several actions in Area of Focus 3 (Transforming Buildings and Development) and Area of Focus 7 (Demonstrating Leadership in Municipal Processes and Collaborations) have been delayed because of building code alignment and modification processes and the ongoing housing crisis. Planning and Economic Development Service Area resources prioritized responding to changes in legislation intended to address the housing crisis (e.g., to support funding received through the Housing Accelerator Fund). Examples of delayed actions in this category include advancing partnerships for climate action with the development industry and reviewing and providing options to reduce, restrict, or phase out fossil fuel as the primary source of heat in new buildings.

- Funding limitations. Several CEAP actions that require additional investment were not supported in the 2024-2027 MYB process. These initiatives included several items from Area of Focus 7 (Demonstrating Leadership in Municipal Processes and

Collaborations), including the electrification of more City fleet vehicles and investment in associated infrastructure, and the establishment of carbon accounting and budgeting processes.

- Longer timelines needed for collaboration activities. Many CEAP actions require extensive collaboration and/or leadership from outside of the Corporation of the City of London. In several cases, these collaborative efforts are requiring more time to make progress. Examples of actions delayed or under review in this category include the formal co-creation of a partnership for knowledge, research and innovation on climate action, addressing agricultural potential for climate change mitigation and adaptation, some regional and public transit actions, and advancing City-wide climate change adaptation planning and implementation.

In summary, approximately 87 per cent of the 176 CEAP 2022 and 2023 actions, both Timeline and Ongoing Actions, have been started by City staff or by organizations in London. About 78 per cent of the combined Ongoing and Timeline Actions slated to start in 2022 or 2023 are on track, while 19 per cent are delayed and 3 per cent are under review. Fifteen Timeline Actions have been completed, representing 15 per cent completion of actions with a defined completion target. Reporting on indicators of progress has continued and expanded compared to the previous Progress Report and will continue to grow as more data are compiled, reviewed and made available.

A detailed summary of CEAP actions status and progress, including specific examples for each Area of Focus, is included in the attached 2023 CEAP Progress Report (Appendix A).

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

Use of the City's Climate Lens Framework has continued, with many work groups within different City of London Service Areas using the approach to embed climate considerations into decision-making. Some notable new projects and initiatives where portions of the Climate Lens Framework were or are actively being used include:

- Evaluation of proposed additions and changes from City staff and external engaged parties to the Design Specifications & Requirements Manual (DSRM) as part of a planned update to the document.

- Further incorporation of Environmental, Social and Governance considerations into business plans and business cases submitted by all Service Areas for the 2024-2027 Multi-Year Budget process.

- Staff from the Continuous Improvement team within the Strategy and Innovation Division are exploring the inclusion of a climate lens component in a forthcoming standardized initiation process for corporate projects.

- A customized Climate Emergency Screening Tool (CEST) has seen continued use in Transportation Planning and Design in 2023 with the tool used to evaluate more road infrastructure projects, including its integration into the Oxford Street West Environmental Assessment.

- Planning for the Harris Park shoreline improvements work beginning construction in 2024 included a detailed greenhouse gas and resiliency assessment incorporating key elements of the Climate Lens Framework.

- Completion of two pilot projects as part of the City's Corporate Master Accommodation Plan and Alternative Work Strategy included post-pilot sessions where climate change mitigation and adaptation information were collected. These projects included climate lens input to ensure planning and evaluation processes accounted for climate change considerations and post-pilot focus group input indicated that staff knowledge and appreciation for climate change issues increased as a result.

- 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.

- The Mobility Master Plan continues to include climate lens input throughout the process and engagement efforts with Londoners have included direct references and ties to the CEAP.

In addition to the internal use of the Climate Lens Framework by City staff, continued requests for information and collaboration with representatives from other municipalities across Canada has occurred as other jurisdictions continue their journeys to integrate climate change considerations into decision-making.

2.1.2 Indicators of Progress Towards Expected Results

The CEAP Area of Focus Workplans reference numerous potential indicators of progress that are intended to evolve throughout the CEAP implementation process and be used to characterize the progress towards CEAP goals. The 2023 Progress Report includes 75 indicators, an increase of 9 indicators over the 2022 Progress Report. Consistent with the 2022 Progress Report, in addition to the potential indicators included in the CEAP, measures that have been historically reported in the City's annual Community and Corporate GHG emissions reports are also now being reported as part of CEAP Progress Reporting. These are provided in 2023 CEAP Progress Report (Appendix A).

Some of the new progress measures shed light on how London is growing its stock of residential units, residential unit density, and parking spaces per unit in developments approved, to build upon measures of progress for Area of Focus 3, Transforming Buildings and Development. Many measures now have at least two consecutive years' worth of data and in future CEAP reporting, analysis of these data and their year-over-year trends will be possible to examine the level of progress that city-wide climate action efforts are achieving. In addition, new indicators will be added to support measuring those Expected Results that are currently underrepresented by quantitative data.

Many of these indicators of progress have also been shared with the London Community Foundation for use on the Vital Signs Data Hub and used by other organizations to share data, compare data and provide further comments.

2.1.3 Early Activities in 2024

In addition to the activities detailed in the 2023 CEAP Progress Report, activities have continued in early 2024 with the following additional items of note advancing:

- Successful launch of the Green Bin program commenced in January 2024 with an initial participation rate estimated at 40 per cent of Londoners, which has grown in the months following launch to approximately 60 per cent (based on monitoring areas). Additional work is underway in 2024 to expand the green bin program to multi-unit residential buildings as part of a pilot project.

- For the Mobility Master Plan, in February 2024, Council resolved to establish a 2050 Mode Share Target for a combined mode share of walking, cycling and transit of 32.5 per cent. This is an increase from the pre-pandemic (2019) combined mode share of 23 per cent.

- The City launched the Transportation Management Association initiative called Smart Commute London in April 2024, which aims to enable and support Londoners in using active transportation, public transit and carpooling for trips.

- The City's 2024-2027 Multi-Year Grants Program had $2.3 million in funding available, which will provide financial support to London-based not-for-profit organizations and community groups to implement programs, with funding provided

for up to four years. Of the organizations and groups receiving funding, eight have strong ties to the implementation of CEAP actions, including Growing Chefs, LOLA (London Ontario Learning Apiary) Organization, London Cycle Link Association, London Environmental Network, ReForest London, Thames Talbot Land Trust, The Reimagine Institute for Community Sustainability, and Urban Roots London.

- Staff have created a 30-minute training module on climate change awareness, the CEAP, Climate Lens Framework, and the recently launched Smart Commute program for City staff. This training module, titled “Climate Change Orientation” is now a mandatory inclusion in the new City staff corporate on-boarding training program and will be rolled out to all staff in 2024.

- Council provided a resolution in January 2024 that Civic Administration be directed to review the legislative framework and municipal best practices to adopt a by-law through Section 97.1 of the *Municipal Act* to implement sustainable building construction features, including but not limited to energy efficiency, water conservation and green roofs and report back to Council with options and recommendations, including identifying any required Official Plan, Zoning By-law and Site Plan Control Bylaw amendments. In addition, staff was directed to report back to Council with a short update regarding the scope and timeline of the Green Development Guidelines and Green Parking Lot Guidelines in addition to the above items.

- The City has submitted a proposal to the Federal of Canadian Municipalities’ Green Municipal Fund to carryout a feasibility study on options for providing and administering different types of secure bike parking across London. This builds upon the pilot project that tested the use of bike lockers for both short-term hourly rentals and monthly rentals. These bike lockers remain in service.

- 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.

- The City worked with London Hydro to host another Electric Vehicle Open House event in May 2024. Over 600 people came out to test drive 50 plug-in hybrid and electric vehicles from 20 local dealerships.

- Development of the 2024-2028 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.

- The City, in partnership with LEN and London Cycle Link, hosted an e-bike test ride event in June to promote cycling and the adoption of e-bikes as a replacement for a household second vehicle. This was one of many activities led or coordinated by London Cycle Link during June Bike Month.

2.1.4 Upcoming Activities in 2024

Many activities are either underway and finishing or starting later in 2024. A sample of those items coming within the next few months include:

- Second phase of public consultation on the Mobility Master Plan, seeking input on the plan’s proposed desired outcomes based on the needs and opportunities identified through previous engagement, organized by Area of Focus as well as potential policies and actions that could help shape the future mobility system and achieve mobility goals.

- Consultation and engagement to inform and direct the development of the Climate Change Adaptation Framework will continue in 2024 with a draft plan intended to be released in Q1 2025. This work is building upon previous efforts from City staff,

community members and non-government agencies that have contributed knowledge, expertise and efforts to improve London's climate change resilience. The Climate Change Adaptation Framework will incorporate feedback from Londoners on how best to address vulnerabilities to the impacts of climate change and build upon the actions included in the CEAP's Area of Focus #8 'Adapting and Making London More Resilient'.

- 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).

- 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.

- Finalization of the biosolids management master plan to guide Wastewater planning for the next 10 to 20 years and capitalize on potential synergies to reduce energy use, reduce greenhouse gas emissions and co-manage landfill gas and source-separated organics management.

2.2 Outcome Area #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 in the sectors Businesses and Institutions and Households, Individuals and Community Groups are listed below. Additional details are provided in Appendix A.

2.2.1 Businesses and Institutions

Lake Huron and Elgin Area Water Supply Systems
Lake Huron and Elgin Area Water Supply Systems, the organization providing potable water to London and 14 other Southwest Ontario municipalities, continued its 20+ years of ongoing efforts to reduce its environmental footprint and build resilience to climate change impacts in 2023. Expanding beyond their ISO 14001 Environmental Management System that has already led to significant improvements in energy efficiency, treatment efficacy, waste reduction, risk mitigation and management, the organization completed climate change vulnerability assessments for key infrastructure.

As a follow-up to the infrastructure-specific assessments that will inform future projects, a more wholistic climate change vulnerability assessment is also underway to help inform various programs and initiatives. In addition, a new administration building at the Huron Water Treatment Plant will be LEED silver certified and designed to the Canada Green Building Council (CaGBC) Zero Carbon Building Design standard (where feasible), as endorsed by the Huron Water Board in October 2023.

London Hydro (Additional details in Appendix B of the 2023 CEAP Progress Report)
London Hydro continues to support London's Climate Emergency Action Plan through a variety of programs and actions. Overall, London Hydro focuses on continual investment in a resilient and adaptable electricity distribution system that will meet future demands and minimize power interruptions.

To ensure the electrical distribution network is ready for London's growth and to accommodate customers' decarbonization and electrification initiatives, London Hydro has developed a comprehensive Planning Outlook extending to 2050. Additionally, London Hydro is collaborating on the City of London and Western University's Climate Action and Awareness Fund (CAAF) project to enhance multi-scale, city-wide energy and emissions modeling based on the CityInSight modelling work currently underway.

In anticipation of increased load growth from decarbonization and electrification efforts, such as the adoption of electric vehicles and heat pumps, London Hydro has implemented several proactive measures:

- A program utilizing smart meter data to monitor transformer loading and identify overloaded transformers;
- New standards with higher capacity for servicing new and rebuilt residential neighbourhoods; and
- Ongoing exploration of various load control technologies.

Additional information on London Hydro's recent climate, sustainability and resiliency plans can be found in Appendix B to this report.

Upper Thames River Conservation Authority (Additional details in Appendix C of the 2023 CEAP Progress Report)

The Upper Thames River Conservation Authority (UTRCA) is currently developing three high level strategies: a Strategic Plan, a Watershed-based Resource Management Strategy, and a Conservation Areas and Lands Strategy. These plans all recognize that a healthy natural heritage system and water resource system are the foundation of a sustainable and resilient community, and outline nature-based solutions to challenges posed by climate change. The UTRCA works with many partners in London and throughout the upper Thames River watershed to mitigate and reduce the impacts of climate change and empower youth and community members. Examples include:

- Carrying out hazard management through prevention, mitigation, and preparedness. Prevention includes actions taken to prevent flood-related emergencies or disasters from occurring, such as land use planning and regulatory restrictions to keep development out of floodplains and other hazardous areas that are more vulnerable to the effects of climate change. The UTRCA reviews land use planning applications, as delegated by the province, and regulates development within hazard lands through Ontario Regulation 41/24: Prohibited Activities, Exemptions and Permits.

- Updating and maintaining information on flood and erosion hazards and the watershed's natural features.

- Partnering with local agricultural producers and rural landowners in sequestering carbon through conservation farming practices, including planting more than 22,000 trees, completing 5 wetland projects, and undertaking other naturalization projects to mitigate the impacts of changing weather patterns.

- Working with schools from elementary to post-secondary in London and elsewhere, through curriculum-based in-class learning and on-the-ground projects that incorporate climate change mitigation and adaptation concepts and efforts, such as GREEN Leaders (12 local Grade 7/8 classes) and Stream of Dreams.

- Partnering with University of Waterloo in 2024 to include carbon and silica analysis in sample collection within the headwaters of Medway Creek to integrate research on the impacts of climate change into monitoring programming. The monitoring program will continue throughout 2024.

- Providing technical training and certification opportunities on Low Impact Development (LID) for municipal staff, consultants, and academia, as well as LID workshops for London homeowners through London Environmental Network's Residential Rain Garden Program. In March 2024, offered a Low Impact Development Design and Construction Workshop at the Watershed Conservation Centre for Construction Project Management students at Fanshawe College, with 35 attendees.

- Working with community groups, landowners, small business, industry, and the City of London to protect, restore, and create natural features through naturalization projects.

- Doors Open London / Green in the City at Fanshawe Conservation Area (September 21, 2024) - UTRCA will host the kick off event for Green in the City in partnership with the City of London, London Environmental Network, and London Public Library with activities and events focused on climate change awareness.

- Hope and Action in a Changing Climate (November 1-2, 2024) - UTRCA, in partnership with the Thames Talbot Land Trust, City of London, and other community partners, will hold a community event to celebrate and share positive actions that are being taken by various organizations across the City around climate change.

- The UTRCA's large tracts of natural spaces increase the resilience of both rural and urban environments to more frequent and severe weather events. The 1,200 hectares at Fanshawe Conservation Area and 179 hectares of flood plain and wetland properties within London also lower urban temperatures and provide cooling opportunities for residents.

Enbridge Gas Distribution

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 of London staff to share updates on activities and explore opportunities for collaboration. The hybrid home heating pilot in London, in partnership with London Hydro, is one high-profile example of a project that originated from these regular meetings. Building on the success of the original London pilot, in September 2022, the Province of Ontario announced that it was providing up to $4.5 million through the Clean Home Heating Initiative to bring hybrid heating to up to 1,000 households in eight cities across Ontario including London. Upon conclusion of the pilot project in March 2024, 665 of these households were from London.

Enbridge’s conservation programs, such as Home Efficiency Rebate Plus, Home Winterproofing, and Savings By Design for commercial buildings, form the backbone of many climate actions undertaken by Londoners and London businesses. Participation in Enbridge’s programs in London include:

- 991 households participating in the Home Efficiency Rebate Plus program;
- 203 households participating in the Home Weatherization and other lower-income free upgrade programs;
- 18 custom projects for lower-income multifamily rental buildings; and
- 41 commercial building and 7 industrial projects.

In total, Enbridge estimates a savings of over 3.8 million cubic metres of natural gas per year from these measures, which would result in a greenhouse gas emissions reduction of over 7,400 tonnes per year.

London Health Sciences Centre

As one of Canada’s largest research-intensive acute care teaching hospitals and London’s largest employer, London Health Sciences Centre (LHSC) recognizes the environmental impact of their critical operations, and taking tangible actions to promote sustainability. In 2023, LHSC advanced several environmental and sustainability initiatives including:

- The chilled water system at University Hospital underwent the first phase of a two-phase improvement in 2022-23. The first phase of work involved replacing and upgrading many of the chilled water control valves, removing bypasses, and a few other chilled water circuit related changes. Since the project completion in 2023, there has been a 50 per cent reduction in the required flow rate from 4,800 GPM (gallons per minute) to 2,300 GPM. Because of this flow reduction, LHSC is saving around 400,000 kWh per year.

- LHSC diverted about 33 per cent of all waste generated from landfill. This is achieved through various waste diversion programs including single stream recycling, confidential paper recycling, de-packaging and clean organics programs, furniture/scrap metal recycling, pallets recycling, and e-waste recycling. The organics program at LHSC diverted approximately 450 tonnes of organic waste in 2023, up from 360 tonnes in 2022. The de-packaging organics program – which enables LHSC to recycle unopened or partially consumed organic material still in its packaging that has been returned on patient food trays – made up approximately 350 tonnes of all organic material collected at LHSC in 2023. The second organic stream consists of clean organics collected in retail spaces such as Tim Hortons. This stream diverted approximately 100 tonnes of food waste from landfill in 2023.

- An upcoming project which intends to repurpose exhaust gas energy at the Victoria Hospital Power Plant to create hot water for the hospital has the potential to significantly increase the power plant's efficiency, reduce annual natural gas usage and associated natural gas costs, and decrease greenhouse gas emissions by 15,000 tonnes of carbon dioxide equivalent (CO_2e) per year.

Western University
In 2023 and 2024, Western University continues to grow its academic and research offerings in various disciplines related to climate change including the following facilities and programs:

- Biotron Experimental Climate Change Research Centre
- Campus as a Living Laboratory
- Carbon Solutions @ Western
- Centre for Climate Change, Sustainable Livelihoods and Health
- Climate Change and Society
- Climate Risk Assessment and Opportunity
- Connecting for Climate Change Action a free, publicly available online course
- Human Environments Analysis Laboratory (HEAL)
- Institute for Chemicals and Fuels from Alternative Resources (ICFAR)
- Master of environment and Sustainability
- Thinking Globally Acting Locally (TGAL)
- Western One Health Network (WOHN)
- Western Sustainability

Fanshawe College
In summer 2023, Fanshawe College began construction on a large geothermal heating and cooling system near the northwest corner of campus and substantially completed construction of the new, high energy efficiency Innovation Village on campus to further reduce GHG emissions from buildings.

Green Economy London
Green Economy London and its 48 member organizations' activities in 2023 included:

- Awarded six Green Project Support grants to members (one $5,000 award and four $2,500 awards) to assist in implementation of sustainability projects;
- Facilitated employee engagement activities including Workplace Green Up, Responsible Pest Management Pilot Program, and Green Wheel (employee commuting);
- Launched the Climate Action Microgrant Program, awarding $2,500 for sustainability projects, supported by HSBC Bank; and
- Awarded Green Leader Awards to The Ice Box, Junction Climbing, MTE Consultants, and Play Away Indoor Park.

London Chamber of Commerce
The London Chamber of Commerce 2022-2025 Strategic Plan notes "We can support our member's mandates and the public's demand for business action on environmental

sustainability through policy development and educational resources for our members." Discussions with the City and the Chamber are occurring regarding holding a series of climate action awareness events in late 2024.

2.2.2 Individuals, Households and Community Groups

In terms of actions taken by individuals and households, a few statistics include:

- 665 households participated in the Clean Home Heating Initiative (hybrid home heating pilot project) between September 2022 and March 2024;
- 1,830 households completed home energy retrofits in 2023 using incentives from Canada Greener Homes and/or Enbridge Gas;
- 203 lower-income households participated in the Home Weatherization and other free upgrade programs offered by Enbridge Gas; and
- 13% of new vehicles registered in London in 2023 were low-emission vehicles; 8.9% were gas-electric hybrid vehicles (no plug) and 4.3% were zero emission vehicles (electric and plug-in hybrid).

In 2023, the London Environmental Network (LEN) supported local CEAP implementation through its programming including:

- Greener Homes London, completing over 350 EnerGuide Audits / home energy assessments;
- Clean Energy in Remote & Rural Communities: Deshkan Ziibiing Retrofit Pilot - completing a near-net zero home retrofit reducing emissions by 94 per cent;
- Nonprofit Resiliency Project, completing 15 building sustainability walkthroughs for 8 partner organizations that provide housing for equity-deserving individuals;
- Environmental Action Incubator, implementing 6 community projects per year;
- Green Economy London, completing 14 GHG inventories and sustainability reports for Green Economy Leaders
- Residential Rain Garden Program, supporting 4 rain gardens to reduce local flooding impacts.

With funding from the London Community Recovery Network (LCRN), LEN implemented the "Green Economic Stimulus: Building Retrofits for Local Residents and Businesses" business case. In 2023, seven Green Economy Leaders were selected to receive retrofit funding for their businesses. Projects included the installation of low-flow bathroom fixtures, building and window insulation, on-site rapid composters, and energy-efficient appliances. These projects reduce emissions, waste, and water consumption in the community while saving businesses on costs.

To support home retrofits, LEN distributed retrofit rebates to 15 homeowners in 2023 which included eight air source heat pump installation projects, five attic insulation and air sealing projects, and two basement insulation projects. Of these, ten projects utilized London-based contractors and ten were in an area identified as an energy poverty area as identified by the Canadian Urban Sustainability Practitioners' (CUSP) Energy Poverty and Equity Explorer tool. LEN will continue the Green Economic Stimulus in 2024.

A number of engagement metrics contained in LEN's 2023 Annual Report include:

- Connecting with 3,055 individuals through 33 outreach events;
- 137 environmental events were listed on the Events Calendar, primarily from local LEN member events; and
- 3,276 event attendees reached through 33 events hosted and co-hosted by LEN.

ReForest London, a not-for-profit organization with the mission to plant and protect trees through community partnerships and education in London achieved significant milestones through its programs in 2023, including:

- Park Naturalizations: With the help of over 1,200 volunteers, 5,848 woody plants were planted in London's parks, totaling over 1,750 volunteer hours. The City of London, foundations, private enterprise, and community organizations were crucial partners in this endeavor.

- Neighbourhood ReLeaf: Over 5,323 trees were distributed to 1,615 households in London, beautifying neighbourhoods and benefiting the environment. Government entities, foundations, private enterprises, and community organizations supported this program.

- Schools Program: 21 schools participated in schoolyard plantings, engaging 957 students in planting 103 trees in their schoolyards. Another 26 schools participated in seedling growing, engaging 1,110 students to sow over 1,100 seeds. Government support, along with foundations, private enterprises, and community organizations, contributed to the success of this program.

Several community organizations led by Climate Action London including City staff continued with participation in the Tamarack Institute Community Climate Transitions (CCT) Network in 2023, focused on education and support for community-driven collective impact on climate change. In 2023, the number of member jurisdictions in the CCT Network grew from 17 to 30 and London had the largest representation of all participating jurisdictions. Several communities that joined in 2022 or 2023 have continued as returning members, but London has done this while also widening the circle and bringing more people on to take part in the new members cohort. Participation in this initiative is helping form new relationships, strengthening existing connections, and increasing knowledge and capacity for collective action on climate change.

Planning for the 3rd annual EarthFest started in early 2024. It was hosted by Thames Regional Ecological Association in collaboration with N’Amerind (London) Friendship Center Inc. and was delivered on April 20, 2024. It was led by Climate Action London and represents one of the largest environmental and climate change events in London.

Urban League of London, representing 21 Neighbourhood Organizations and 24 Community Organizations, helped to share environmental and climate change information and continued its major award programs:

- The Green Brick Award to recognize an outstanding built form project in the city, usually where the development has engaged citizens at both the planning and development stages of the projects. This award has been given since 1984 and in 2023 was awarded to Indwell’s Embassy Commons; and

- The Green Umbrella Award to recognize an individual, or occasionally to an organization, demonstrating outstanding community citizenship and leadership in London, as evidence by a significant body of work. It recognizes the efforts of residents working to improve the lives of fellow Londoners. This award has been given since 1975 and in 2023 was awarded to Heenal Rajani and Kara Rijnen, owners and operators of Reimagine Co., a package-free grocery store.

2.3 Outcome Area #3 - Climate Actions by Other Levels of Government

Overall, in 2023 and early 2024, the provincial government’s role in climate action has included:

- activities for electric vehicles and direction from the Ontario Energy Board to standardize procedures that all local electric utilities must follow for installing and connecting new EV charging infrastructure;
- the announcement of the planned refurbishment of Pickering Nuclear Generating Station’s “B” units (units 5-8) nuclear power reactors; and
- the approval to allow industries to begin testing and demonstrating small-scale underground carbon storage projects on private land.

The federal government's role in climate action in 2023 and early 2024 has included:

- the planned increase in the carbon price which is expected be the largest contributor to greenhouse gas emissions reduction this decade;
- the ending of the Canada Greener Homes Grant program due to higher-than expected uptake;
- investment in a project that will help the Independent Electricity System Operator (IESO) increase the number and diversity of clean energy resources that can participate in delivery electricity in Ontario;
- Environment and Climate Change Canada finalized its new Electric Vehicle Availability Standard to increase the supply of clean, zero-emission vehicles available to Canadians across the country; and
- published a Regulatory Framework for an Oil and Gas Sector Greenhouse Gas Emissions Cap to solicit input to inform draft regulations, which are to be published in 2024. The Framework includes plans to implement a national cap-and-trade system for oil and gas emissions.

2.4 Outcome Area #4 - Energy Use

2.4.1 Corporation of the City of London

The City manages diverse operations of buildings, including office spaces, community centres, arenas, and fire halls which use energy for interior and exterior lighting, heating and cooling of buildings, and energy associated with maintaining recreational services like pools and arenas. The City also manages linear (e.g., generally pipes in the ground, roadways) and related assets such as wastewater treatment facilities, water supply and pumping facilities, traffic lights, and City fleet operations. Ninety per cent of the energy consumed by linear assets is electricity associated with running and maintaining the processes. Currently, City operations span over 480,000 square metres (5.2 million square feet) and has 249 utility meters.

Leased spaces, for which the City does not pay for utility use, make up 7.3 per cent of city-owned spaces. The energy used by these spaces is not included within the City's reported energy use but is included in community energy use.

Table 5 shows the City's energy consumption by commodity, which amounts to 165 million equivalent kilowatt-hours (kWh) in 2023. Energy consumption has decreased for every energy commodity except gasoline, which has seen an eight per cent increase since 2018. Overall, total energy use is 17 per cent lower compared to 2007 and five per cent lower compared to 2018. Energy associated with heating and cooling buildings (steam, electricity, chilled water, and natural gas) have shown greatest reduction from 2007. This shows that energy efficiency measures in place since 2007 have played a significant role in conservation.

In 2023, electricity represented 57 per cent of all the energy used by the City. Out of this, 52 per cent is consumed by electricity-intensive operations such as water supply and wastewater treatment plants, 19 per cent is consumed by streetlights and traffic lights, and the remaining 29 per cent is consumed by building ventilation, lighting, and office equipment.

Natural gas was the second highest commodity, representing 23 per cent of the total energy consumption. Most of the natural gas is used for space heating and hot water heating, but 13 per cent of the total natural gas is used in wastewater treatment facilities every year. Diesel and gasoline are consumed by a variety of fleet vehicles and equipment which include waste/Green Bin collection packers, snowplows, off-road construction equipment, and portable hand-held tools used by Parks Operations. Compressed natural gas (CNG) was consumed by 24 of the waste collection packer trucks in the vehicle fleet, replacing diesel.

Table 5 – Total Energy Consumption by Commodity

Energy Consumption (ekWh)	2007	2018	2023	Change from 2007	Change from 2018
electricity	108,328,000	98,448,000	96,885,000	-11%	-2%
natural gas	58,682,000	42,430,000	36,038,000	-38%	-14%
steam	3,499,000	3,269,000	2,723,000	-22%	-17%
chilled water	1,759,000	1,521,000	1,385,000	-21%	-9%
diesel fuel	20,129,000	22,194,000	19,694,000	-2%	-11%
gasoline	6,718,000	6,889,000	7,417,000	10%	8%
CNG fuel	-	-	1,516,000	n/a	n/a
Total	199,115,000	174,751,000	165,658,000	-17%	-5%

Steam and chilled water account for only one per cent of the total energy consumption each and both are completely used by administration buildings owned by the City in downtown London including City Hall. Steam and chilled water are supplied by Enwave London District Energy.

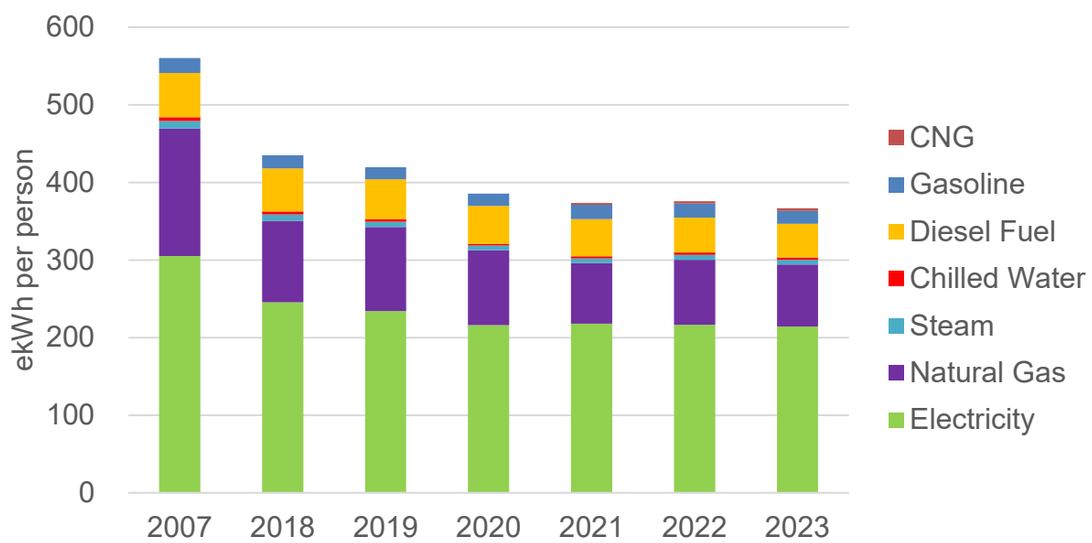
The City's energy consumption is a direct function of serving the public, businesses, and visitors of London. The trends in consumption reported is significant to the services provided to the community. London continues to grow in population and increased services are required to support that growth. It is important to capture energy usage per capita to demonstrate the City's achievements in energy reductions while continued growth occurs in London.

Figure 1 shows total energy consumption per capita by commodity which is explained as follows:

- 16 years of data show continued improvement of corporate energy use per capita with an overall reduction of 35% in 2023 compared to 2007, the first year for which the City has comprehensive energy use data; and

- an overall energy efficiency improved by about 16% compared to 2018, the baseline year for the 2019-2023 CDM Plan.

Figure 1 – Corporate Energy Use in London, Per Capita (Person) by Energy Commodity



The 2019-2023 Corporate Energy Conservation and Demand Management Plan (2019-2023 CDM Plan) was developed according to Ministry of Energy's direction to provide the City's annual energy consumption information to the public and set goals and actions for conserving energy and reducing greenhouse gas emissions from 2019 to 2023. Key performance items measured against 2018 include:

- Achieved primary target of 5% total energy reduction;
- Exceeded energy efficiency (energy use per capita) target by achieving 16% reduction compared to the target of 10%;
- Avoided $6 million in total energy costs;
- Reduced energy use by wastewater treatment operations by 8%;
- Decreased natural gas consumption by 14% due to warmer winter weather and HVAC efficiency projects undertaken by Facilities; and
- Decreased diesel fuel consumption by 11% due in part to switching solid waste packers to compressed natural gas (CNG), a lower-emission fuel.

Negative trends in corporate energy use include:

- Fleet gasoline consumption has increase by 8%, influenced by the increased use of rental vehicles since the pandemic; and
- Operational issues at the new Southeast Reservoir and Pumping Station water supply facility, combined with increased City-wide water demand, increased water supply's overall energy consumption by 4%.

Further details on Corporate energy use can be found in Appendix B of this SPPC report.

2.4.2 Community Energy Use

Total energy use in London in 2023 was 58,900 terajoules, one per cent above 2005 levels. It is important to note that London's population has been growing faster than previously anticipated, with Statistics Canada estimating that the London Census Metropolitan Area's population grew by 3.0 per cent in 2022 and 3.8 per cent in 2023. A faster-growing population will generally increase local energy use and associated greenhouse gas emissions. Energy use per person in London was 130 gigajoules (GJ) per year in 2023, down 22 per cent from the 2005 baseline.

In terms of weather, London experienced a warmer than normal heating season and a cooler than normal summer. As a result, energy demand for both space heating as well as air conditioning was lower than normal. Natural gas is primarily used for heating while electricity is used for air conditioning.

The impact of the COVID-19 pandemic on transportation energy use remained evident in 2023, with many London workplaces maintaining hybrid working arrangement after the pandemic as well as greater use of web-based meetings reducing the need for business-related vehicle trips. Compared to 2019:

- The local retail sales of gasoline and diesel at gas stations was 8% lower;
- The total trip distance travelled by automobile for in-town trips was 10% lower;
- The total distance travelled by bicycle was 20% higher; and
- The number of vehicles registered for every 1,000 people in London was 17% lower.

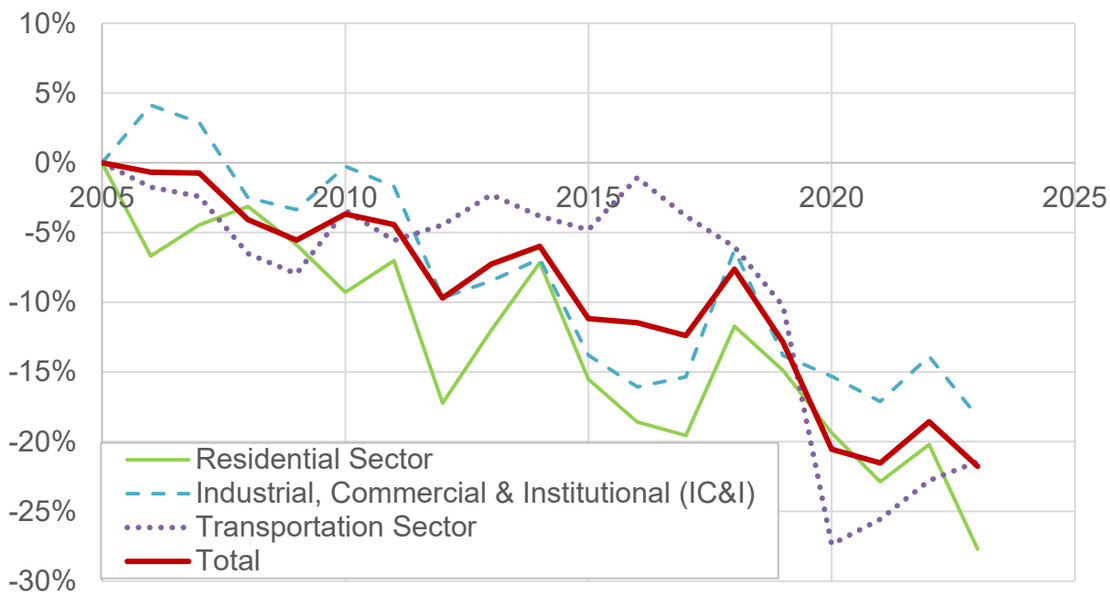
Residential (single-family home) energy efficiency has seen consistent improvement since 2005, driven by energy conservation programs such as former federal and provincial home energy audit and retrofit programs, along with utility conservation and demand management programs. New home construction in London has seen energy

efficiency improvements driven by voluntary participation from many of London's home builders in energy efficiency programs such as Energy Star New Homes, as well as the 2012 Ontario Building Code.

Over the last ten years, energy efficiency for London's industrial, commercial, and institutional sector has been improving. London has many examples of local employers who have acted on energy efficiency and conservation.

Figure 2 illustrates the change in energy consumption in London by sector on a per person basis since 2005.

Figure 2 – Change in Energy Use in London, Per Capita (Person) by Sector Since 2005



It is estimated that Londoners spent $1.83 billion on energy in 2023. Out of this amount, it is estimated that 16 per cent of this money stayed in London, most of which goes towards London Hydro's and Enbridge's local operations. The rest leaves London. On average, every percentage that Londoners reduce their energy use results in around $15 million staying in London every year.

It is important to note that these costs could have been higher. If 2010 is used as a baseline year in terms of energy use per capita (the first for which energy cost information is available), improvements in energy efficiency over the last 13 years have created ongoing savings. In 2023, it is estimated that $440 million in energy costs were avoided through energy efficiency as well as reductions in transportation fuel use. Added up year-over-year, London has avoided almost $2.5 billion in energy costs due to improved efficiency since 2010.

The energy productivity of London's economy, on a constant dollars of Gross Domestic Product ($GDP) per unit energy used, has also increased by 28 per cent since 2007 (no GDP data available for 2005).

Further details on community energy use can be found in the report titled 2023 Community Energy Use and Greenhouse Gas Emission Inventory located on the City of London's Get Involved website.

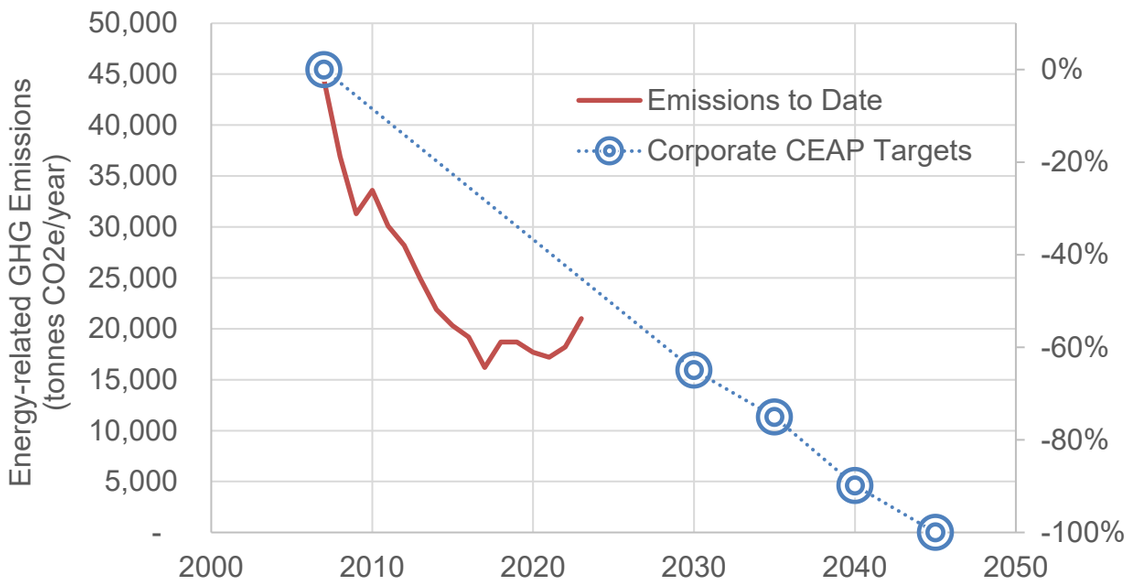
2.5 Outcome Area #5 - Greenhouse Gas Emissions

2.5.1 Corporate Energy-Related Emissions to Date

Current corporate energy-related emissions have been influenced by the existing 2019-2023 Corporate Energy Conservation and Demand Management (CDM) Plan approved in 2018.

In 2023, corporate energy-related greenhouse gas emissions were 21,000 tonnes of equivalent carbon dioxide. This is 53 per cent lower compared to 2007, the baseline year for measuring progress (Figure 3). Greenhouse gas emission reductions have been observed across the corporation since 2007, except for fleet vehicles. Most of the emission reductions since 2007 are due to a cleaner electricity grid in Ontario compared to 2007, combined with corporate energy efficiency and conservation efforts.

Figure 3 Corporate Energy-Related Greenhouse Gas Emissions to Date Compared to Corporate GHG Emission Reduction Milestones



A summary of major trends influencing 2023 corporate greenhouse gas emissions are identified on Table 6. Compared to recent years, greenhouse gas emissions from Ontario's electricity grid increased in 2023. Given that electricity represents 57 per cent of all the energy used by the City, changes in Ontario's electricity grid will have a big impact on corporate energy-related emissions. As a result, the City's greenhouse gas emissions in 2023 are about 3,600 tonnes (21 per cent) higher than they would have been if Ontario's electricity grid emissions had not changed from 2018 levels.

From an energy commodity perspective, natural gas and diesel are London's two largest sources of energy-related emissions. Measures to electrify building heating, reduce vehicle fuel use, and to use zero emission vehicles and fuels will be priorities. However, given that greenhouse gas emissions from Ontario's electricity grid are expected to climb even further this decade, direct investment in renewable electricity generation for municipal facilities may be needed to help meet London's 2030 milestone.

Table 6: Summary of Major Trends and Occurrences in 2023 Influencing Corporate Greenhouse Gas Emissions

Positive	Unchanged or Unsure	Negative
• Total energy use was down 5% from 2018 levels, achieved the 2019-2023 CDM Plan goal. • Energy use by wastewater treatment operations was down 8% from 2018 levels. • Natural gas and steam consumption was lower	• 2% decrease in Traffic Signals and Streetlights may be due to on-going savings from the Phase 2 lighting project. But overall streetlights stock increased by 10% in the last five years.	• GHG emissions intensity of Ontario's electricity grid has increased. • Energy used for water distribution has increased by 4% from 2018 levels due to equipment issues, which are being repaired.

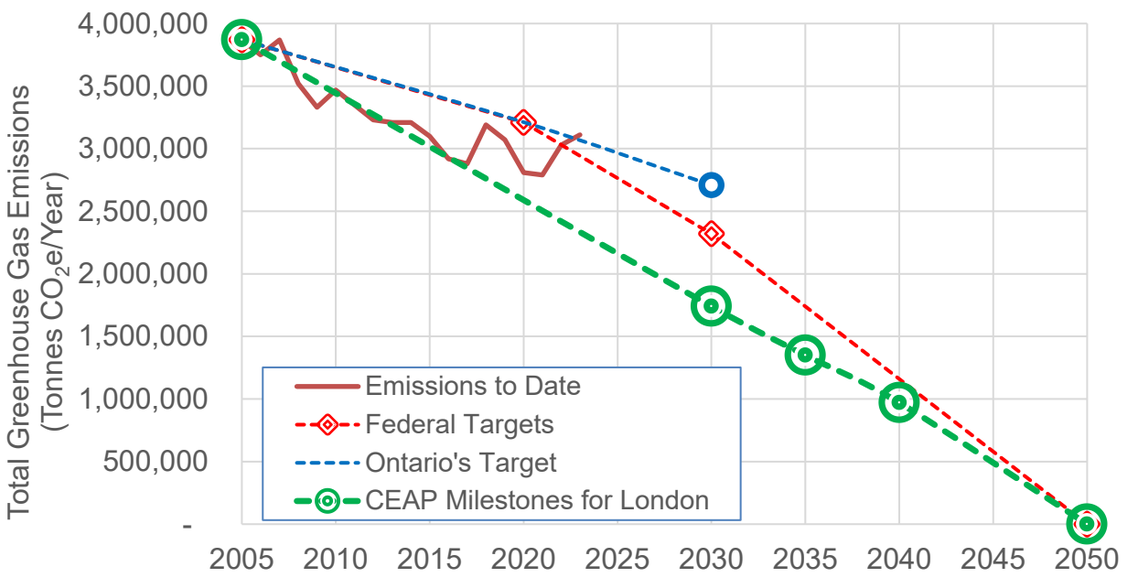
Positive	Unchanged or Unsure	Negative
by 14% and 17% from 2018 levels, due in part to warmer weather and HVAC optimization projects undertaken by Facilities.		• Increased number of rental fleet vehicles due to expansion of City services increased gasoline usage by 8% from 2018 levels.

Further details on Corporate GHG emissions can be found in Appendix B of this SPPC report.

2.5.2 Community-wide Emissions as of 2023

Total greenhouse gas emissions in 2023 were 3.11 million tonnes of equivalent carbon dioxide, with half of the emissions coming from personal transportation and energy use at home. This is 20 per cent lower than 2005 levels (Figure 4).

Figure 4 - Community Emissions to Date Compared to Milestones for London, for Ontario, and for Canada



Like corporate energy related emissions above, emission reductions since 2005 are due to a cleaner electricity grid in Ontario, combined with energy efficiency and conservation efforts in housing, commercial buildings, and local industry. However, it is important to note the extraordinary impact of the COVID pandemic had on transportation emissions in 2020 and 2021.

This downward trend has been driven by a combination of less greenhouse gas intense electricity generation and improved energy efficiency. However, since 2018, emissions have been above the trendline needed to meet London's science-based milestones (i.e., what London would need to reach to do its fair share for keeping global warming within 1.5°C).

Energy use is responsible for 95 per cent of all GHG emissions from human activity in London. Not only does burning fossil fuels such as gasoline, diesel, and natural gas produce carbon dioxide – the most common GHG associated with human activity – but the use of electricity also contributes to GHG emissions. The remaining five per cent come from methane emissions from landfills and nitrous oxides from wastewater treatment.

About 87 per cent of Ontario's electricity was generated from emissions-free sources in 2023, such as nuclear and hydro-electric generating stations as well as renewable sources (wind and solar). However, Ontario still relied on fossil fuels such as natural gas

to generate 13 per cent of the electricity Londoners used in 2023, a higher share than in recent years. As a result, this increase in natural gas use for power generation is responsible for an additional 120,000 tonnes of emissions from London – four per cent higher – since 2018.

The COVID-19 pandemic continued to have an impact on transportation fuel use, with fuel use per person being lower than it was in 2019.

It is also important to note that London's population has been growing faster than previously anticipated, with Statistics Canada estimating that the London Census Metropolitan Area's population grew by 3.0 per cent in 2022 and 3.8 per cent in 2023. In 2023, GHG emissions per person were over two per cent lower than they were in 2022. Since 2005, GHG emissions per person have been reduced by 38 per cent.

Whether emissions continue to decrease depends upon the impact of energy and fuel conservation efforts, provincial and federal climate change policies (including incentives), climate trends, economic growth, and consumer choices. Overall, the trends in Table 7 impacted London's community greenhouse gas emissions in 2023.

Table 7: Summary of Major Trends and Occurrences in 2023 Influencing Greenhouse Gas Emissions

Positive	Unchanged or Unsure	Negative
• Residential energy use per person is 28% lower than it was in 2005. • The number of trips taken by bus, by bike and on foot have increased. • The total distance travelled for in-town trips taken by automobile have decreased. • The number of hybrid and electric vehicles in London has increased. • Retail sales of fuel per person were 14% below pre-pandemic levels. • Energy use per capital in the industrial, commercial, and institutional sector is 18 per cent lower than it was in 2005. • Energy productivity ($ GDP per unit energy) has increased by 28% since 2007.	• There is uncertainty whether current post-pandemic "hybrid" work arrangements are permanent.	• GHG emissions intensity of Ontario's electricity grid has increased. • Market share sales of larger personal vehicles (e.g., pickups and SUVs) has increased. • Electric vehicle adoption rate in Ontario was lower than Canada's overall rate. • Electric vehicle adoption rate in London was lower than Ontario's overall rate.

Further details on community GHG emissions can be found in the report titled 2023 Community Energy Use and Greenhouse Gas Emission Inventory located on the City of London's Get Involved website.

2.5.3 Consumption-related Emissions

In 2019, the City of London started highlighting the importance of consumption-related greenhouse gas emissions. These are defined as all the greenhouse gas emissions associated with providing goods and services to Londoners, including those that take place outside London's boundaries. A good example would be the emissions

associated with food as the majority comes from outside London. There are emissions associated with growing crops, feeding animals, preparing food products for market, and transporting these to market.

Last year's 2022 CEAP Progress Report furthered the discussion for the purpose raising awareness about the importance of all emissions, locally and globally. Additional work on this topic is currently underway to obtain an improved understanding of the impact of major types of consumer goods to help to support the importance of local environmental and climate action initiatives such as:

- Reducing the amount of food waste (food waste avoidance);
- Buying durable products;
- Buying local products;
- Recycling and the circular economy (end-of-product-life recovery and reuse); and
- Repurposing and renovating existing buildings instead of tearing them down.

2.6 Outcome Area #6 - Weather Trends and Impacts

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 will be an important foundation of the development of the Climate Change Adaptation Discussion Primer Plan. Wind, rain and temperature events are examples of how severe weather will impact the ability of London to adapt and become more resilient. These severe weather events plus the overall incremental increase in seasonal temperatues and any cascading effects that these changes cause (e.g., Urban Heat Island impacts), will form the basis of future annual reporting.

In 2023, it was a story of flooding and drought in London and area. Heavy spring rainfall at the end of March and beginning of April led to flooded basements in parts of London. Then in May, London experienced an extremely rare drought, with only 17 per cent of normal precipitation. This was followed by a much wetter than normal July where precipitation was 260 per cent of normal, including 80 mm of rain falling on July 2 alone.

London and surrounding municipalities were affected by severe and extreme weather in 2023, though fortunately not to the extent of a number of other regions of Canada. A unifying climate event that affected Canada from coast to coast (and far beyond) in 2023 was a record wildfire season in terms of burned area, and the resulting wildfire smoke. The burned area in 2023 was extreme relative to past years, and unprecedented in documented history.

The World Meteorological Organization (WMO) "State of the Global Climate 2023" report issued in March 2024 confirmed that 2023 was the warmest year on record at 1.45 ± 0.12 degrees Celsius above the pre-industrial average global temperature. Additional key messages from the WMO report included:

- Ocean heat content reached its highest level in the 65-year observational record;

- Global mean sea level reached a record high. The rate of seal-level rise in the past 10 year (2014-2023) has more than doubled since the first decade of the satellite record (1993-2002);

- Antarctic sea-ice extent reached an absolute record low in February 2023; and

- Food security, population displacement and impacts on vulnerable populations continued to be of mounting concern in 2023, with weather and climate hazards exacerbating the situation in many parts of the world.

Part B – Proposed 2024-2028 Corporate Energy Conservation and Demand Management (CDM) Plan

The Province of Ontario requires municipalities and other broader public sector organizations to update and publish their energy conservation plans every five years. The proposed 2024-2028 Corporate Energy Conservation and Demand Management (CDM) Plan builds on the successful foundation laid by the previous two CDM Plans. The 2024-2028 CDM Plan aligns with the City's 2023-2027 Strategic Plan, specifically the "Climate Action & Sustainable Growth" Strategic Area of Focus, as well as supports the CEAP and its "Demonstrating Leadership in Municipal Processes and Collaborations" Area of Focus.

The 2024-2028 CDM Plan (Appendix B) adopts a whole Corporation approach (i.e., enterprise-wide), developing greenhouse gas emission reduction initiatives where they are most suitable, based on:

- Available technology;
- Building or equipment life cycle timelines; and
- Funding and resources available.

The initiatives were developed through inter-departmental consultations and detailed energy consumption analysis for each service area.

The 2024-2028 CDM Plan will be a dynamic document, providing a roadmap to enhance internal energy management knowledge and awareness. This will lay the groundwork for successful energy management decisions and actions across all corporate operations over the next five years and beyond.

Goals for 2028
The goals are divided into primary and secondary based on measurable initiatives that directly and indirectly contribute to the reduction of energy consumption and greenhouse gas emissions.

Primary:
- A 7% reduction in total corporate energy use from 2023 to 2026; and
- 56% reduction in energy related GHG emissions from the 2007 baseline year by 2028.

The conservation initiatives contributing to the primary targets are categorized as Planned and Proposed initiatives:

- Planned initiatives: Measures with an approved business case that have been funded by City Council.; and
- Proposed initiatives: Projects under investigation that will be developed into business cases and requested for future funding approval.

Implementing just the Planned initiatives is expected to result in a seven per cent reduction in total energy use from 2023 levels by 2028, with an additional two per cent reduction achievable by implementing both Planned and Proposed initiatives. This combined effort is equivalent to a reduction of 1,550 tonnes per year of greenhouse gas emissions by 2028 compared to business-as-usual.

Secondary:
- Foster a culture of conservation; and
- Develop a pathway to achieve net-zero corporate energy-related emissions by 2045.

Implementation and Funding
To implement these energy measures, various service areas will:

- Utilize funding that has already been approved within the 2024-2028 Multi-Year Budget;
- Apply for federal and provincial incentives as they become available; and

- Utilize the new internal Climate Change Reserve Fund alongside existing internal funding sources such as the Effectiveness, Efficiency and Economy (EEE) Reserve, where appropriate.

3.0 Financial Impact/Considerations

Similar to what was reported when CEAP was approved in 2022, 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. In particular, net savings are expected for some infrastructure if total lifecycle costs (capital, operating and maintenance) are evaluated with the expected cost burden of an escalating price of carbon and the incorporation of climate change impact risks.

The CEAP was approved in 2022 without additional budget assigned to many CEAP actions. The outcome of the 2024-2027 Multi-Year Budget (MYB) process included funding for three CEAP actions:

- Providing $1.5 million in capital to support the development of a home energy retrofit program. City staff are working with the Clean Air Partnership to submit a proposal to the Federal of Canadian Municipalities' Community Efficiency Financing program for a $1.5 million grant and a $3.0 million loan to develop a home energy retrofit program that could include concierge-style services to assist Londoners with retrofit planning as well as provide Property-Assessed Clean Energy style loans for up to 150 households;

- A funding amount of $60,000 annual operating and $40,000 capital over four years to support and grow a transportation management association called Smart Commute London; and

- The creation of a Climate Change Reserve Fund ($1 million per year) to accelerate implementation of climate actions. The monies standing in the Fund shall be used by The Corporation of the City of London to fund any initiatives that support the Climate Emergency Declaration adopted by Council, April 23, 2019, including operating or capital expenditures related to:

    a. One-time initiatives/projects; or
    b. Initiatives/projects that require a temporary source of financing not to exceed four years. Should The Corporation of the City of London wish to deliver an initiative/project on a permanent basis, transition plans must identify permanent sources of financing to commence no later than the fifth year.

Additional funding opportunities will be explored in the coming months to hopefully bridge the gap between MYB funding and identified needs to continue to advance CEAP actions. One such opportunity was released in May 2024 when the Federal government announced $530 million in funding to support local governments to adapt and build long-term resiliency to the impacts of climate change. The funding is administered through the Federation of Canadian Municipalities Green Municipal Fund's Local Leadership for Climate Action (LLCA) stream which has three funding categories. The categories are 'adaptation in action' (increased implementation of equitable climate adaptation action taken by Canadian municipalities); 'climate-ready plans and processes' (integration of equitable and inclusive climate resilience into municipal plans, processes and management systems, such as asset management systems planning); and 'financing adaptation' (increase in new financing models utilized/leveraged by Canadian municipalities to finance climate adaptation capital projects). Civic Administration will explore opportunities for London to access this funding program, among others, over the coming months.

An enterprise-wide team of City staff are working with Sustainability Solution Group (SSG) to implement a tailored CityInSight energy and emissions reduction, land-use and financial model for climate actions in London to identify the financial impacts of potential community low-carbon pathways. This work will be completed in Q1 2025.

4.0 Key Issues and Considerations

Targets adopted by cities like London are considered “science-based” if they are in line with what the latest climate science deemed necessary to meet the goals of the Paris Agreement – limiting global warming to well-below 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C – and reflects a fair share of the 50 per cent global reduction in greenhouse gas emissions by 2030 identified in the United Nations (UN) Intergovernmental Panel on Climate Change (IPCC) Special Report on Global Warming of 1.5°Celsius. The “fair share” principle reflects the responsibility of nations and cities with high income and high emissions to do more to reduce emissions compared to those with lower income and emissions. Cities in North America, Australia, Japan, and Germany are considered high-income and high-emissions per capita cities.

With a year-over-year increase in community-wide GHG emissions in 2023 (resulting in current emissions only being 20 per cent below the 2005 baseline) and only five and a half years left before 2030, it is becoming increasingly clear that the CEAP emissions milestone of 55 per cent below the 2005 baseline level will be more difficult to meet compared to when the milestone was set in 2022. This fact will be similar for the majority of municipalities. The slow pace of emissions reductions now also puts added pressure on the remaining years leading to 2050 if London hopes to maintain the science-based “fair share” milestones which consider the total amount of emissions each year from 2022 to 2050. Considering this, even more concerted efforts across all sectors and levels of government will be required to lower emissions during the period of 2030 to 2050.

The necessary changes are going to take longer than planned without additional coordinated investment, policy change, and messaging from other levels of government. A simple example of this is the need for the Ontario Building Code (OBC) to be modified to require much higher energy efficiency than currently established with the recent partial harmonization of the OBC with the National Building Code. Municipal Chief Building Officials are bound legally to approve any building that meets the OBC minimum requirements, so if these requirements are not in line with emissions reductions milestones, emissions from buildings (representing over half of London’s community GHG emissions annually) will be much harder to address.

Addressing climate change is a responsibility shared by all and it is imperative that all take action where they can. Considering the fragmented responsibility for regulating activities that have a significant impact on GHG emissions, each level of government needs to take action in the areas they are responsible for (e.g., for municipalities, as is documented in the CEAP’s Area of Focus workplans, areas of direct control include the types of buildings constructed and how they are powered, transportation mode, infrastructure availability and attractiveness, land use and land use change policies, etc.). Individual choices by Londoners regarding how they move, live, work and play will have a significant impact, but many decisions of Council and Civic Administration impact the availability and attractiveness of certain choices Londoners make.

Conclusion

The 2023 CEAP Progress Report is the second progress report on the Climate Emergency Action Plan approved in April 2022. A CEAP Update Report occurs in January of each year.

Appendix A contains the community report and provides additional details pertaining to specific actions within each of the ten Areas of Focus. It also details, corporate and community GHG inventory data and commentary regarding the provincial, national, and global context within which London’s climate action efforts should be viewed, as well as

the next corporate energy conservation demand management plan required to be submitted to the provincial government.

Continued climate action within the Corporation of the City of London and community-wide will be required to move further toward the goals of the CEAP. All feasible avenues of support should be explored and leveraged to expand efforts and encourage others in London to do so as well.

Appendix B contains the proposed 2024-2028 Corporate Energy CDM Plan which builds on the successful foundation laid by the previous two CDM Plans. The Province of Ontario requires municipalities and other broader public sector organizations to update and publish their energy conservation plans every five years. The 2024-2028 CDM Plan also aligns with the City's 2023-2027 Strategic Plan, specifically the "Climate Action & Sustainable Growth" Strategic Area of Focus, as well as supports the CEAP and its "Demonstrating Leadership in Municipal Processes and Collaborations" Area of Focus.

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Appendix A 2023 Climate Emergency Action Plan Progress Report

Appendix B 2024-2028 Corporate Energy Conservation and Demand Management (CDM) Plan

Climate Emergency Action Plan 2023 Progress Report

August 2024



#LdnOnt ClimateAction

London CANADA

Land Acknowledgement

We acknowledge that we are gathered today on the traditional lands of the Anishinaabek (AUh-nish-in-ah-bek), Haudenosaunee (Ho-den-no-show-nee), Lūnaapéewak (Len-ah-pay-wuk) and Attawandaron (Add-a-won-da-run).

We acknowledge all the treaties that are specific to this area: the Two Row Wampum Belt Treaty of the Haudenosaunee Confederacy/Silver Covenant Chain; the Beaver Hunting Grounds of the Haudenosaunee NANFAN Treaty of 1701; the McKee Treaty of 1790, the London Township Treaty of 1796, the Huron Tract Treaty of 1827, with the Anishinaabeg, and the Dish with One Spoon Covenant Wampum of the Anishnaabek and Haudenosaunee.

This land continues to be home to diverse Indigenous peoples (First Nations, Métis and Inuit) whom we recognize as contemporary stewards of the land and vital contributors to society. We hold all that is in the natural world in our highest esteem and give honor to the wonderment of all things within Creation. We bring our minds together as one to share good words, thoughts, feelings and sincerely send them out to each other and to all parts of creation. We are grateful for the natural gifts in our world, and we encourage everyone to be faithful to the natural laws of Creation.

The three Indigenous Nations that are neighbours to London are the Chippewas of the Thames First Nation; Oneida Nation of the Thames; and the Munsee-Delaware Nation who all continue to live as sovereign Nations with individual and unique languages, cultures and customs.

This Land Acknowledgement is a first step towards reconciliation. It is the work of all citizens to steps towards decolonizing practices and bringing our awareness into action. We encourage everyone to be informed about the traditional lands, Treaties, history, and cultures of the Indigenous people local to their region.

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1. Background and Introduction

The Climate Emergency Action Plan (CEAP) is a community-wide plan that was developed between January 2020 and February 2022, following the declaration of a climate emergency in 2019. The CEAP development process included best practices research into the approaches used to address climate change in other Canadian municipalities and the preparation of 13 background documents covering a range of relevant topics.

Community engagement and consultation was conducted throughout the development process, with comments and feedback incorporated into the initial draft CEAP presented to Council in February 2022 as well as incorporated into the final plan.

The CEAP was approved by Council in April 2022. The CEAP sets out actions to drive progress towards the following goals:

- Net-zero community greenhouse gas (GHG) emissions by 2050;
- Improved resilience to climate change impacts; and
- Bring everyone along (e.g., ensuring that everyone in London - individuals, households, businesses, neighbourhoods - are able to participate in working to reduce emissions and adapting to change).

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.

The 2023 CEAP Progress Report covers actions taken and progress made throughout 2023, including updates on some items reported to Council in the January 2024 “2023 Climate Emergency Action Plan Update Report”. Also highlighted are some actions taken in early 2024 and actions to be taken later in 2024 and beyond.

2. Reporting Progress on CEAP

The inaugural 2022 CEAP Progress report laid the foundation for reporting and measuring progress on the CEAP. The foundational approach to reporting on CEAP progress acknowledges the complexity of the challenge, the roles, responsibilities, and limitations of all involved (e.g., of an individual, business, municipality, province, etc.), and the availability of data. Approaches taken to report on climate change action plans in other municipalities were also considered as part of the decision to highlight accomplishments and advancements.

Based on on-going review of climate change data and the understanding of what can and cannot be controlled or strongly influenced that impacts greenhouse gas emissions, energy use is now being highlighted at the same level as GHG emissions. Data on energy use has been collected for many years; however, it has not previously received the same amount of attention as GHG emissions. The rationale for increased visibility of this important outcome is that local efforts to reduce energy consumption can become invisible when GHG emissions increase due to other circumstances.

Reporting progress on CEAP covers the following six key outcome areas:

Progress Reporting Outcome Area	Why is it Important to Report Progress in this Outcome Area
1. CEAP Actions by Area of Focus • Actions identified in CEAP by Area of Focus • Indicators of progress towards 2030 Expected Results	Starting and implementing CEAP actions and reporting on indicators are fundamental to achieving the CEAP goals. Progress in this area reflects the prioritization of CEAP actions by City Council, London businesses, community organizations and individuals. After focusing primarily on whether actions had been started in the 2022 CEAP Progress Report, a further categorization of actions as “on target”, “delayed”, or “under review” is included in this report.
2. Climate Actions by Others in the Community • Business and institutional sectors • Individuals, households and community groups • Others nearby (e.g., First Nations, municipalities, businesses, non-profit organizations)	Actions are required from all sectors of London and the measurement or reporting of progress in this area highlights and supports the efforts throughout the community by diverse climate action participants.

Progress Reporting Outcome Area	Why is it Important to Report Progress in this Outcome Area
3. Other Levels of Government • Provincial • Federal • International	Other levels of government have a significant effect on the ability of a municipality, business, household or individual to take climate action. Reporting progress on climate action by other levels of government is required to establish the context under which local actions may be affecting GHG emissions reductions and resilience improvements.
4. Energy Use • Corporate energy use • Community-wide energy use	Energy efficiency and conservation (reducing energy use on a per capita and total energy consumption basis) is key to reducing GHG emissions. Progress on this measure is directly quantifiable and core to the purpose of the CEAP.
5. Greenhouse Gas Emissions • Corporate greenhouse gas emissions • Community-wide greenhouse gas emissions	Reducing GHG emissions is one of the three main goals of the CEAP. Progress on this measure is directly quantifiable and core to the purpose of the CEAP.
6. Weather Trends and Impacts • London and Area • Canada • Global	Reporting weather trends and impacts is an important component of tracking a changing climate. Adaptation actions to build a more resilient city need to be based on both existing and anticipated severe weather changes. Weather is also a common starting point with citizens in having conversations about the necessary actions to improve collective resilience to climate change.

These progress reporting outcome areas are addressed in the subsequent sections of this report. Over time, each outcome area will be further defined, and more details provided as information and statistics become available.

3. Progress on CEAP Actions by Area of Focus

The CEAP includes 59 Categories of Actions and contains 200 individual actions, ranging from basic to complex actions, across the 10 Areas of Focus. A list of the actions can be found in the appendices of the core CEAP document or in the "Actions at a Glance" document, both available in the documents section at https://getinvolved.london.ca/climate. A breakdown of the type and progress on actions within each Area of Focus are included in Tables 1, 2 and 3. The majority of actions were scheduled to start between 2022 and 2024.

Of the 200 actions, 56% (111) have a Timeline (deliverables or achievements that can be tied to an end date) and 44% (89) are considered Ongoing Actions (require ongoing efforts and do not have a specific targeted end date). Although climate actions have been slotted into just one Area of Focus, in many cases actions could be in multiple Areas of Focus. This becomes evident when reading through the progress being achieved, the stage of the action and who is involved in the action.

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	18	4
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	7	2
10. Measuring, Monitoring and Providing Feedback	23	2	21
Total	**200**	**111**	**89**

The approach to measuring progress on the CEAP's 200 actions in the inaugural 2022 CEAP Progress Report focused on the number of actions started and/or completed during the first eight months following the plan's approval. To measure interim progress on the actions now that the CEAP is in its second full year of implementation, the actions are categorized into

implementation statuses of either on-track (including completed), delayed, or under review. The implementation status of each action within one of these categories was determined in consultation with each action's assigned Director to accurately reflect efforts in 2023 and to account for internal and external factors that may have impacted the progression and/or expected impact of any action. Considering the difference between implementing timeline and ongoing actions, each implementation status category is further defined by:

Implementation Status: On-track

- Timeline Action: The action has started by the intended start date, is progressing as expected and is projected to be completed by the intended completion date. A completed action is considered on-track.
- Ongoing Action: The action has started by the intended start date and has either reached the desired state (i.e., the change to business as usual or new effort is in place or underway) or is progressing towards the desired state as intended.

Implementation Status: Delayed

- Timeline Action: Actions that have had their completion date extended during the reporting period beyond the intended completion date for any reason (e.g., funding, resourcing, shifting of or competing priorities). Also, any action that has not started by its intended start date and completing the action by the intended completion date is considered unlikely.
- Ongoing Action: Actions that were intended to have started but have not been started on time but are still going to be pursued on an adjusted schedule.

Implementation Status: Under Review

- Timeline or Ongoing Action: Actions that have not been started and/or a clear plan to complete or implement the actions is not available (e.g., the action is no longer interpreted to produce beneficial outcomes or outcomes that have not been achieved already through other means or by other involved parties, legislation or regulations have changed in such a manner as to prevent the action from occurring, and/or discussion remains on responsibility for the action).

The number of Timeline Actions intended to start in 2022 or 2023 included in each Area of Focus and the implementation status of those actions are listed in Table 2. Of the 99 Timeline Actions schedule to start in 2022 (71 actions) or 2023 (28 actions), 65 (66%) are on-track, 28 (28%) are delayed, and there are 6 (6%) actions under review. As of May 2024, 15 (15%) actions have been completed (up from only 3 actions having been completed by April 2023) and work has begun on an additional seven actions planned to be started in 2024.

Table 2: 2022 and 2023 Timeline Actions – Status of Implementation

Area of Focus	Timeline Actions	Actions On-track	Actions Delayed	Actions Under Review	Actions Complete
1. Engaging, Inspiring and Learning from People	2	2	0	0	0 (0%)
2. Taking Action Now (Household Actions)	6	4	2	0	1 (17%)
3. Transforming Buildings and Development	13	8	5	0	1 (8%)
4. Transforming Transportation and Mobility	21	18	1	2	5 (24%)
5. Transforming Consumption and Waste as Part of the Circular Economy	16	16	0	0	3 (19%)
6. Implementing Natural and Engineered Climate Solutions and Carbon Capture	7	2	1	4	0 (0%)
7. Demonstrating Leadership in Municipal Processes and Collaborations	21	10	11	0	3 (14%)
8. Adapting and Making London More Resilient	4	1	3	0	1 (25%)
9. Advancing Knowledge, Research and Innovation	7	2	5	0	1 (13%)
10. Measuring, Monitoring and Providing Feedback	2	2	0	0	0 (0%)
Total	**99**	**65 (66%)**	**28 (28%)**	**6 (6%)**	**15 (15%)**

Note: The remaining 12 Timeline Actions are scheduled to start in 2024, seven of which were underway as of May 2024.

The number of Ongoing Actions intended to have started in 2022 or 2023 included in each Area of Focus and the implementation status of those actions are listed in Table 3. Of the 77 Ongoing Actions scheduled to start in 2022 (63 actions) or 2023 (14 actions), 72 (94%) are on-track, 5 (6%) are delayed, and there are no actions under review. An additional six Ongoing Actions scheduled for 2024 have been started as of May 2024.

Table 3: 2022 and 2023 Ongoing Actions – Status of Implementation

Area of Focus	Ongoing Actions	Actions On-track	Actions Delayed	Actions Under Review
1. Engaging, Inspiring and Learning from People	7	7	0	0
2. Taking Action Now (Household Actions)	12	12	0	0
3. Transforming Buildings and Development	3	3	0	0
4. Transforming Transportation and Mobility	8	8	0	0
5. Transforming Consumption and Waste as Part of the Circular Economy	2	2	0	0
6. Implementing Natural and Engineered Climate Solutions and Carbon Capture	5	5	0	0
7. Demonstrating Leadership in Municipal Processes and Collaborations	17	15	2	0
8. Adapting and Making London More Resilient	5	4	1	0
9. Advancing Knowledge, Research and Innovation	2	2	0	0
10. Measuring, Monitoring and Providing Feedback	16	14	2	0
Total	**77**	**72 (94%)**	**5 (6%)**	**0 (0%)**

Note: the remaining 12 Ongoing Actions are scheduled to start in 2024, six of which were underway as of May 2024.

Indicators of Progress by Area of Focus

The workplans found within each CEAP Area of Focus identify over 100 potential indicators of progress that are intended to evolve throughout the CEAP implementation process and be used to characterize the progress towards CEAP goals. The 2023 Progress Report includes 75 indicators (Appendix A), an increase of 9 indicators over the 2022 Progress Report. The indicators highlight the impacts of CEAP actions and show progress towards 2030 Expected Results in the CEAP (Table 4). In addition to the indicators included in the CEAP, measures that have been historically reported in the City's annual Community and Corporate greenhouse gas emission reports are being reported as part of CEAP progress reporting. These are also provided in Appendix A.

A summary of CEAP actions status and progress, including specific examples for each Area of Focus, is included in the following sections of this report.

Table 4: Expected Results for 2030 as Identified in CEAP (April 2022)

Expected Result	Description
Walkable, Complete Neighbourhoods	Ensure Londoners can access nearby daily needs while reducing automobile dependence and improving equity.
Increased Active Transportation and Transit	Increase the viability and attractiveness of active transportation and transit to reduce automobile dependence, improve equity, and promote physical health.
More Zero Emission Vehicles	Reduce or eliminate fossil fuel use in vehicles.
More Net-zero Buildings	Improve energy efficiency and reduce or eliminate fossil fuel use in buildings.
Lower Carbon Construction	Reduce the use of construction materials with high lifecycle GHG emissions from raw material extraction to manufacturing and final end-use/disposal. Design for less material use overall and utilize recycled products where possible.
More Resilient Buildings and Infrastructure	Build and maintain civic infrastructure and buildings to increase public safety and reduce unexpected and long-term cost burdens as a result of climate change.
More Carbon Capture	Protect, maintain, and improve London's natural heritage system, urban plantings and agricultural lands to reduce carbon in the atmosphere, support biodiversity, and reduce the effects of climate change.
Move Towards a Circular Economy	Support our economy's transition to reduced emissions from consumption and waste, more efficient material use, and the creation of regenerative prosperity.
Increased Community Resilience	Improve Londoners' ability to withstand, adapt, and recover from extreme weather events and other impacts of climate change.
Increased Engagement on Climate Action	Improve education, awareness, and engagement to accelerate action on climate change by businesses, employees, community groups, institutions and individuals.

In Summary

Approximately 87 per cent of the 176 CEAP 2022 and 2023 actions, both Timeline and Ongoing Actions, have been started by City staff or by organizations in London. About 78 per cent of the combined Ongoing and Timeline Actions slated to start in 2022 or 2023 are on track, while 19 per cent are delayed and 3 per cent are under review. Fifteen Timeline Actions have been completed, representing 15 per cent completion of actions with a defined completion target. Reporting on indicators of progress has continued and expanded compared to the previous Progress Report and will continue to grow as more data are compiled, reviewed and made available.

3.1. Engaging, Inspiring and Learning from People

Area of Focus 1 has nine actions focusing on engaging, inspiring and learning from people, two of which are Timeline Actions (with a defined anticipated finish date) and seven are ongoing (actions that are changes or additions to business as usual). All nine actions have been initiated since the approval of the CEAP.

Total Actions	Timeline Actions	Ongoing Actions	Actions On-track	Actions Delayed	Actions Under Review	Timeline Actions Completed
9	2	7	9 (100%)	0 (0%)	0 (0%)	0 (0%)

Highlights of work initiated and underway as part of Area of Focus 1 include:

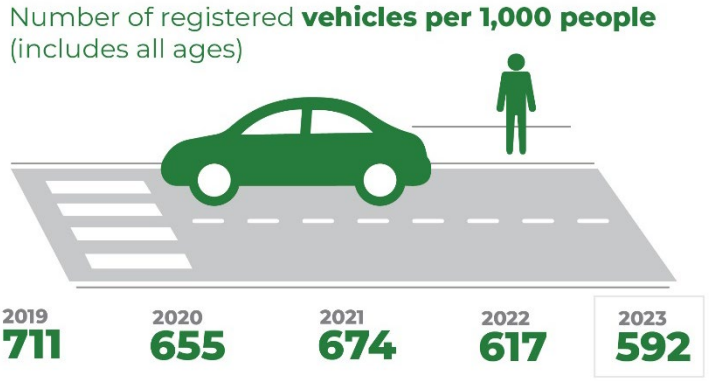
- Several community organizations, led by Climate Action London, and City staff continued with participation in the Tamarack Institute Community Climate Transitions (CCT) Network in 2023, focused on education and support for community-driven collective impact on climate change. In 2023, the number of member jurisdictions in the CCT Network grew from 17 to 30 and London had the largest representation of all participating jurisdictions. Several communities that joined in 2022 or 2023 have continued as returning members, but London has done this while also widening the circle and bringing more people on to take part in the new members cohort. Participation in this initiative is helping form new relationships, strengthening existing connections, and increasing knowledge and capacity for collective action on climate change.

- Western University offered two semesters of a free, publicly available online course titled “Connecting for Climate Change Action” in 2023. Connecting for Climate Change Action is a course that uses a storytelling approach to bring Western and Indigenous Sciences together to educate, encourage discussions, and motivate action on climate change. This innovative, experiential, online learning opportunity engages and stimulates learners to action to mitigate climate change. The course has attracted 1,700 attendees with a significant portion from London and surrounding communities.

- The CEAP is one focus of the Environmental Stewardship and Action Community Advisory Committee (ESACAC) to Council. ESACAC advises on implementation of the CEAP and has demonstrated its ability to carry issues from the public into the implementation process, as well as suggest and/or recommend methods and initiatives to share information with Londoners. In 2023, ESACAC provided input on several CEAP issues including bird friendly design aspects for buildings, lawn naturalization to improve resilience and support biodiversity, and the importance of green infrastructure.

- In 2023, community engagement for Phase 1 of the Mobility Master Plan (MMP) was completed. Focusing and engaging in this area is key to the future success of CEAP:

- The first phase of engagement for the MMP was designed to gather information about Londoners' experiences moving around the City. This information provided an improved understanding of what the community cares about, the challenges that exist, and what the community wants out of a transportation and mobility system;



See Appendix A for more performance indicators

- City staff worked with Community Connectors (i.e., individuals with diverse backgrounds, networks and skillsets, who speak multiple languages), City of London Anti-Racism and Anti-Oppression Community Liaison Advisors and multi-disciplinary staff. This team integrated census data and advice from various experts in transportation and mobility as part of the process to develop a robust outreach list and strategies to reach people from equity-denied communities, varying geographies and socio-economic backgrounds; and

- Further details on engagement and the MMP can be found in Area of Focus 4 (Transforming Transportation and Mobility).

- Green in the City, an awareness and education initiative focusing on the environment and climate change ran from November 2023 to April 2024, including events at different libraries and City facilities across London. This change in venues increased accessibility for those wishing to attend in-person. The initiative is an active collaboration between London Public Library, London Environmental Network and the City, and covers many topics related to CEAP with a focus on individual action and behaviour change to support climate action. The event series ended in April 2024 with a marque event at Wolf Performance Hall that included remarks from Mayor Josh Morgan.

- The development of, and community engagement for, the 2024-2027 Multi-Year Budget (MYB) started in 2023. Climate action, adaptation, sustainable development, resilience, sustainable transportation and mobility, were items being raised by the community and brought to Council's attention directly or through budget business cases and business plans.

- Since the approval of the Climate Emergency Action Plan (CEAP) in April 2022, the City has undertaken numerous community engagement events and initiatives to promote climate action and foster dialogue. Over the last year, City staff have actively participated in more than 54 events and meetings, both in-person and virtually, where they presented CEAP information and displayed related materials. These efforts aimed to engage a broad audience and encourage community involvement in climate action initiatives. The extensive outreach efforts have successfully engaged approximately 14,000 individuals, reflecting a

significant increase in public participation and awareness. City staff's proactive approach included tailored presentations and interactive displays, which helped to convey the importance of the CEAP and the city's climate goals. By targeting diverse groups and utilizing a mix of engagement strategies, the City has been able to reach a wide range of Londoners, fostering a community-wide commitment to addressing climate change. These activities underscore the City's dedication to ensuring that residents are informed and involved in the ongoing climate action efforts. The high level of engagement achieved through these events and initiatives demonstrates the community's growing interest and support for the City's climate action plan.

- London's Get Involved website for the CEAP (https://getinvolved.london.ca/climate) is the main location for online engagement and information for Londoners. There are numerous reports, videos, links and graphics available for those interested in climate action. The content was updated in 2023 to reflect the first Progress report and Update report on the CEAP. The most popular documents visited and downloaded in 2023 were:
  - Climate Emergency Action Plan full report (1,481 downloads by 912 unique visitors);
  - Supporting Document 10 of the CEAP – Federal Government Climate Change Information Roles and Responsibilities (1,576 downloads by 743 unique visitors);
  - Supporting Document 9 of the CEAP – Provincial Government Climate Change Information Roles and Responsibilities (728 downloads by 351 unique visitors); and
  - The Climate Emergency Action Plan – Actions at a Glance (584 downloads by 258 unique visitors).

- CEAP and other environmental messaging was included in the 2024 Waste Reduction and Conservation Guide that was inside the Green Bin when it was delivered to approximately 120,000 homes. Each bin also had the #LdnOntClimateAction graphic on the lid.

- The City's communication outreach in 2023 integrated the CEAP into many areas, most significantly in the effort to support the roll-out of the Green Bin program, which commenced in January 2024. Extensive communication efforts were required to prepare Londoners for the shift in waste and recycling services with the introduction of the new service and these efforts from September 2023 to March 2024 included:
  - Social media posts about the Green Bin program and collection schedule changes made more than 2 Million impressions;
  - london.ca/CollectionCalendar had 438,000+ visits by 235,000+ unique visitors (almost four times more the amount of visitors when compared to the same time period the previous year);
  - The new london.ca/GreenBin webpage had 100,000+ visits by 68,000+ unique visitors;
  - The new City's online Zone Finder application was used 294,000+ times;
  - More than 21% of all London.ca website visits were to the City's waste management webpages (compared to 9% during the same time period the previous year); and,
  - An educational webinar in partnership between the City of London, London Environmental Network, and London Public Library about the Green Bin program had 700+ attendees online and has since been watched 1,100+ more times on YouTube.

- In addition to the CEAP taking a centre roll in Green Bin communication efforts, CEAP was integrated in the following projects and/or initiatives:
  - Education campaigns around cargo e-bikes and e-scooters;

- Green in the City continued with some great speakers and events;
- promoting climate action and awareness continued to be a part of the annual Clean and Green campaign;
- June's Bike Month campaign;
- Stormwater projects in 2023 and 2024, including Mud Creek and Harris Park, which had significant climate change adaptation components;
- Communications and promotion of EarthFest;
- Continued support of tree giveaway events, and a successful new fruit tree giveaway with Urban Forestry in 2023;
- MMP and CEAP participated in the 2023 EV open house at London Hydro, which also continued in 2024;
- Continued updating of the Climate Action at Home webpage (London.ca/climateaction) to promote available incentives, solar panel information, water conservation, emergency preparedness and flooding prevention. This page also highlights home energy efficiency opportunities that support local economic opportunities for businesses;
- Several CEAP highlights and updates provided in the CityGreen publication delivered to over 80,000 homes and businesses and placed on-line at the CityGreen page on the City's website; and
- Continued support for the fats, oils and greases (FOG) cup, a popular solution that has been available for Londoners to manage FOG and keep it out of sewers.

3.2. Taking Action Now

Area of Focus 2 has 18 actions focusing on taking action now (household actions), six of which are Timeline Actions and 12 are ongoing. Overall, 17 of the 18 actions have been initiated since the approval of the CEAP.

Total Actions	Timeline Actions	Ongoing Actions	Actions On-track	Actions Delayed	Actions Under Review	Timeline Actions Completed
18	6	12	16 (89%)	2 (11%)	0 (0%)	1 (17%)

Highlights of work initiated and underway as part of Area of Focus 2 include:

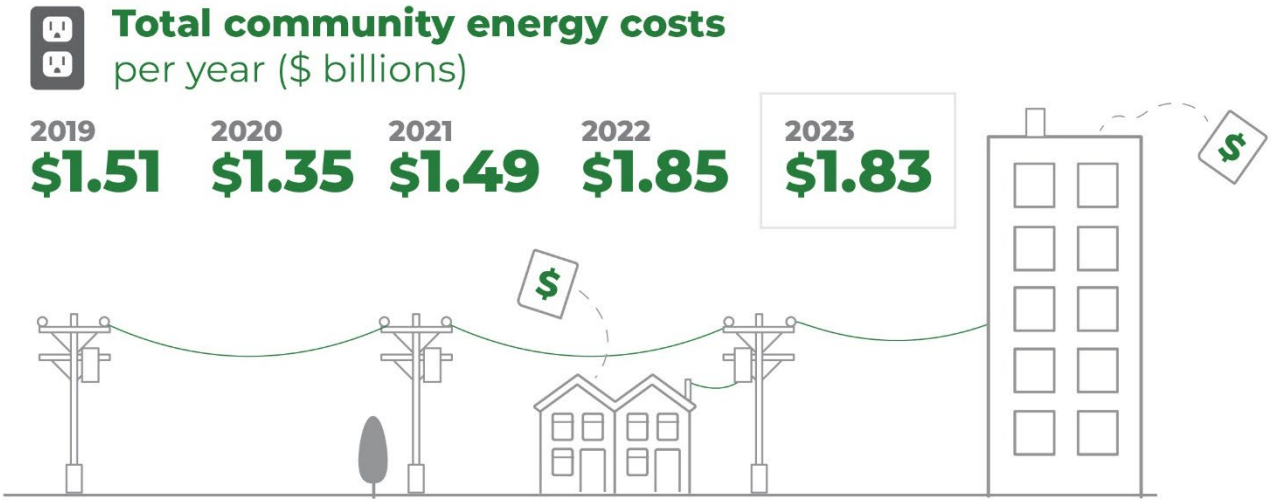
- The City continued its support and promotion of Project Neutral, a personal carbon footprint calculator, in 2023. Project Neutral's program called "Talk Climate to Me", a women-focused initiative to improve the collective understanding and improve conversations on climate change, was also promoted and supported through hosting three fall sessions with facilitation from London's Community Connectors. A new program called "Keep it Cool Classroom" was also supported, which saw Project Neutral staff engage with students and teachers in classroom settings with pre-made lesson plans centred on positive climate action.

- The City's 2023 Neighbourhood Decision Making program included the award of $250,000 to community groups across London to help make the city's many great neighbourhoods even better. This year's 15 winning ideas that were voted on by Londoners contributed to increasing the program's connection to the CEAP, with 37% of all funded ideas since the

program's inception directly aligned to the CEAP. Ideas aligned to the CEAP in the 2023 winning ideas included "London's Free Fruit: Creating a culture of sharing in Grand View Park" and "Tree Planting at St. Nicholas Catholic School".

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

- In partnership with MyHeat, the City tested the use of MyHeat Solar from January 2023 to March 2024. This was an online application available to Londoners to identify the financial and environmental benefits solar panels would have on their roof. By the end of the pilot project, the site has seen over 12,000 unique visitors with over 4,000 London homes being assessed for solar power potential. In addition, 68 applications were submitted to London Hydro for net-metered solar projects in 2023.



See Appendix A for more performance indicators

- City staff provided support for Enbridge Gas to promote their hybrid heating pilot that replaces older central air conditioning units with air-sourced heat pumps, using intelligent controls to improve and optimize the use of zero-emission heating in combination with existing high-efficiency gas furnaces. The program was sold out with 100 installations in London and led to the larger, Province-led Clean Home Heating Initiative which expanded to eight cities in Ontario (including London). London has 665 homes participate in the Clean Home Heating Initiative, which was the highest participation rate of all eight cities.

- An e-scooter and cargo e-bike pilot is underway to encourage the use of these transportation options. Data analysis of observed behaviours is completed and collection of other stats (e.g., accidents and injuries) is underway.



See Appendix A for more performance indicators

3.3. Transforming Buildings and Development

Area of Focus 3 has 22 actions focusing on transforming buildings and development, 18 of which are Timeline Actions and four are ongoing. Overall, 19 of the 22 actions have been initiated since the approval of the CEAP.

Total Actions	Timeline Actions	Ongoing Actions	Actions On-track	Actions Delayed	Actions Under Review	Timeline Actions Completed
22	18	4	16 (73%)	5 (23%)	1 (4%)	1 (6%)

Highlights of work initiated and underway as part of Area of Focus 3 include:

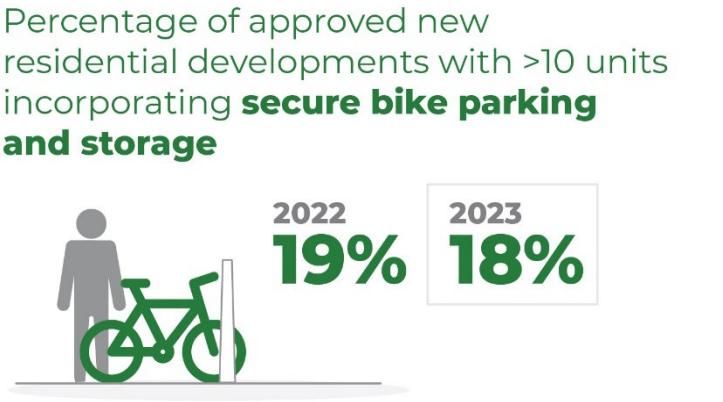
- London is one of seven municipalities Canada-wide participating in the Canadian Home Builders' Association (CHBA) project - Towards Cost-Effective Net-Zero Energy Ready Residential Renovations. This CHBA project is providing training to local renovators to safely renovate homes to net-zero ready levels of performance. The CHBA project also involves the selection of up to 20 homes in London to be retrofitted to net-zero energy ready standards as per the CHBA's Net Zero Home Labelling Program requirements.

- Staff reports provided to the Planning and Environment Committee of Council in 2023 regarding development approvals trialled a new appendix that amalgamated relevant information about the proposed development's climate emergency considerations. Information presented in the appendix of each report addressed the proposed development's characteristics and/or attributes relating to infill and intensification, complete communities, auto-dependence, natural environment impacts, embodied carbon in existing structures and power sources.

- Climate considerations continue to be integrated in the advancement of the ReThink Zoning process however, a pivot in the approach to completing the update to the Zoning By-law has been initiated to support the work associated with the Housing Accelerator Fund funding received from the Federal Government. Key components of the Zoning By-

law that impact the ability to create more housing will be addressed prior to the full By-law revision.

- An enterprise-wide group of City staff are working to update and revise the Site Plan Control By-law and Design Specifications and Requirements Manual, which are foundational documents that guide the requirements for development across the city. This process includes the application of the Climate Lens Framework to proposed revisions to ensure that they reflect the ambition and commitment of Council to address climate change.



See Appendix A for more performance indicators

- A review of existing Community Improvement Plan (CIP) Programs was completed by Planning and Economic Development which included the evaluation of potential additions and/or revisions to support building energy efficiency upgrades and resilience measures. Given the current housing shortage, the receipt of funding through the Housing Accelerator Fund, and prioritization of downtown revitalization, a CIP targeting support for converting vacant commercial space into residential space was advanced.

3.4. Transforming Transportation and Mobility

Area of Focus 4 has 30 actions focusing on transforming transportation and mobility, 22 of which are Timeline Actions and eight are ongoing. Overall, 25 of the 29 actions intended to be started in 2023 or earlier have been initiated.

Total Actions	Timeline Actions	Ongoing Actions	Actions On-track	Actions Delayed	Actions Under Review	Timeline Actions Completed
30	22	8	27 (90%)	1 (3%)	2 (7%)	5 (23%)

Highlights of work initiated and underway as part of Area of Focus 4 include:

- City transportation infrastructure renewal and new construction activities included the installation of 6,800 metres of sidewalks which has reduced the number of streets without sidewalks within London's urban growth boundary to 27.52% from 28.4% in 2022.

- The finalization and preparation for launch of a Transportation Management Association (TMA) took place in 2023. Under the name "Smart Commute London", the TMA is intended to support the mobility needs of Londoners and London's employers. Smart Commute London was launched successfully in early 2024.

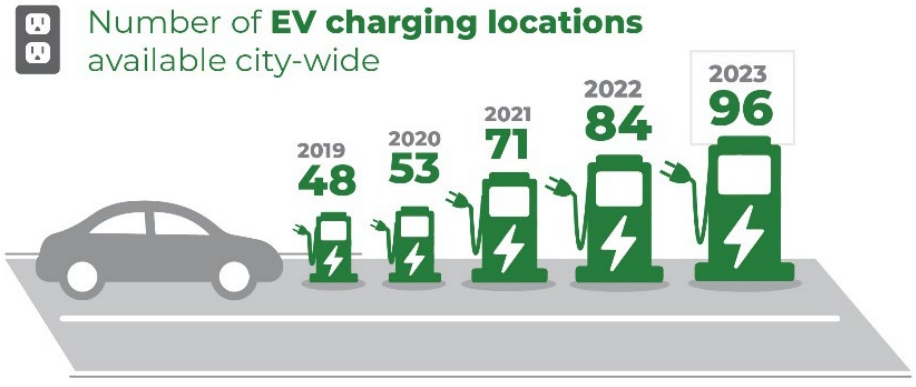
- The Connected and Automated Vehicle Plan was approved by Council in June 2023, which will be used by decision-makers who are responsible for the implementation and maintenance of public infrastructure which will be impacted by the emergence of connected and automated vehicles.

- The Mobility Master Plan process progressed through Phase 2: “Explore Solutions and Make Connections”. A report on the Mobility Master Plan 2050 Mode Share Target was submitted to the Civic Works Committee in October and on November 7, 2023, Council resolved that the Mobility Master Plan 2050 Mode Share Target report be referred to a future meeting of the Strategic Priorities and Policy Committee in early 2024 to be aligned with the discussion related to the land use study and intensification.

- In December 2023, City staff from Fleet and Facilities released a new Fleet Optimization Procedure to establish guidelines for fleet governance decisions with respect to asset underutilization, replacement, and fleet composition. The intention of the policy is to ensure the City’s fleet of rolling vehicles and equipment are providing the best overall value to the City, by implementing clear delegated authorities for fleet replacement decisions and total complement. The procedure supports Fleet Services in undertaking effective asset management and business practices that reflect good financial stewardship and reduce greenhouse gas emissions.

- Significant cycling infrastructure projects built in 2023 included Bradley Avenue cycle tracks, Quebec Street protected bike lanes, and Cheapside Street bike lanes.

- The City participated in the redevelopment of the School Travel Planning program to create a more streamlined, less intensive process with an automated Assessment Tool that provides schools with a customized Action Plan including resources based on each concern/barrier identified by the school. In addition, the City of London and Healthy Way Consulting conducted research to develop preliminary recommendations on what is needed to create and implement a Bike Train program in local elementary schools including an Implementation Guide & templates, assessing current infrastructure, and instituting equity programs.

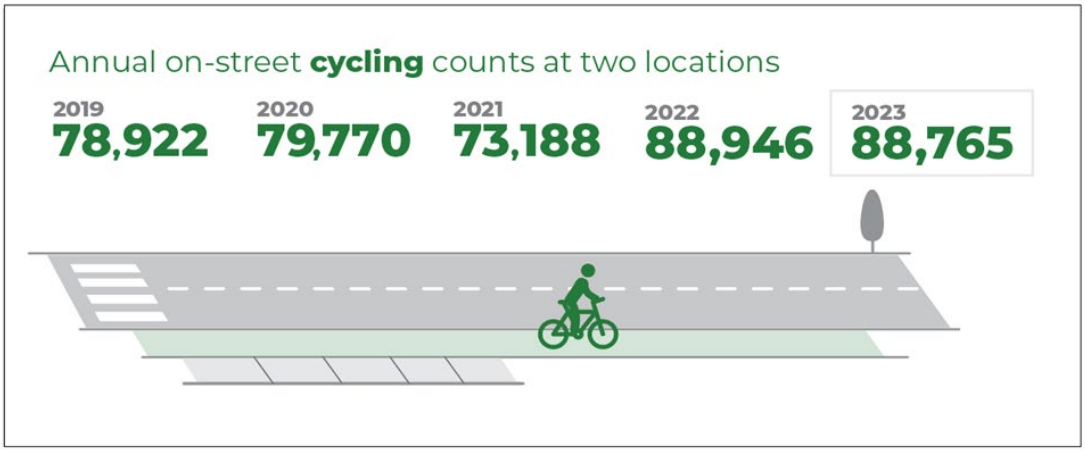


See Appendix A for more performance indicators

- London’s Rapid Transit infrastructure program is proceeding as planned. The Downtown Loop is over 75% complete, the East London Leg is roughly 27% complete and the Wellington Gateway segment is approximately 16% complete (as of April 2024). Work on each segment includes efficiency gains through coordinated infrastructure renewal for services requiring upgrading as they approach their end of service life.

- The City is participating in the Province of Ontario's pilot program to test the use of personally-owned e-scooters on London's roads and multi-use pathways, including collecting information on their use. City of London by-laws have been updated to permit their use.

- The City is participating in the Province of Ontario's pilot program to test the use of personally-owned cargo e-bikes (i.e., e-bikes that weigh more than 55 kilograms) on London's roads and multi-use pathways. City of London by-laws have been updated to permit their use.



See Appendix A for more performance indicators

3.5. Transforming Consumption and Waste

Area of Focus 5 has 21 actions focusing on transforming consumption and waste as part of the circular economy, 19 of which are Timeline Actions and two are ongoing. All 18 of the 21 actions intended to be started in 2023 or earlier have been initiated.

Total Actions	Timeline Actions	Ongoing Actions	Actions On-track	Actions Delayed	Actions Under Review	Timeline Actions Completed
21	19	2	21 (100%)	0 (0%)	0	3 (16%)

Highlights of work initiated and underway as part of this Area of Focus include:

- Supply chain issues were overcome and final preparations for the start of London's Green Bin program were completed in late 2023, including the delivery of Green Bins to approximately 125,000 London households. Collection of Green Bin materials subsequently began in January 2024 with an initial participation rate measured at an encouraging 40 per cent, which has grown in the months following launch to approximately 60 per cent. Additional work is underway in 2024 to expand the Green Bin program to multi-unit residential buildings.

- The Blue Box transition from the previous shared responsibility model (i.e., industry and taxpayers share in the cost) into a producer-led responsibility model (i.e., industry pays the majority of recycling costs), often referred to as 'full' or 'extended producer responsibility' (EPR) began in London and area on July 1, 2023, along with several other areas of Ontario. Producer responsibility helps to promote waste diversion; ensures costs of managing products and packaging at their end-of-life is handled by producers, saves taxpayers money and gives producers incentive to redesign products and make them easier to recycle. Preliminary estimates suggest that between $1.5 million and potentially in excess of $4 million per year by 2026 could be saved in London. Due to the overall increase in recycling costs associated with higher inflation, etc. local governments in Ontario will be benefiting from not having to pay 50% of the increasing future costs.

- Food waste avoidance (reduction) is a key priority within Area of Focus 5. Recent work has continued in the following areas:
  - Academic research and pilot projects (with Western University) involving tools, techniques and other incentives to reduce residential food waste;
  - Waste composition studies that identify avoidable and unavoidable food found in the garbage bag; and
  - Financial quantification of the cost of waste food.

- The London Waste to Resources Innovation Centre is a collection of projects, pilot projects, research and policy analysis that focuses on many aspects of the circular economy. In 2023, the academic and research component, under the direction of Professor Franco Berruti, came to a conclusion as part of the NSERC Industrial Research Chair in Thermochemical Conversion of Biomass and Waste to Bioindustrial Resources Western University. This Chair was developed to tackle the challenges of waste generation by increasing resource recovery opportunities and moving towards a circular economy, aiming at a zero-waste with zero greenhouse gas emissions from the waste sector. The research focused on the development of innovative and practical solutions to turn items that are usually sent to disposal into valued resources. The next steps for the London Waste to Resources Innovation Centre will include a focus on the circular economy.

3.6. Implementing Natural and Engineered Climate Solutions and Carbon Capture

Area of Focus 6 has 15 actions focusing on implementing natural and engineered climate solutions and carbon capture, eight of which are timeline actions and seven are ongoing. Overall, eight of the 12 actions intended to be started in 2023 or earlier have been initiated.

Total Actions	Timeline Actions	Ongoing Actions	Actions On-track	Actions Delayed	Actions Under Review	Timeline Actions Completed
15	7	8	10 (67%)	1 (7%)	4 (26%)	0

Highlights of work initiated and underway as part of Area of Focus 6 include:

- In November 2023, the City purchased 55 hectares of rural agricultural land at 1462 Westminster Drive, including 17 hectares of the Tenants Pond Environmentally Significant Area (ESA), which will now be protected in perpetuity. In addition to the preservation of the existing natural heritage, the remaining 38 hectares of farmland are intended to be naturalized in the years ahead to provide compensation for the removal of natural heritage required to facilitate City infrastructure projects elsewhere in London.

- City staff participated in a program administered by the Natural Assets Initiative (NAI) called the Natural Asset Management Roadmap Program to further integrate natural assets into London's Corporate Asset Management (CAM) Plan. Staff from numerous Service Areas participated in facilitated workshops and contributed to the assessment of the level of maturity of natural asset management in the categories of policy and governance, people and leadership, data and information, planning and decision-making, and contribution to asset management practices. The draft London-specific Natural Assets Management Roadmap was completed in 2024 and can be integrated into the CAM Plan following appropriate consultation and Council endorsement.

- Staff from Green Communities Canada and the London Environment Network completed a set of interviews, document reviews and analysis of London's green infrastructure and associated management systems to inform the creation of a "Pathway for London to become a Living City" report based on Green Communities Canada's Living City Framework. This report provided recommendations on the incorporation of green infrastructure into City initiatives for broad consideration and is considered a welcomed input to the Climate Change Adaptation Plan creation process underway in 2024.

- City Urban Forestry staff established test plots in 2023 to monitor and track forest carbon attributes over time. It is anticipated that it will require approximately three years to gather baseline information for all City woodlands.

- Urban Forestry and Climate Change staff attended the local London and St Thomas Association of Realtors (LSTAR) member trade show in 2023 to help advance public engagement in London's tree canopy cover goals through educating realtors on the benefits and importance of urban trees. This effort equipped many realtors with the knowledge to achieve successful targeted messaging for new and existing homeowners and landlords.

- Upper Thames River Conservation Authority continues to be contracted to manage London's Environmentally Significant Areas (ESAs), which includes the expertise and training to respond to woodlot fires that are inaccessible to London Fire Department equipment.

- The City has reinvigorated the former Veteran Tree Incentive Program and rebranded it the Tree Canopy Conservation Program, which is an adjusted pilot program to provide grant funding to residents for eligible activities that promote better plant health or integrated pest management. The former program was only available to support Distinctive Trees, but the

revised pilot program is available to support trees of any size to help London build a resilient stock of younger trees to replace older trees.



See Appendix A for more performance indicators

3.7. Demonstrating Leadership in Municipal Processes and Collaborations

Area of Focus 7 has 44 actions focusing on demonstrating leadership in municipal processes and collaborations, 24 of which are Timeline Actions and 20 are ongoing. Overall, 29 of the 38 actions intended to be started in 2023 or earlier have been initiated.

Total Actions	Timeline Actions	Ongoing Actions	Actions On-track	Actions Delayed	Actions Under Review	Timeline Actions Completed
44	24	20	31 (70%)	13 (30%)	0	3 (13%)

Use of the City's Climate Lens Framework has continued, with many work groups within different City of London Service Areas using the approach to embed climate considerations into decision-making. In addition to the continued use of the Climate Lens Framework in many work groups and applications, some notable new projects and initiatives where portions of the Climate Lens Framework were or are actively being used include:

- Evaluation of proposed additions and changes from City staff and external engaged parties to the Design Specifications & Requirements Manual (DSRM) as part of a planned update to the document.

- Further incorporation of Environmental, Social and Governance considerations into business plans and business cases submitted by all Service Areas for the Multi-Year Budget process.

- Staff from the Continuous Improvement team within the Strategy and Innovation Division are exploring the inclusion of a climate lens component in a forthcoming standardized initiation process for corporate projects.

- A customized Climate Emergency Screening Tool (CEST) has seen continued use in Transportation Planning and Design in 2023 with the tool used to evaluate more road infrastructure projects, including its integration into the Oxford Street West Environmental Assessment.

- Planning for the Harris Park shoreline improvements work beginning construction in 2024 included a detailed greenhouse gas and resiliency assessment incorporating the key elements of the Climate Lens Framework.

- Completion of two pilot projects as part of the City's Corporate Master Accommodation Plan and Alternative Work Strategy included post-pilot sessions where climate change mitigation and adaptation information were collected. These projects included climate lens input to ensure planning and evaluation processes accounted for climate change considerations and post-pilot focus group input indicated that staff knowledge and appreciation for climate change issues increased as a result.

- 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.

- The Mobility Master Plan continues to include climate lens input throughout the process and engagement efforts with Londoners have included direct references and ties to the CEAP.

In addition to the internal use of the Climate Lens Framework by City staff, continued requests for information and collaboration with representatives from other municipalities across Canada has occurred as other jurisdictions continue their journeys to integrate climate change considerations into decision-making.

Other highlights of work initiated and underway as part of Area of Focus 7 include:

- 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.

- 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.

- Staff have created a 30-minute training module on climate change awareness, the CEAP, Climate Lens Framework, and the recently launched Smart Commute program using the same software and process for development as other internal training programs for City staff. This training module, titled “Climate Change Orientation” is now a mandatory inclusion in the new City staff corporate on-boarding training program.

- Preliminary research on green bonds is ongoing through discussions with other Ontario municipalities on a provincial treasury working group and with fiscal agents about the possibility of green bond issuances. City Finance staff have also attended municipal borrowing conferences & seminars and conduct regular monitoring of municipal debt markets as well as municipal debt publications and thought leadership.

- All Multi-Year Budget business cases and assessment growth cases included standardized statements to assess impacts to corporate and community greenhouse gas emissions. These considerations were within a broader Environmental, Social and Governance section required to be completed for all business and assessment growth cases.

- Alignment of CEAP objectives in affordable housing continued, with new affordable housing units constructed in partnership with Canada Mortgage and Housing Corporation (CMHC) meeting or exceeding CMHC’s energy efficiency standards and improved energy efficiency guidance and requirements integrated into the municipally administered Ontario Renovates Program for Homeowners.

- The 2023 Corporate Asset Management (CAM) plan was approved by Council in October 2023. It included preliminary CEAP costings as part of the O. Reg 588/17 supported concept of 'achieving proposed levels of service'. These CEAP costings were prepared by various service areas and aligned with the City's latest strategic plan. The CEAP costs were then included in the CEAP Multi-Year Budget business case submission. Services with readily identified and listed CEAP costings in the 2023 CAM Plan included: Wastewater (Sanitary and Stormwater); The facilities-related assets of Culture Services, Recreation & Sport, Parks Services, Fire, Long Term Care; and Fleet. The CEAP cost estimates and gaps will be refined in future updates of the CAM Plan.

- The City’s Procurement and Supply area continued work on establishing appropriate performance indicators and annual targets for the phased implementation of Sustainable Purchasing section of the Procurement of Goods and Services Policy. A third-party review of the City’s Procurement of Goods and Services Policy is underway and will include a new schedule to provide increased guidance, emphasis and consideration of the incorporation of a sustainable lens as part of evaluation criteria.

- Dearness Home has made several changes to the facility and operations to improve sustainability, including:
  - Moved to paper cups from plastics for disposable cups (for snack and one-time use);
  - Implemented the “Menusuite” online digital solution to provide menus and diet sheets electronically, eliminating printing of menus and the food waste connected to preparing “sample” meals for demonstration;

- LED lighting in the new auditorium is now activated by motion sensors; and
- An energy audit of the building envelope is being conducted to inform the new, more energy efficient HVAC equipment used for heating / cooling the home.

3.8. Adapting and Making London More Resilient

Area of Focus 8 has nine actions focusing on adapting and making London more resilient to the impacts of climate change, four of which are Timeline Actions and five are ongoing. Overall, eight of the nine actions intended to be started in 2023 or earlier have been initiated.

Total Actions	Timeline Actions	Ongoing Actions	Actions On-track	Actions Delayed	Actions Under Review	Timeline Actions Completed
9	4	5	5 (56%)	4 (44%)	0	1 (25%)

In 2023, building upon the work completed with ICLEI Canada (formerly International Council for Local Environmental Initiatives) through their Building Adaptive and Resilient Communities (BARC) Advancing Adaptation program, the City engaged the Climate Risk Institute (CRI) to bolster London's climate change adaptation planning efforts. Experts from CRI, who recently completed Ontario's Provincial Climate Change Impact Assessment on behalf of the Provincial Government in 2023, developed a framework for climate change impact assessment uniquely applicable to Ontario. The London-focused work conducted in partnership with CRI included a framework comparison analysis of London's existing climate change adaptation work and the preparation of recommendations and best practices to strengthen climate change adaptation planning. Progress towards the establishment of London's Climate Change Adaptation Plan is underway, with materials recently released to aide in engagement with Londoners to inform Plan development.

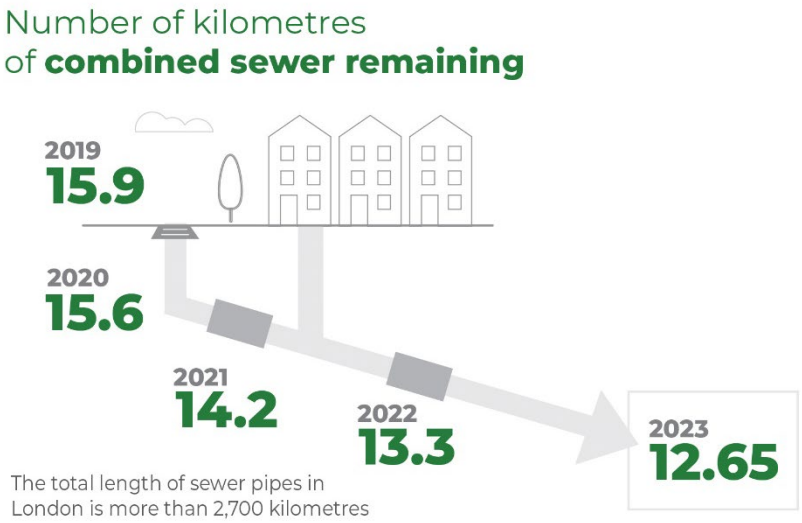
As referenced in Section 3.6 of this report, the "Pathway for London to become a Living City" report based on Green Communities Canada's Living City Framework is another valuable input to the ongoing climate change adaptation planning process. The report's recommendations on the incorporation of green infrastructure are useful alongside the spatial analysis of London completed by HealthyPlan.City, which combines built environment datasets from different sources with demographic data from the Canadian Census to present a picture of environmental equity in urban areas. These resources will help determine areas of London that would benefit most from additional climate change adaptation resources (e.g., areas with vulnerable populations already dealing with low urban tree and high urban heat island effect).

More information on CRI's work and London's Pathway to a Livable City is available at GetInvolved.London.ca/climate where the resources are available alongside a Climate Change Adaptation Discussion Primer that was recently released to support engagement efforts that will inform the creation of London's Climate Change Adaptation Plan.

Additional progress relating to improving London's resilience to the impacts of climate change as part of Area of Focus 8 include:

- In August 2023, the London Environmental Network, with support from the City of London, launched the Responsible pest management Micropilot Program in partnership with Bird Friendly London. The goal of the program was to raise awareness of the negative effects that rodenticides have on wildlife and the environment by providing educational resources and tools to homeowners and businesses to pursue alternative and more responsible methods of rodent pest management.

- Infrastructure renewal projects have continued to include the separation of combined sanitary and storm sewers. Work on projects in 2023 resulted in the separation of an additional 650 metres, reducing the remaining length of combined sewers in operation in London down to 12.65 kilometres (compared to 15.9 kilometres in 2019).



See Appendix A for more performance indicators

- In response to 2023's numerous air quality advisories in London due to smoke from wildfires in northern Ontario, Quebec, British Columbia, and part of the United States, and with the support of FireSmart Canada, City staff created a mapping layer identifying priority zones for heightened forest fire risk. These priority zones are defined by FireSmart Canada, are supported by the Provincial Policy Statement, and are referenced in the Provincial Ministry of Natural Resources and Forests (MNRF) "Fire - Potential Hazardous Forest Types for Wildland Fire" map available publicly from GeoHub (Fire - Potential Hazardous Forest Types for Wildland Fire | Ontario GeoHub (gov.on.ca). As required to implement London Plan policy 397, this mapping layer is intended to be considered such that development as part of any development application to ensure that development shall generally be directed to areas outside of lands that are unsafe for development due to the presence of hazardous forest types for wildland fire.

- The City's Emergency Management Team conducted emergency preparedness public education throughout 2023, including presentations on weather and flooding related personal preparedness and the production of videos and fact sheets. Joint displays and presentations on emergency preparedness with Climate Change staff also occurred at several events through the summer months (e.g., Sunfest). In addition, the Emergency Management Team coordinated a presentation by Environment and Climate Change Canada on severe weather to the Policy Group in November 2023.

- Extreme Weather Alert Notifications are sent by the City of London (through Housing Stability Services) when Middlesex London Health Unit advises of extreme weather to support vulnerable individuals at risk. The distribution list for these notifications includes

external organizations such as shelters, health / mental health, library, outreach, Indigenous, street level women at risk, youth, neighbourhood resources centres, BIAs, and educational institutions; and internal City of London partners. These notifications advise of the extreme weather event and provides a list of resources available to respond (water fountains, resting spaces, drop-in/cooling spaces, emergency shelters, Outreach support including transportation options, wellness checks).

3.9. Advancing Knowledge, Research and Innovation

Area of Focus 9 has nine actions focusing on advancing knowledge, research and innovation, eight of which are Timeline Actions, and one is ongoing. Overall, eight of the nine actions intended to be started in 2023 or earlier have been initiated.

Total Actions	Timeline Actions	Ongoing Actions	Actions On-track	Actions Delayed	Actions Under Review	Timeline Actions Completed
9	7	2	4 (44%)	5 (56%)	0	1 (13%)

Highlights of work initiated and underway as part of Area of Focus 9 include:

- 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. In 2023, several meetings and exchanges with project partners occurred and several stormwater management ponds in London were used as test sites for greenhouse gas emissions research.
    - 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.
- City staff are working with researchers from Western University on a federally funded project for improved multi-scale greenhouse gas emissions modelling from urban environments to enhance mitigation strategies. This work leverages work undertaken by the City of London to implement a tailored CityInSight emissions reduction and financial model for climate actions in London, including the use of this model to help London Hydro forecast future electricity demand associated with climate action.

3.10. Measuring, Monitoring and Providing Feedback

Area of Focus 10 has 23 actions focusing on measuring, monitoring and providing feedback on the CEAP, two of which are Timeline Actions and 21 are ongoing. Overall, 16 of the 18 actions intended to be started in 2023 or earlier have been initiated.

Total Actions	Timeline Actions	Ongoing Actions	Actions On-track	Actions Delayed	Actions Under Review	Timeline Actions Completed
23	2	21	21 (91%)	2 (9%)	0	0

Highlights of work initiated and underway as part of Area of Focus 10 include:

- City staff completed reports for 2023 Corporate and community greenhouse gas emissions, the results of which are discussed in Chapter 7 of this report. More detailed information is included in Appendices B and C.

- City staff worked with Corporate Knights to develop London's first high-level, consumption-based emissions inventory. Consumption-based greenhouse gas emissions refer to those created by providing products and services used by Londoners – from the raw materials to make these products through to their use. In technical terms this is referred to as Scope 3 emissions. These emissions are in addition to local greenhouse gas emissions that are a result of Londoners' and businesses direct use of energy. Although this work was not updated in 2023, the baseline established in 2022 is inferred to still be relevant in 2023.

- City staff worked with the London Community Foundation to incorporate climate and energy indicators into the 2023 Vital Signs Report and on-line reporting system called the Data Hub Data Hub — Be the Change (bethechangelondon.ca).

- As part of the Municipal Net-Zero Action Research Partnership (N-ZAP), which the City of London is a participant, researchers at the University of Waterloo studied 38 municipalities in Ontario in 2023, representing more than two-thirds of the population, and discovered that almost all municipalities publish their sustainability and climate change goals, but under half are formally reporting on their progress.

The City of London participates in several 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, 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. The remaining requirement is for a target to be established for energy access improvement and energy poverty reduction based on the assessment of energy access and poverty in London. See visual supplied the Global Covenant of Mayors on the next page.

- 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, 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.

As noted earlier in this report, the CEAP Areas of Focus reference a set of over 100 indicators of progress that are intended to evolve throughout the CEAP implementation process and be used to report on the progress towards CEAP goals. The 2023 Progress Report includes 75 indicators, an increase of 9 indicators over the 2022 Progress Report (Appendix A).

Some of the new progress measures shed light on how London is growing its stock of residential units, residential unit density, and parking spaces per unit in developments approved, to build upon measures of progress for Area of Focus 3, Transforming Buildings and Development. Many measures now have at least two consecutive years' worth of data and in future CEAP reporting, analysis of these data and their year-over-year trends will be possible to examine the level of progress that city-wide climate action efforts are achieving. In addition, new indicators will be added to support measuring those Expected Results that are currently underrepresented by quantitative data.


BADGES 2023
LONDON - ON
MITIGATION
Inventory
Target
Plan
ADAPTATION
Assessment
Goal
Plan
NEW
ENERGY
Assessment
Goal
Plan
COMPLIANT
COMPLIANCE
CITIES EARN THE COMPLIANCE BADGE WHEN THEY COMPLETE THE MITIGATION AND ADAPTATION PILLARS. THE ENERGY PILLAR IS CURRENTLY NOT REQUIRED TO EARN THE COMPLIANCE BADGE.
www.globalcovenant-canada.org/
The Global Covenant of Mayors for Climate and Energy is the largest global alliance for climate leadership in cities, funded in the Americas by the European Union.
Funded by the European Union
GLOBAL COVENANT of MAYORS for CLIMATE & ENERGY CANADA

4. Progress on Climate Actions in the Community

The following sections provide a few recent examples of climate action and environmental sustainability in the sectors of Businesses and Institutions and Households, Individuals and Community Groups. The items in section 4.1 and 4.2 are in addition to what has been mentioned in section 3. There are many more actions than these occurring in London or in other area that will influence what goes on in London.

The goal in 2023 and 2024 is to strengthen the ability to receive information on climate change actions and to let others know about climate actions being taken across London. The goal is to ensure that individuals, groups, businesses, institutions and organizations are recognized for the work being undertaken, encouraged to do more where possible, and to grow the overall numbers involved by demonstrating change is possible and doable in London.

4.1. Business and Institutional Sectors

Businesses and institutions in London continued to progress climate action and sustainability initiatives in 2023, as evidenced by the continued rise in the percent of London's top employers (those with over 200 employees) reporting sustainability indicators and/or climate action commitments. In 2023, 70% of London's top employers reported out on their climate action or sustainability initiatives, up from 68% in 2022. The actions taken by businesses and institutions around London to reduce environmental harms, improve resilience to the changing climate, and engage in the circular economy are numerous and varied. A sampling of some activities and achievements that occurred in 2023 are as follows:

In recent years, electricity conservation programs have been delivered at the provincial level by the Independent Electricity System Operator (IESO) through programs like Save on Energy. However, locally, London Hydro (Appendix B) continues to support local climate actions, including:

- Hybrid Heat Pump Pilot – The London Hydro and Enbridge Gas hybrid heat pump pilot wrapped up in 2022 (further details provided on the next page under Enbridge). Due to its initial success, the pilot program was extended into 2023. The process of monitoring the technologies' effectiveness in Southwestern Ontario's climate was also completed, which showed that hybrid heating combined with smart controls reduced heating-related greenhouse gas emissions by 40% on average along with a 15% reduction on average for combined utility bills.

- London Hydro has developed a comprehensive Planning Outlook extending to 2050. Additionally, London Hydro is collaborating on the City of London and Western University's Climate Action and Awareness Fund (CAAF) project to enhance multi-scale, city-wide energy and emissions modeling based on the CityInSight modelling work currently underway.

- In anticipation of increased load growth from decarbonization and electrification efforts, such as the adoption of electric vehicles and heat pumps, London Hydro has implemented several proactive measures:
  - A program utilizing smart meter data to monitor transformer loading and identify overloaded transformers;
  - New standards with higher capacity for servicing new and rebuilt residential neighbourhoods; and
  - Ongoing exploration of various load control technologies.

- Green Button - Having been a lead partner in the worldwide development of the Green Button initiative since 2012, Londoners continue to have access to standardized energy consumption and billing data to manage and make choices around their energy usage and electricity carbon footprint. London Hydro has collaborated with nine utilities on launching Green Button solutions, which will allow over 600,000 customers in Ontario to better view and manage their energy usage.

- Energy Conservation Resource Advocacy - London Hydro, through the Electricity Distributors Association and working with member utilities, led the provincial effort advocating for a return of electricity conservation resources to the local level, with a core objective of creating resources locally that will ultimately support municipal climate emergency action plans province-wide.

- Public Electric Vehicle Charging - London Hydro's three curbside electric vehicle charging locations saw 2,600 charging sessions in 2023 – an average of over seven per day – as electric vehicle adoption accelerates and the desire for public charging grows.

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 of London staff to share updates on activities and explore opportunities for collaboration. The hybrid home heating pilot in London, in partnership with London Hydro, is one high-profile example of a project that originated from these regular meetings. Building on the success of the original London pilot, in September 2022, the Province of Ontario announced that it was providing up to $4.5 million through the Clean Home Heating Initiative to bring hybrid heating to up to 1,000 households in eight cities across Ontario including London. Upon conclusion of the pilot project in March 2024, 665 of these households were from London.



See Appendix A for more performance indicators

Enbridge's conservation programs, such as Home Efficiency Rebate Plus, Home Winterproofing, and Savings By Design for commercial buildings, form the

backbone of many climate actions undertaken by Londoners and London businesses. Participation in these programs in London include:

- 991 households participating in the Home Efficiency Rebate Plus program,
- 203 households participating in the Home Weatherization and other lower-income free upgrade programs,
- 18 custom projects for lower-income multifamily rental buildings, and
- 41 commercial building and 7 industrial projects.

In total, Enbridge estimates a total savings of over 3.8 million cubic metres of natural gas per year from these measures, which would result in a greenhouse gas emissions reduction of over 7,400 tonnes per year.

The Upper Thames River Conservation Authority (UTRCA – Appendix C) is currently developing three high level strategies: a Strategic Plan, a Watershed-based Resource Management Strategy, and a Conservation Areas and Lands Strategy. These plans all recognize that a healthy natural heritage system and water resource system are the foundation of a sustainable and resilient community, and outline nature-based solutions to challenges posed by climate change.

The UTRCA works with many partners in London and throughout the upper Thames River watershed to mitigate and reduce the impacts of climate change and empower youth and community members. Examples include:

- Carrying out hazard management through prevention, mitigation, and preparedness. Prevention includes actions taken to prevent flood-related emergencies or disasters from occurring, such as land use planning and regulatory restrictions to keep development out of floodplains and other hazardous areas that are more vulnerable to the effects of climate change. The UTRCA reviews land use planning applications, as delegated by the province, and regulates development within hazard lands through Ontario Regulation 41/24: Prohibited Activities, Exemptions and Permits;
- Updating and maintaining information on flood and erosion hazards and the watershed's natural features;
- Partnering with local agricultural producers and rural landowners in sequestering carbon through conservation farming practices, including planting more than 22,000 trees, completing 5 wetland projects, and undertaking other naturalization projects to mitigate the impacts of changing weather patterns;
- Working with schools from elementary to post-secondary in London and elsewhere, through curriculum-based in-class learning and on-the-ground projects that incorporate climate change mitigation and adaptation concepts and efforts, such as GREEN Leaders (12 local Grade 7/8 classes) and Stream of Dreams;
- Partnering with University of Waterloo in 2024 to include carbon and silica analysis in sample collection within the headwaters of Medway Creek to integrate research on the impacts of climate change into monitoring programming. The monitoring program will continue throughout 2024;
- Providing technical training and certification opportunities on Low Impact Development (LID) for municipal staff, consultants, and academia, as well as LID workshops for London

homeowners through London Environmental Network's Residential Rain Garden Program. In March 2024, offered a Low Impact Development Design and Construction Workshop at the Watershed Conservation Centre for Construction Project Management students at Fanshawe College, with 35 attendees;
- Working with community groups, landowners, small business, industry, and the City of London to protect, restore, and create natural features through naturalization projects;
- Doors Open London / Green in the City at Fanshawe Conservation Area (September 21, 2024) - UTRCA will host the kick off event for Green in the City in partnership with the City of London, London Environmental Network, and London Public Library with activities and events focused on climate change awareness;
- Hope and Action in a Changing Climate (November 1-2, 2024) - UTRCA, in partnership with the Thames Talbot Land Trust, City of London, and other community partners, will hold a community event to celebrate and share positive actions that are being taken by various organizations across the city around climate change; and
- The UTRCA's large tracts of natural spaces increase the resilience of both rural and urban environments to more frequent and severe weather events. The 1,200 hectares at Fanshawe Conservation Area and 179 hectares of flood plain and wetland properties within London also lower urban temperatures and provide cooling opportunities for residents.

Sales of units in the first phase of Eve Park, developed by S2E Technologies, began in 2023. Eve Park is a new net-zero community being built adjacent to West 5 in London's west end. This includes an innovative car-share program as part of the development, where each parking garage will house electric cars that residents can book for use, for an hourly fee, through an app offered by Eve Park.

Building on work started in 2022, Langs Bus Lines, which operates hundreds of buses in the region, will receive roughly $44 million for the purchase of 200 electric school buses by 2026. The electric buses will be replacing diesel buses thanks to $22.2 million in funding coming from Ottawa's Zero Emission Transit Fund (ZETF), and a $22.4 million loan from the Canadian Infrastructure Bank (CIB). It's estimated the buses will cut 4,200 tonnes of greenhouse gas emissions every year, about what 550 homes consume in energy annually. Once in service, the 200 electric buses, provided by Quebec-based Lion Electric, will run on Lang's busiest routes in the London, Sarnia, Strathroy, and Woodstock areas, serving more than 9,000 students.

The London Chamber of Commerce 2022-2025 Strategic Plan notes "We can support our member's mandates and the public's demand for business action on environmental sustainability through policy development and educational resources for our members." Discussions with the City and the Chamber are occurring regarding holding a series of climate action awareness events in late 2024.

In 2023 and 2024, Western University continues to grow its academic and research offerings in various disciplines related to climate change including the following facilities and programs:

- Biotron Experimental Climate Change Research Centre
- Campus as a Living Laboratory
- Carbon Solutions @ Western

- Centre for Climate Change, Sustainable Livelihoods and Health
- Climate Change and Society
- Climate Risk Assessment and Opportunity
- Connecting for Climate Change Action a free, publicly available online course
- Human Environments Analysis Laboratory (HEAL)
- Institute for Chemicals and Fuels from Alternative Resources (ICFAR)
- Master of environment and Sustainability
- Thinking Globally Acting Locally (TGAL)
- Western One Health Network (WOHN)
- Western Sustainability

In June 2023, Fanshawe College Professors William Pol and Tom Davis presented to the Canadian Institute of Planners conference on “Converging GHG Emission Reduction Strategies in London Ontario: Three Case Studies.” This presentation highlighted London’s CEAP and progress toward its goals, Fanshawe College’s pursuit of its similar climate change action goals, the net-zero community of West 5 and the interconnection of these three initiatives. In summer 2023, Fanshawe College began construction on a large geothermal heating and cooling system near the northwest corner of campus and substantially completed construction of the new, high energy efficiency Innovation Village on campus to further reduce GHG emissions from buildings.

As one of Canada’s largest research-intensive acute care teaching hospitals and London’s largest employer, London Health Sciences Centre (LHSC) recognizes the environmental impact of their critical operations, and taking tangible actions to promote sustainability in all that they do. In 2023, LHSC advanced several environmental and sustainability initiatives. Some highlights include:

- In 2023, LHSC diverted about 33 per cent of all waste generated from landfill. This is achieved through various waste diversion programs including single stream recycling, confidential paper recycling, de-packaging and clean organics programs, furniture/scrap metal recycling, pallets recycling, and e-waste recycling.

- The organics program at LHSC diverted approximately 450 tonnes of organic waste in 2023, up from 360 tonnes in 2022. The de-packaging organics program – which enables LHSC to recycle unopened or partially consumed organic material still in its packaging that has been returned on patient food trays – made up approximately 350 tonnes of all organic material collected at LHSC in 2023. The second organic stream consists of clean organics collected in retail spaces such as Tim Hortons – this stream diverted approximately 100 tonnes of food waste from landfill in 2023.

- The chilled water system at University Hospital underwent the first phase of a two-phase improvement in 2022-23. The first phase of work involved replacing and upgrading many of the chilled water control valves, removing bypasses, and a few other chilled water circuit related changes. Since the project completion in 2023, we’ve seen a 50 per cent reduction in the required flow rate from 4,800 GPM (gallons per minute) to 2,300 GPM. Because of this flow reduction, we’re saving around 400,000 kWh per year.

- An upcoming project which intends to repurpose exhaust gas energy at the Victoria Hospital Power Plant to create hot water for the hospital has the potential to significantly increase the power plant's efficiency, reduce annual natural gas usage and associated natural gas costs, and decrease greenhouse gas emissions by 15,000 tonnes of carbon dioxide equivalent (CO_2e) per year.

The LHSC Children's Environmental Health Clinic Ontario, Western University, and MINDS of London-Middlesex hosted an "Imaginarium on Nature Prescriptions for Youth Wellbeing" to explore possibilities, needs and limitations of 'nature prescriptions' to support child and youth wellbeing in London, Ontario. Representatives from the City of London's Life Stabilization services attended alongside clinicians, researchers, students and community members.

Lake Huron & Elgin Area Water Supply Systems, the organization providing potable water to London and 14 other Southwest Ontario municipalities, continued its 20+ years of ongoing efforts to reduce its environmental footprint and build resilience to climate change impacts in 2023. Expanding beyond their ISO 14001 Environmental Management System that has already led to significant improvements in energy efficiency, treatment efficacy, waste reduction, risk mitigation and management, the organization completed climate change vulnerability assessments for key infrastructure. As a follow-up to the infrastructure-specific assessments that will inform future projects, a more wholistic climate change vulnerability assessment is also underway to help inform various programs and initiatives. In addition, a new administration building at the Huron Water Treatment Plant will be LEED silver certified and designed to the Canada Green Building Council (CaGBC) Zero Carbon Building Design standard (where feasible), as endorsed by the Huron Water Board in October 2023.

Green Economy London and its 48 member organizations' activities in 2023 included:

- Awarded six Green Project Support grants to members (one $5,000 award and four $2,500 awards) to assist in implementation of sustainability projects;

- Facilitated employee engagement activities including Workplace Green Up, Responsible Pest Management Pilot Program, and Green Wheel (employee commuting);

- Launched the Climate Action Microgrant Program, awarding $2,500 for sustainability projects, supported by HSBC Bank; and

- Awarded Green Leader Awards to The Ice Box, Junction Climbing, MTE Consultants, and Play Away Indoor Park.

4.2. Individuals, Households and Community Groups

In terms of actions taken by individuals and households, details and a few statistics for some include:

- 665 households participated in the Clean Home Heating Initiative (hybrid home heating pilot project) between September 2022 and March 202;

- 1,830 households completed home energy retrofits in 2023 using incentives from Canada Greener Homes and/or Enbridge Gas; and

- 13% of new vehicles registered in London in 2023 were low-emission vehicles; 8.9% were gas-electric hybrid vehicles (no plug) and 4.3% were zero emission vehicles (electric and plug-in hybrid).

In 2023 the London Environmental Network (LEN) supported local CEAP implementation through its programming, notable initiatives are:

- Greener Homes London, completing over 350 EnerGuide Audits / home energy assessments;

- Clean Energy in Remote & Rural Communities: Deshkan Ziibiing Retrofit Pilot - completing a near-net zero home retrofit reducing emissions by 94%;

- Nonprofit Resiliency Project, completing 15 building sustainability walkthroughs for 8 partner organizations that provide housing for equity-deserving individuals;

- Environmental Action Incubator, implementing 6 community projects per year;

- Green Economy London, completing 14 GHG inventories and sustainability reports for Green Economy Leaders; and

- Residential Rain Garden Program, supporting 4 rain gardens to reduce local flooding impacts.

With funding from the London Community Recovery Network (LCRN), LEN implemented the "Green Economic Stimulus: Building Retrofits for Local Residents and Businesses" business case: In 2023, seven Green Economy Leaders were selected to receive retrofit funding for their businesses. Projects included the installation of low-flow bathroom fixtures, building and window insulation, on-site rapid composters, and energy-efficient appliances. These projects reduce emissions, waste, and water consumption in the community while saving businesses on costs, proving that a greener economy is possible for London. A full list of recipients can be found at https://greeneconomylondon.ca/green-project-support-for-earth-month-apply-now/.

To support home retrofits, LEN distributed retrofit rebates to 15 homeowners in 2023 which included eight air source heat pump installation projects, five attic insulation and air sealing projects, and two basement insulation projects. Of these, ten projects utilized London-based contractors and ten were located in an area identified as an energy poverty area. as identified by the Canadian Urban Sustainability Practitioners' (CUSP) Energy Poverty and Equity Explorer tool. LEN will continue the Green Economic Stimulus in 2024.

A number of engagement metrics contained in LEN's 2023 Annual Report include:

- Connecting with 3,055 individuals through 33 outreach events;

- 137 environmental events were listed on the Events Calendar, primarily from local LEN member events; and

- 3,276 event attendees reached through 33 events hosted and co-hosted by LEN.

ReForest London, a not-for-profit organization with the mission to plant and protect trees through community partnerships and education in London achieved significant milestones through its programs in 2023, including:

- Park Naturalizations: With the help of over 1,200 volunteers, 5,848 woody plants were planted in London's parks, totaling over 1,750 volunteer hours. The City of London, foundations, private enterprise, and community organizations were crucial partners in this endeavor.

- Neighbourhood ReLeaf: Over 5,323 trees were distributed to 1,615 households in London, beautifying neighborhoods and benefiting the environment. Government entities, foundations, private enterprises, and community organizations supported this program.

- Schools Program: 21 schools participated in schoolyard plantings, engaging 957 students in planting 103 trees in their schoolyards. Another 26 schools participated in seedling growing, engaging 1110 students to sow over 1100 seeds. Government support, along with foundations, private enterprises, and community organizations, contributed to the success of this program.

Climate Action London, a grassroots community group, worked with diverse groups, students and individuals to engage in collective action on systems change through climate rallies, Earthfest, a budget summit, social media campaigns and a weekly newsletter with over 1,000 subscribers. Climate Action London hosts the London chapter of Greening Sacred Spaces, an initiative of the national Faith & the Common Good network, which co-hosted the 2023 Interfaith Tree planting event. Climate Action London also fostered the creation of the London Greening Health Collaborative, which is a group of members of the health community that have been collaborating on the intersection of climate justice and marginalized communities, including a research project with Western University.

Urban League of London, representing 20 Neighbourhood Organizations and 19 Community Organizations, helped to share environmental and climate change information and continued its major award programs:

- The Green Brick Award to recognize an outstanding built form project in the city, usually where the development has engaged citizens at both the planning and development stages of the projects. This award has been given since 1984 and in 2023 was awarded to Indwell’s Embassy Commons; and

- The Green Umbrella Award to recognize an individual, or occasionally to an organization, demonstrating outstanding community citizenship and leadership in London, as evidence

by a significant body of work. It recognizes the efforts of residents working to improve the lives of fellow Londoners. This award has been given since 1975 and in 2023 was awarded to Heenal Rajani and Kara Rijnen, owners and operators of ReImagine Co., a package-free grocery store.

Planning for the 3rd annual EarthFest started in early 2024. It was hosted by Thames Regional Ecological Association in collaboration with N'Amerind (London) Friendship Center Inc. and was delivered on April 20, 2024. It was led by Climate Action London and represents the largest environmental and climate change event in London.

Funding provided through LCRN to Goodwill Industries supported implementation of the "Circular Economy Work and Training Platforms". This enabled the purchase of equipment (textile shredder, infeed conveyor, rag cutter, bagging balers) necessary to create products from textile by-product waste for industrial uses. In 2023, 2,720 kgs (6,000 lbs) of textile waste were diverted from landfill through this program.

5. Progress on Climate Actions with Other Levels of Government

5.1. Provincial Government

The CEAP supporting document, Overview of Provincial Climate Change Actions, provides background information on the provincial government's climate policies and actions. This section provides an update on actions that were taken in late 2023 and the first half of 2024.

In February 2024, the Ontario Ministry of Energy announced that the Ontario Energy Board (OEB) issued province-wide, standardized procedures that all local electric utilities must follow for installing and connecting new EV charging infrastructure. This new procedure includes the implementation of standardized forms, timelines, and information requirements which will make it easier for EV charging providers to deploy chargers in all regions of the province.

In January 2024, the Ontario Ministry of Energy approved Ontario Power Generation's (OPG) plan to proceed with the next steps toward refurbishing Pickering Nuclear Generating Station's "B" units (units 5-8). Originally, this aging facility was going to be decommissioned. The refurbishment is expected to be complete by the mid 2030's and should extend the life of the plant by at least another 30 years.

In December 2023, the Ontario Ministry of Natural Resources and Forestry gave approval to allow industries to begin testing and demonstrating small-scale underground carbon storage projects on private land. Work is also underway on a framework to allow for the development of large commercial projects. Public consultations are scheduled to begin in the new year.

5.2. Federal Government

The CEAP supporting document, Federal Government – Climate Change Information, Roles and Responsibilities, provides background information on the federal government's climate policies and actions. This section provides an update on actions that were taken in late 2023 and the first half of 2024.

The Federal Government's carbon pricing policy is expected be the largest contributor to greenhouse gas emissions reductions this decade. With carbon prices increasing to $170 per tonne by 2030, many actions that may not be cost effective today may become cost-effective later this decade. With the Canada Carbon Rebate (formerly known as the Climate Action Incentive Payment (CAIP)), those households that do take action or already have a low-impact lifestyle will get more money back through this incentive than the carbon price they paid on the fuels they use.

The most significant near-term change to the Federal Government's programs supporting climate action in London was the ending of the Canada Greener Homes Grant program due to higher-than expected uptake. In February 2024, Natural Resources Canada announced new

phase of the Canada Greener Homes Initiative that will focus supports that are more accessible to Canadian households with low to median incomes. The Canada Greener Homes Loan program (interest-free loans up to $40,000) does remain in place at this time. However, this change did impact the joint delivery of home energy retrofit incentives with Enbridge Gas and has required Enbridge Gas to pause as well to retool their retrofit incentive program to be a standalone program.

In March 2024, Natural Resources Canada announced a $16.7-million federal investment for a project by Ontario's power grid operator that will strengthen its electricity grid operations. This project will help IESO increase the number and diversity of clean energy resources that can participate in delivering electricity in Ontario including battery storage facilities, allowing the aggregation of renewable electricity projects to bid into Ontario's electricity market, and allowing projects as small as 100 kW to participate in Ontario's electricity market.

In February 2024, Environment and Climate Change Canada released an update on the consultations and design options being considered for the final Clean Electricity Regulations. These options address the feedback received during the last six months of extensive consultations with provincial and territorial governments, the Canada Electricity Advisory Council, Indigenous representatives, electricity providers, industry, environmental organizations, and interested Canadians. The improvements under consideration would enhance the flexibility for provincial operators to continue to ensure reliable and affordable power, including increased flexibility to address peak power needs and the use of standby (or on-demand) power to support the build-out of cleaner technologies. This approach could be supplemented by offsets, emissions pooling, and a more flexible approach to industrial cogeneration.

In February 2024, Environment and Climate Change Canada launched a public engagement process to hear the opinions of Canadians and Indigenous peoples across the country to inform setting Canada's 2035 national greenhouse gas emissions target. This process invited Canadians to share their views on the virtual public engagement platform, Talking Targets: Canada's Climate Future, which made use of the same engagement platform (Ethelo) used by the City of London to help inform the development of London's Climate Emergency Action Plan.

In December 2023, Environment and Climate Change Canada finalized its new Electric Vehicle Availability Standard to increase the supply of clean, zero-emission vehicles available to Canadians across the country. The Standard will ensure that Canada can achieve a national target of 100 percent zero-emission vehicle sales by 2035. Interim targets of at least 20 percent of all sales by 2026, and at least 60 percent by 2030.

In December 2023, the Federal Government published a Regulatory Framework for an Oil and Gas Sector Greenhouse Gas Emissions Cap to solicit input to inform draft regulations, which are to be published in 2024. The Framework includes plans to implement a national cap-and-trade system for oil and gas emissions.

5.3. International

The United Nations Conference of the Parties (COP) 28 held from November 30 to December 13, 2023, in Dubai, United Arab Emirates, was the largest of its kind with approximately 85,000 delegates in attendance including more than 150 Heads of State and Government. COP 28 was particularly momentous as it marked the conclusion of the first 'global stocktake' of the world's efforts to address climate change under the Paris Agreement. Having shown that progress was too slow across all areas of climate action – from reducing greenhouse gas emissions, to strengthening resilience to a changing climate, to getting the financial and technological support to vulnerable nations – countries responded with a decision on how to accelerate action across all areas by 2030. This included a call on governments to speed up the transition away from fossil fuels to renewables such as wind and solar power in their next round of climate commitments. Key highlights from COP 28 included:

- COP 28 closed with an agreement that signals the "beginning of the end" of the fossil fuel era by laying the ground for a swift, just and equitable transition, underpinned by deep emissions cuts and scaled-up finance. In the short-term, Parties are encouraged to come forward with ambitious, economy-wide emission reduction targets, covering all greenhouse gases, sectors and categories and aligned with the 1.5°C limit in their next round of climate action plans (known as nationally determined contributions) by early 2025.

- The two-week-long conference got underway with a historic agreement on the operationalization of funding arrangements for addressing loss and damage, including a new dedicated fund under the United Nations Framework Convention on Climate Chante (UNFCCC). Commitments to address loss and damage started coming in moments after the decision was gavelled, totalling more than USD 600 million to date.

- Parties agreed on targets for the Global Goal on Adaptation (GGA) and its framework, which identify where the world needs to get to in order to be resilient to the impacts of a changing climate and to assess countries' efforts. The GGA framework reflects a global consensus on adaptation targets and covers the themes of water, food, health, ecosystems, infrastructure, poverty eradication and cultural heritage.

- COP 28 resulted in unprecedented recognition and momentum for linking efforts to address the climate and biodiversity crises. Alongside pollution, these make up the triple planetary crisis – the three, main interlinked environmental issues facing humanity.

Additional details pertaining to COP 28 and intended future discussions can be viewed at the United Nations website: https://unfccc.int/cop28.

In November 2023, published under Systems Change Lab, the "State of Climate Action 2023" report was a joint effort between the Bezos Earth Fund, Climate Action Tracker, Climate Analytics, ClimateWorks Foundation, NewClimate Institute, the United Nations Climate Change High-Level Champions, and World Resources Institute (WRI). This report supported the Global Stocktake informing COP28 discussions and translated the Paris Agreement's temperature limit into 1.5°C-aligned targets across sectors and offered a frank assessment of recent progress toward them. Key findings identified in this report include:

- “Progress made in closing the global gap in climate action remains woefully inadequate — 41 of 42 indicators assessed were not on track to achieve their 2030 targets. Progress for more than half of these indicators remained well off track, such that recent efforts must accelerate at least twofold this decade. Worse still, another six indicators were heading in the wrong direction entirely;

- But amid such bad news, several bright spots underscore the possibility of rapid change. Over the past five years, the share of electric vehicles in passenger car sales has grown exponentially at an average annual rate of 65% — up from 1.6% of sales in 2018 to 10% of sales in 2022. For the first time in the report series, such progress puts this indicator on track for 2030; and

- Still, an enormous acceleration in effort will be required across all sectors to get on track for 2030.”

The “State of Climate Action 2023” report can be reviewed at the WRI-hosted website: https://www.wri.org/research/state-climate-action-2023.

Ember, an independent energy think tank that aims to accelerate the clean energy transition with data and policy, released its fifth annual Global Electricity Review providing the first comprehensive overview of changes in global electricity generation in 2023, based on reported data. In this review it is noted that renewables generated a record 30% of global electricity in 2023, driven by growth in solar and wind. With record construction of solar and wind in 2023, a new era of falling fossil generation is imminent and 2023 was likely the pivot point, marking peak emissions in the power sector. The Ember report can be viewed at https://ember-climate.org/insights/research/global-electricity-review-2024/supporting-material.

6. Energy Use

6.1. Corporation of the City of London

The City manages diverse operations of buildings, including office spaces, community centres, arenas, and fire halls which use energy for interior and exterior lighting, heating, and cooling of buildings, and energy associated with maintaining recreational services like pools and arenas. The City also manages linear assets such as wastewater treatment facilities, water supply and pumping facilities, traffic lights, and City fleet operations. Ninety per cent of the energy consumed by linear assets is electricity associated with running and maintaining the processes. Currently, City operations span over 480,000 square metres (5.2 million square feet) and has 249 utility meters.

For this report, all the City's service categories are divided in the following categories to compare their individual contribution to City's total energy consumption:

- Facilities and buildings owned and operated by the City of London.
- Wastewater treatment and pumping facilities and operations.
- Water distribution and storage facilities and operations.
- Street lighting; and,
- Fleet vehicles and equipment.

In 2023, electricity represented 57 per cent of all the energy used by the City. Out of this, 52 per cent is consumed by electricity-intensive operations such as water supply and wastewater treatment plants, 19 per cent is consumed by streetlights and traffic lights, and the remaining 29 per cent is consumed by building ventilation, lighting, and office equipment.

Natural gas was the second highest commodity, representing 23 per cent of the total energy consumption. Most of the natural gas is used for space heating and hot water heating, but 13 per cent of the total natural gas is used in wastewater treatment facilities every year.

Diesel and gasoline are consumed by a variety of fleet vehicles and equipment which include waste collection trucks, snowplows, off-road construction equipment, and portable hand-held tools used by Parks & Recreation. Compressed natural gas (CNG) was consumed by 24 of the waste collection packer trucks in the vehicle fleet.

Steam and chilled water account for only one per cent of the total energy consumption each and both are completely used by administration buildings owned by the City in downtown London including City Hall. Steam and chilled water are supplied by Enwave London District Energy.

The City's energy consumption is a direct function of serving the public, businesses, and visitors of London. The trends in consumption reported is significant to the services provided to the community. London continues to grow in population and increased services are required to support that growth. It is important to capture energy usage per capita to demonstrate the City's achievements in energy reductions while continued growth occurs in London.

Figure 1 shows total energy consumption per capita by commodity which is explained as follows:

- 16 years of data show continued improvement of corporate energy use per capita with an overall reduction of 35% in 2023 compared to 2007, the first year for which the City has comprehensive energy use data; and

- an overall energy efficiency improved by about 16% compared to 2018, the baseline year for the 2019-2023 CDM Plan.

Figure 1 – Corporate Energy Use in London, Per Person by Energy Commodity

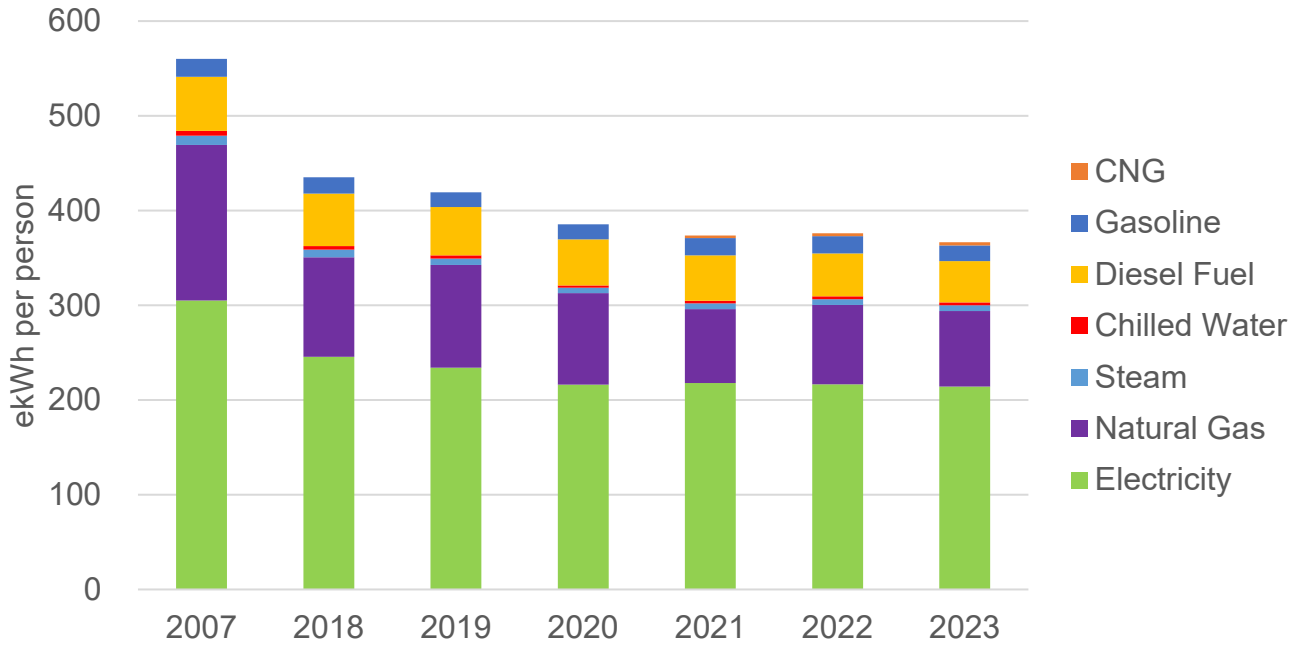
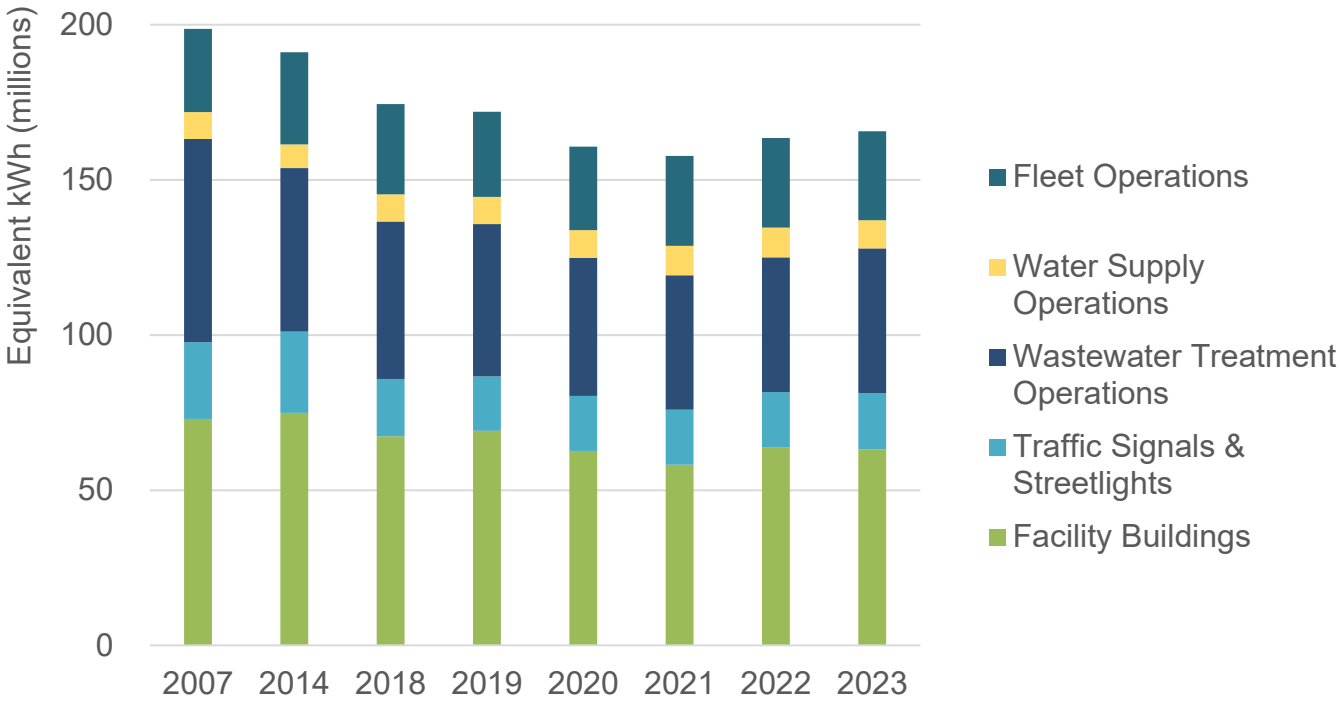


Figure 2 shows a breakdown as well as trends for energy use by operational type within the City's operations.

Figure 2 Total Energy Use by Service Area Categories



The 2019-2023 Corporate Energy Conservation and Demand Management Plan (2019-2023 CDM Plan) was developed according to Ministry of Energy's direction to provide the City's annual energy consumption information to the public and set goals and actions for conserving energy and reducing greenhouse gas emissions from 2019 to 2023. However, the City's 2019-2023 CDM Plan went beyond regulatory requirements with the inclusion of vehicle fleet fuel use.

The 2019-2023 CDM Plan had primary targets and secondary targets and measurable action items to achieve these targets. The highlights of the 2019-2023 CDM Plan's performance are as follows:

- Achieved a 5% total energy reduction target from 2018 baseline year.
- Exceeded energy efficiency (energy use per capita) target by achieving 16% reduction compared to the target of 10%.
- Avoided $6 million in total energy costs over the last five years.
- Started monitoring and tracking the City's water consumption and water conservation initiatives.

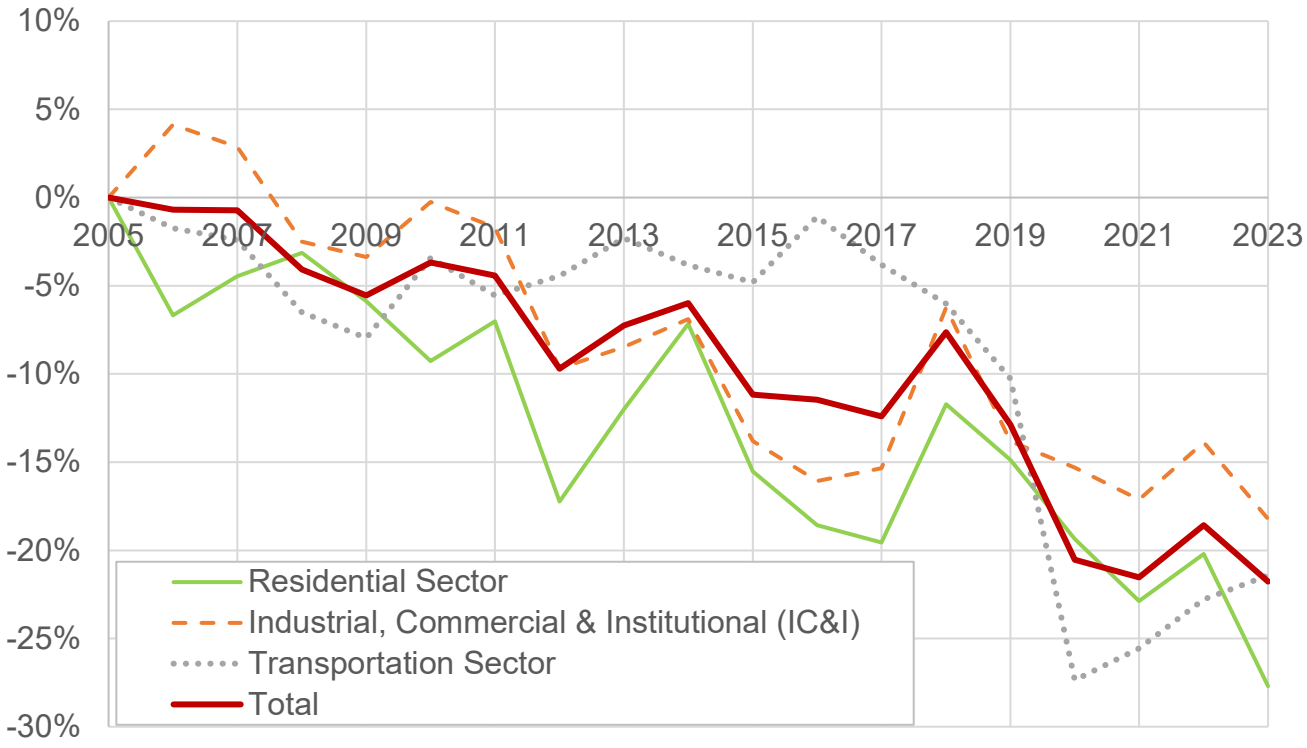
6.2. Community

Total energy use in London in 2023 was 58,900 terajoules, one per cent above 2005 levels. A terajoule (or, one trillion joules) is a metric unit for measuring energy and is approximately equivalent to the energy provided by burning 26,000 litres of gasoline (roughly the amount of gasoline in 500 cars).

It is important to note that London's population has been growing faster than previously anticipated, with Statistics Canada estimating that the London Census Metropolitan Area's population grew by 3.0 per cent in 2022 and 3.8 per cent in 2023. Energy use per person in London was 130 gigajoules (GJ) per year in 2023, down 22 per cent from the 2005 baseline.

Figure 3 illustrates the change in energy consumption in London by sector on a per person basis since 2005.

Figure 3 – Change in Energy Use in London, Per Person by Sector Since 2005



In terms of weather, London experienced a warmer than normal heating season and a cooler than normal summer. As a result, energy demand for both space heating as well as air conditioning was lower than normal.

The impact of the COVID-19 pandemic on transportation energy use remained evident in 2023, with many London workplaces maintaining hybrid working arrangement after the

pandemic as well as greater use of web-based meetings reducing the need for business-related vehicle trips. In particular, compared to 2019:

- The local retail sales of gasoline and diesel at gas stations was 8% lower.
- The total trip distance travelled by automobile for in-town trips were 10% lower.
- The total distance travelled by bicycle was 20% higher.
- The number of vehicles registered for every 1,000 people in London was 17% lower.

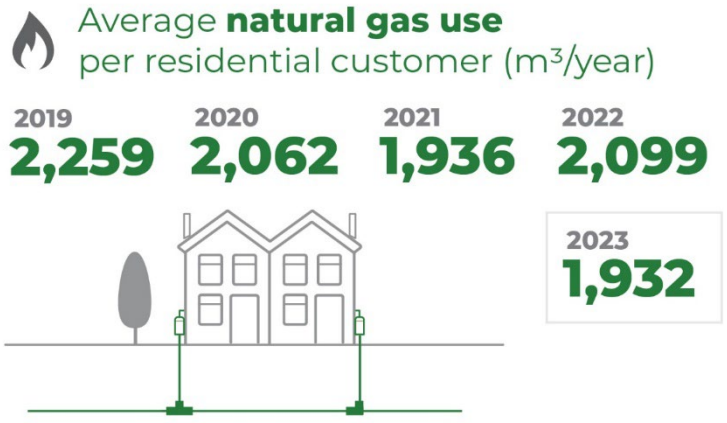
Residential (single-family home) energy efficiency has seen improvement, driven by energy conservation programs such as the former federal and provincial home energy audit and retrofit programs, along with utility conservation and demand management programs. New home construction in London has seen energy efficiency improvements driven by voluntary participation in efficiency programs such as Energy Star New Homes, as well as the 2012 Ontario Building Code.

Over the last ten years, energy efficiency for London's industrial, commercial, and institutional sector has been improving. London has many examples of local employers who have acted on energy efficiency and conservation.

It is estimated that Londoners spent $1.83 billion on energy in 2023. It is important to note that costs could have been higher. As illustrated in Figure 4, if 2010 is used as a baseline year in terms of energy use per capita (the first for which energy cost information is available), recent improvements in energy efficiency have created ongoing savings. In 2023, it is estimated that $440 million in energy costs were avoided through energy efficiency as well as reductions in transportation fuel use. Added up year-over-year, London has avoided almost $2.5 billion in energy costs due to improved efficiency since 2010.

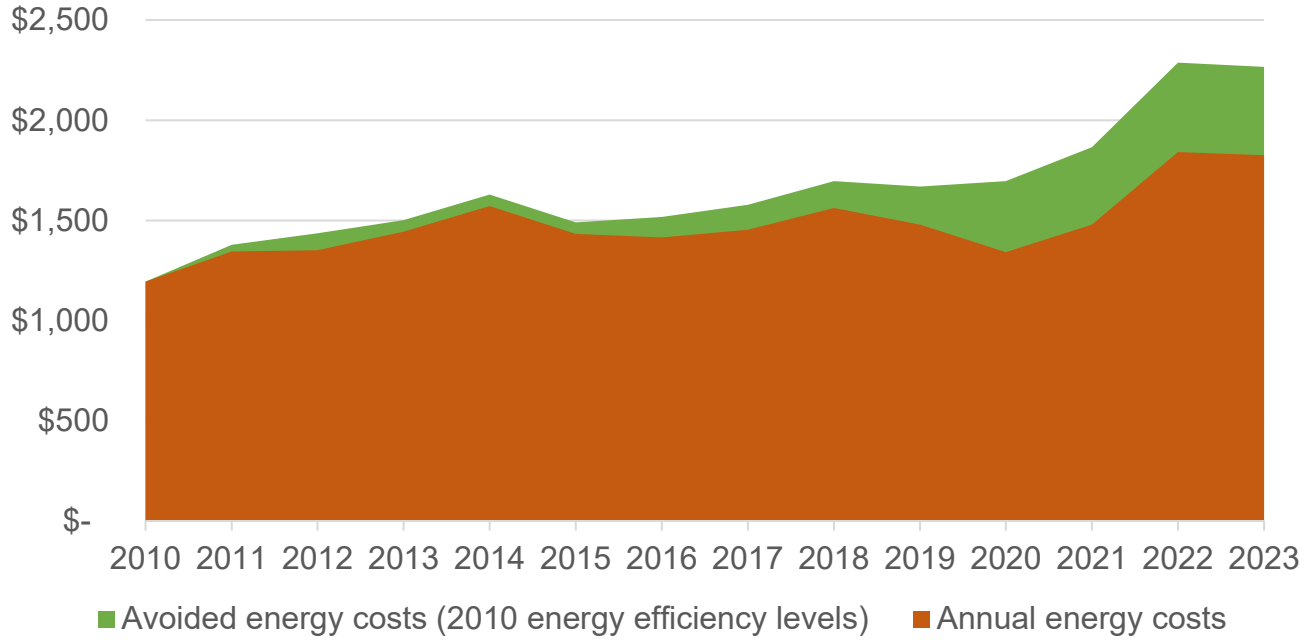
On average, every percentage that Londoners reduce their energy use results in around $15 million staying in London every year.

Information from utility billing rates and fuel price data can also be used to provide a reasonable estimate where the money is spent by Londoners on energy, as illustrated in Table 11. Out of the $1.83 billion spent on energy in 2023, it is estimated that 16 per cent of this money stayed in London, most of which goes towards London Hydro's and Enbridge's local operations. The rest leaves London.



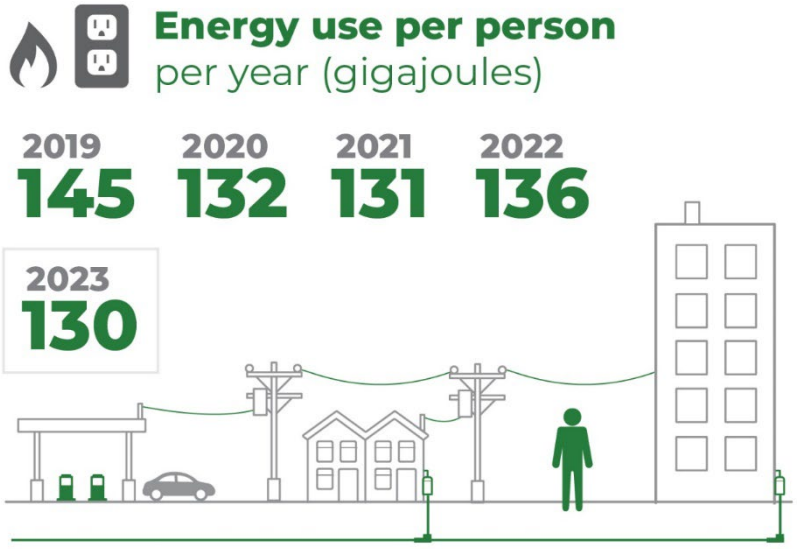
See Appendix A for more performance indicators

Figure 4 – Trend for London's Total Energy Costs (Millions) Compared to 2010



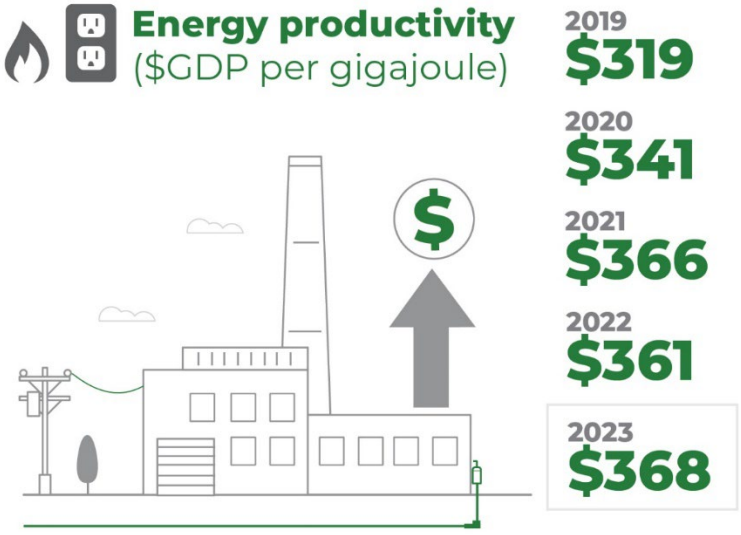
In summary, specific highlights of recent community energy use progress and longer-term trends, include:

- Londoners are using energy more efficiently overall – on a per person basis, Londoners and London businesses used 22% less energy overall in 2023 than used in 2005.
- $1.83 billion was spent by Londoners and London businesses on energy in 2023, higher than in recent years due to higher global energy prices. About 85% of this money left London.
- Improvements in energy efficiency, compared to 2010 levels of energy efficiency across all sectors, avoided about $440 million in energy costs in 2023. Added up year-over-year, London has avoided almost $2.5 billion in energy costs due to improved efficiency since 2010.



See Appendix A for more performance indicators

- The energy productivity of London's economy, on a constant $GDP per unit energy used, has increased by 28% since 2007 (no GDP data available for 2005).
- Single-family homes are using 28% less energy per person than they were using back in 2005.
- The number of "green" vehicles in London (i.e., hybrids and electric vehicles) is over 11 times higher than it was in 2010. There are now almost 2,900 electric vehicles registered in London. However, the number of "gas guzzling" SUVs and pick-up trucks in London has also increased.



See Appendix A for more performance indicators

- Currently, London has 20.8 megawatts of solar photovoltaic (PV), 3.8 megawatts of biogas, and 0.68 megawatts of hydro-electric power generation, along with 8.2 megawatts of battery electricity storage system capacity installed to date.

Additional details on energy use can be found in these two reports found on the City's Get Involved website Climate Emergency Action Plan | Get Involved London:

- 2023 Corporate Energy Use and Greenhouse Gas Emissions Report
- 2023 Community Energy Use and Greenhouse Gas Emissions Inventory

7. Greenhouse Gas (GHG) Emissions

7.1. Scope 1 and 2 GHG Emissions

Scope 1 emissions are direct greenhouse (GHG) emissions that occur from sources that are controlled or owned by Londoners and London businesses (e.g., emissions associated with fuel combustion in furnaces and vehicles) here in London. Scope 2 emissions are those associated with purchased or acquired electricity, steam, heat, and cooling. The Climate Emergency Action Plan's goal to achieve net-zero emissions by 2050 focusses on Scope 1 and 2 emissions.

Scope 1 and 2 greenhouse gas emissions are what is traditionally reported by municipalities through programs such as the Federation of Canadian Municipalities' Partners for Climate Protection program and global programs such as CDP Cities and the Global Covenant of Mayors.

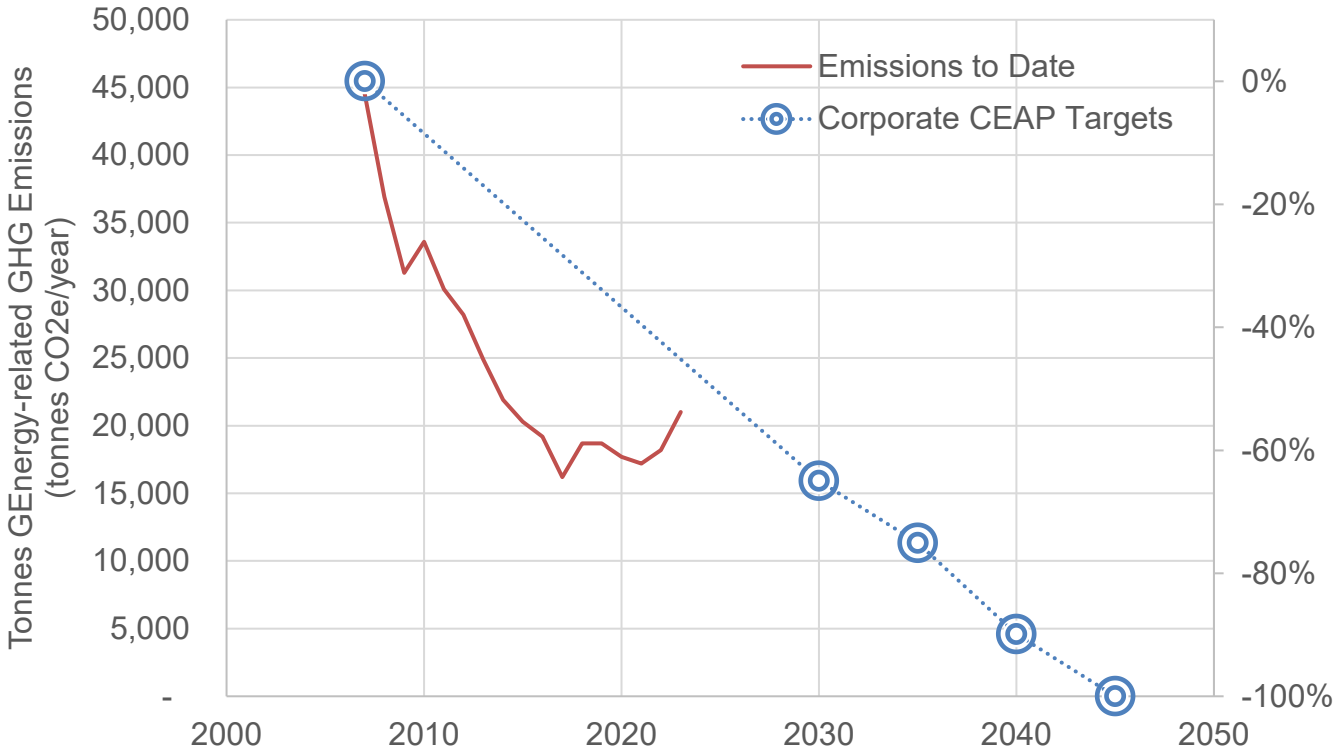
7.1.1 Corporation of the City of London

Current corporate energy-related emissions have been influenced by the existing 2019-2023 Corporate Energy Conservation and Demand Management (CDM) Plan approved by City Council in 2018.

The Corporation of the City of London reports on energy-related greenhouse gas emissions on an annual basis (the latest information that is available is for 2023). For more information on corporate energy use and greenhouse gas emissions, please refer to the 2024-2028 CDM Plan available at GetInvolved.London.ca/Climate.

In 2023, corporate energy-related greenhouse gas emissions were 12 per cent (2,300 tonnes) higher than 2018, but 53 per cent lower compared to 2007, as shown in Figure 5.

Figure 5 - Corporate Energy-Related Greenhouse Gas Emissions to Date Compared to Corporate GHG Emission Reduction Milestones



(Source: City of London, 2024-2028 CDM Plan Report)

Most of the emission reductions since 2007 are due to a relatively cleaner electricity grid in Ontario, combined with increased energy efficiency and conservation efforts:

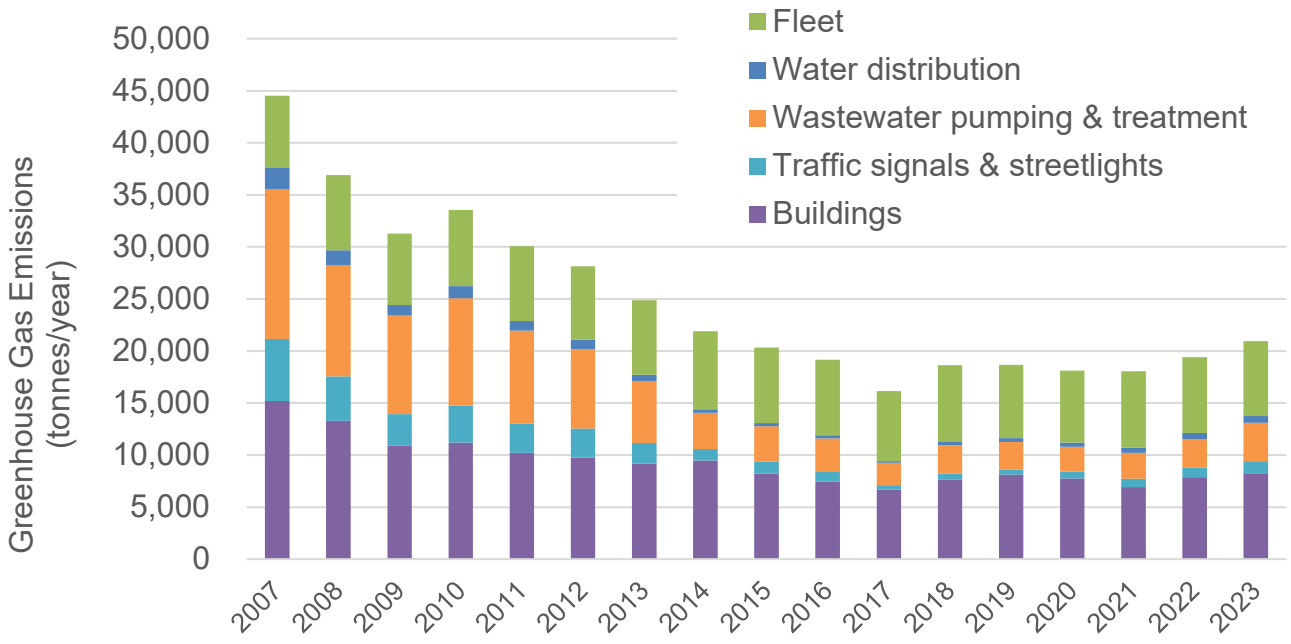
- 75% reduction in electricity-related emissions;
- 46% reduction in steam-related emissions, due solely to corporate actions; and
- 33% reduction in natural gas related emissions, due solely to corporate actions.

However, in the last couple of years, greenhouse gas emissions from Ontario's electricity grid have increased, from 30 grams of equivalent carbon dioxide per kilowatt-hour in 2018 to an estimated 67 grams per kilowatt-hour in 2023 as reported by The Atmospheric Fund report, Ontario Electricity Emissions Factors and Guidelines – 2024 Edition. Given that electricity represents 57 per cent of the energy used by the City, changes in Ontario's electricity grid will have an impact on energy-related emissions. As a result, the City's greenhouse gas emissions in 2023 are about 3,600 tonnes (21 per cent) higher than they would have been if Ontario's grid emissions had not changed.

Municipal buildings and fleet vehicles have the largest share of corporate energy-related emissions, as shown in Figure 6. Emissions from waste management operations (e.g., methane from active and closed landfills) and wastewater treatment (e.g., nitrous oxide from sewage sludge incineration) are included within the community scale greenhouse gas

emissions inventory as per the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC).

Figure 6 - Corporate Energy-Related Greenhouse Gas Emissions since 2007 by Service Category

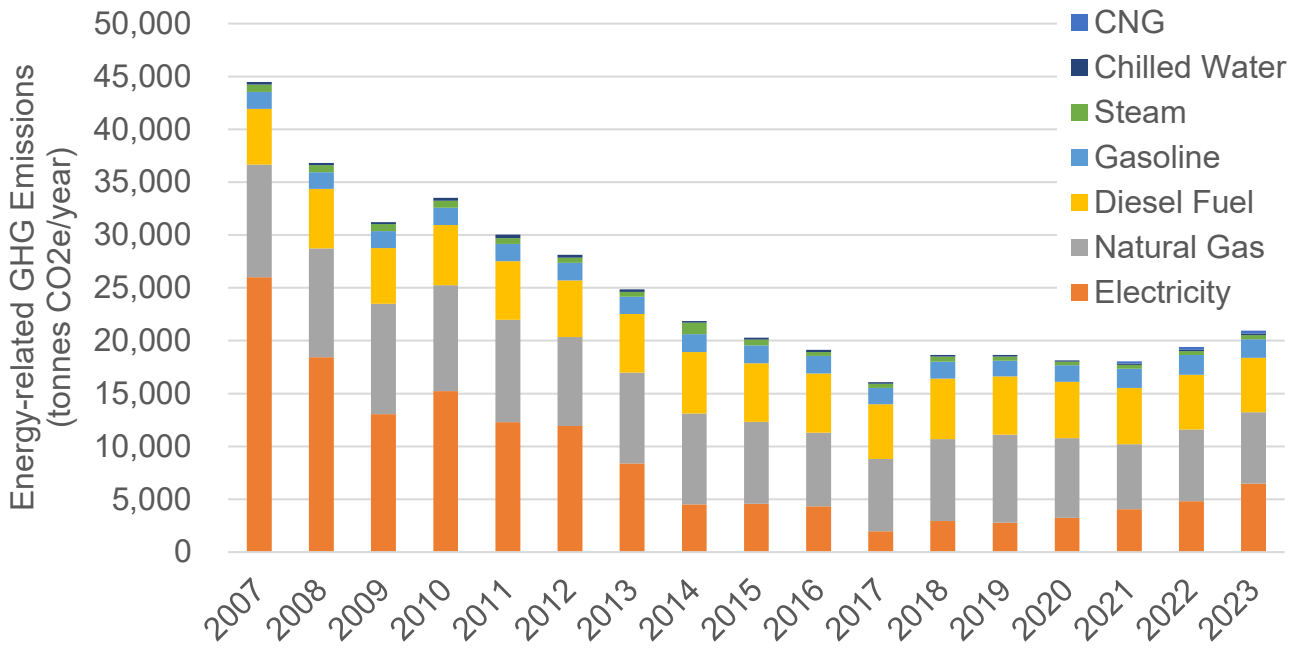


(Source: City of London, 2024-2028 CDM Plan Report)

From an energy commodity perspective, natural gas and diesel are the two largest sources of energy-related emissions. Measures to electrify building heating, reduce vehicle fuel use, and to use zero emission vehicles and fuels are priorities.

However, as shown in Figure 7, electricity's share of greenhouse gas emissions is beginning to grow. Given that greenhouse gas emissions from Ontario's electricity grid are expected to climb even further this decade – up to the 125 to 145 grams per kilowatt-hour range in the 2025-2030 period – and that electricity is vital for many municipal services, direct investment in renewable electricity generation for municipal facilities may be needed to help meet the City's 2030 milestone.

Figure 7 - Corporate Energy-Related Greenhouse Gas Emissions since 2007 by Energy Commodity



(Source: City of London, 2024-2028 CDM Plan Report)

Even though emissions from waste management operations (e.g., methane from active and closed landfills) and wastewater treatment (e.g., nitrous oxide from sewage sludge incineration) are included within the community scale greenhouse gas emissions inventory as per reporting protocol, it is important to note that the Corporation of the City of London does have some control over these emissions. In the case of methane, these emissions are far higher than energy-related emissions:

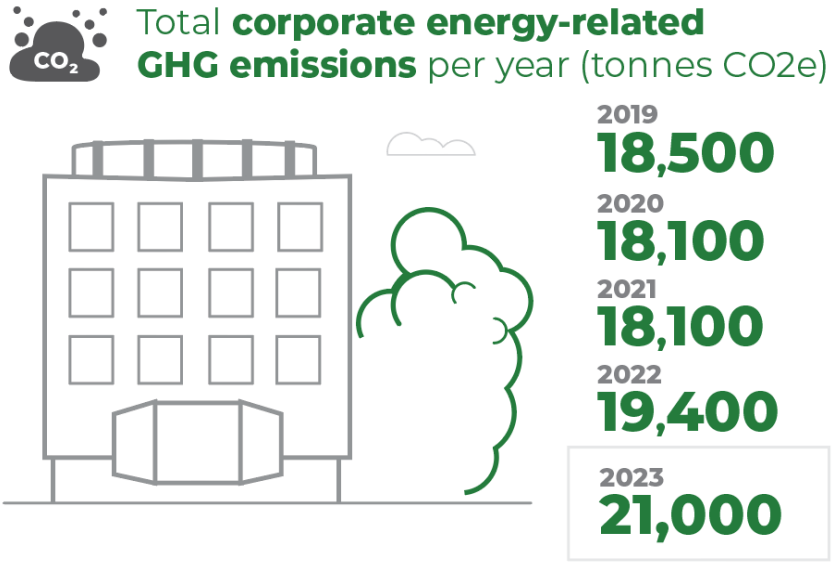
- W12A landfill – about 110,000 tonnes of carbon dioxide equivalent (CO_2e) in 2023
- Closed landfills – about 34,000 tonnes of CO_2e in 2023
- Wastewater – about 9,000 tonnes of CO_2e in 2023

Whether corporate energy-related emissions stay on track to reach London's 2030 milestone depends upon the impact of corporate CEAP efforts, provincial and federal climate change policies (including incentives), and climate trends.

A summary of major trends influencing 2023 corporate greenhouse gas emissions are identified on Table 5.

Table 5: Summary of Major Trends and Occurrences in 2023 Influencing Corporate Greenhouse Gas Emissions

Positive	Unchanged or Unsure	Negative
• Total energy use was down 5% from 2018 levels, achieving the 2019-2023 CDM Plan goal. • Energy use by wastewater treatment operations was down 8% from 2018 levels. • Natural gas and steam consumption was lower by 38% and 22% from 2018 levels, due in part to warmer weather and HVAC optimization projects undertaken by Facilities.	• 2% decrease in Traffic Signals and Streetlights may be due to on-going savings from the Phase 2 lighting project. But overall streetlights stock increased by 10% in the last five years.	• GHG emissions intensity of Ontario's electricity grid has increased. • Energy used for water distribution has increased by 4% from 2018 levels due to equipment issues, which are being repaired. • Increased number of rental fleet vehicles due to expansion of city services increased gasoline usage by 8% from 2018 levels.



See Appendix A for more performance indicators

7.1.2 Community GHG Emissions in London

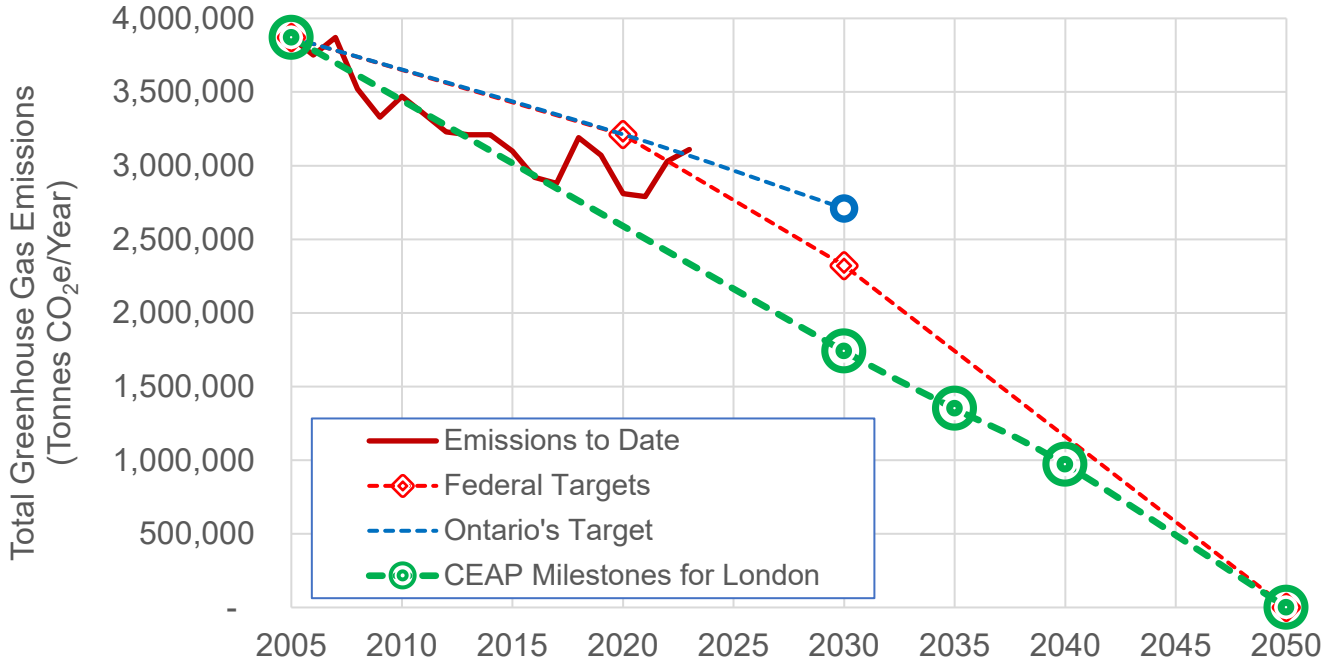
The City of London has been estimating community-wide greenhouse gas emissions as far back as 1990 and has been tracking emissions on an annual basis since 2004. The City of London follows the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC). For more information on corporate energy use and greenhouse gas emissions, please refer to the 2023 Community Energy Use and Greenhouse Gas Emissions Inventory report available at GetInvolved.London.ca/Climate.

Total greenhouse gas emissions in 2023 were 3.11 million tonnes of carbon dioxide equivalent (CO_2e). This is 20 per cent lower than 2005 levels, as shown in Figure 8. However, it is important to note the impact of the COVID pandemic on emissions.

This downward trend has been driven by a combination of cleaner electricity generation and improved energy efficiency. However, since 2018, emissions have been above the trendline needed to meet our science-based milestones (i.e., what London would need to reach to do our fair share for keeping global warming within 1.5°C).

Energy use is responsible for 95 per cent of all GHG emissions from human activity in London. Not only does burning fossil fuels such as gasoline, diesel, and natural gas produce carbon dioxide – the most common GHG associated with human activity – but the use of electricity also contributes to GHG emissions. The remaining five per cent come from methane emissions from landfills and nitrous oxides from wastewater treatment.

Figure 8 - Community Scale Emissions to Date Compared to Milestones for London, for Ontario, and for Canada

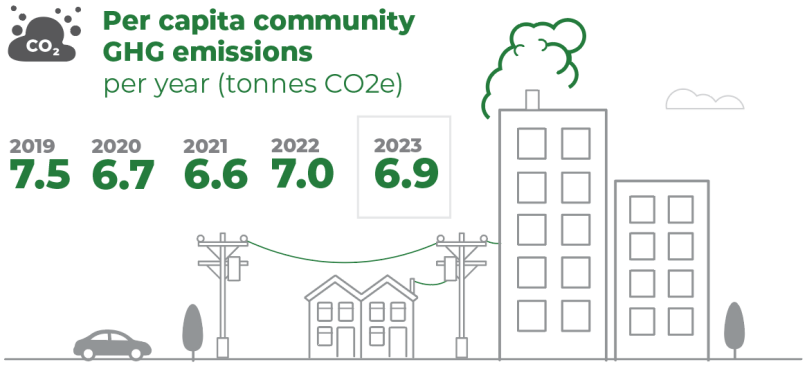


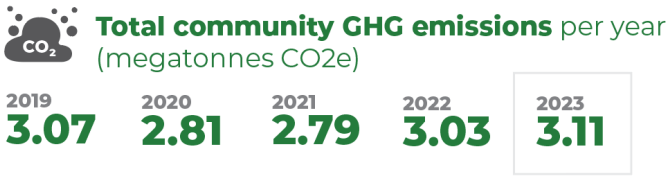
(Source: City of London, 2023 Community Energy Use and Greenhouse Gas Emissions Inventory)

About 87 per cent of Ontario's electricity was generated from emissions-free sources in 2023, such as nuclear and hydro-electric generating stations as well as renewable sources (wind and solar). However, Ontario still relied on fossil fuels such as natural gas to generate 13 per cent of the electricity Londoners used in 2023, a higher share than in recent years when it was well below ten per cent. As a result, this increase in natural gas use for power generation is responsible for an additional 120,000 tonnes of emissions from London – four per cent higher – since 2018.

The COVID-19 pandemic continued to have an impact on transportation fuel use, with fuel use per person being lower than it was in 2019.

It is also important to note that London's population has been growing faster than previously anticipated, with Statistics Canada estimating that the London Census Metropolitan Area's population grew by 3.0 per cent in 2022 and 3.8 per cent in 2023. In 2023, GHG emissions per person were over two per cent lower than they were in 2022. Since 2005, GHG emissions per person have been reduced by 38 per cent.

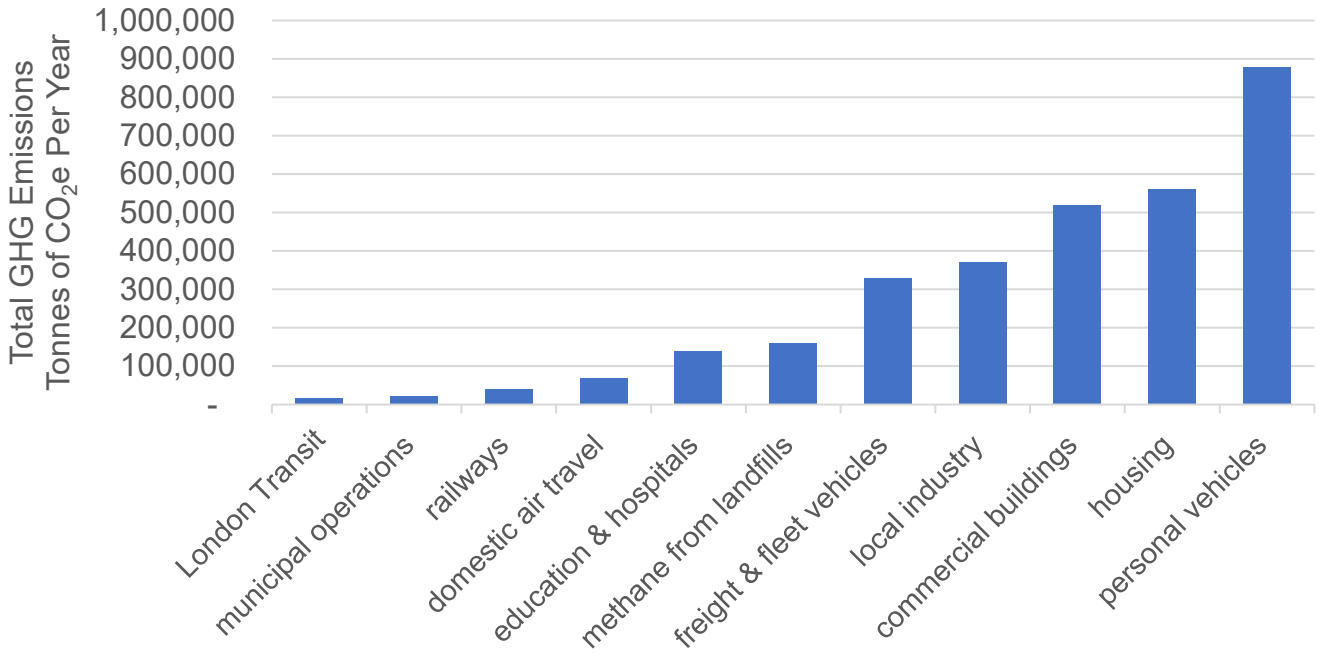




See Appendix A for more performance indicators

Figure 9 illustrates the estimated breakdown of London's greenhouse gas emissions in terms of human activity, with half of the emissions coming from personal transportation and energy use at home.

Figure 9 – 2023 Greenhouse Gas Emissions by Activity

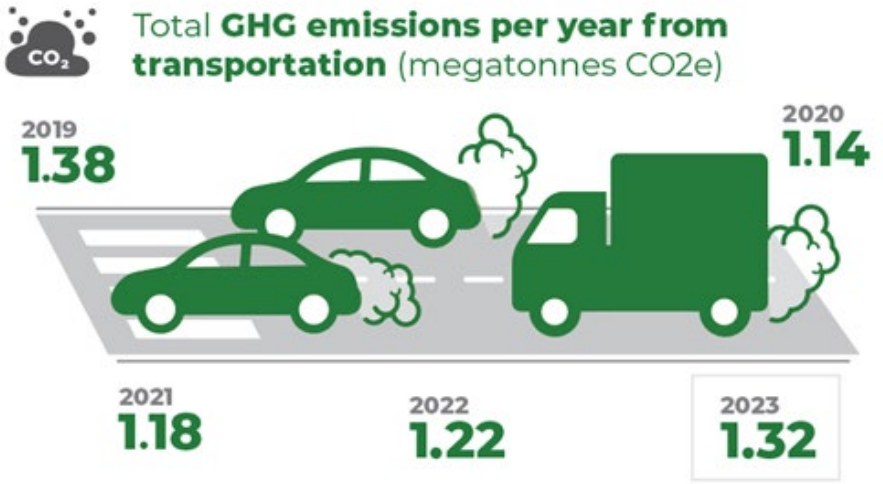


(Source: City of London, 2023 Community Energy Use and Greenhouse Gas Emissions Inventory)

The cancellation of provincial renewable electricity contracts and electric vehicle incentives has contributed to the loss of momentum. As noted earlier, London's emissions in 2023 would have been 120,000 tonnes lower had the emissions intensity of Ontario's electricity grid remained unchanged.

For 2023 electric vehicle sales, as reported by S&P Global, Ontario's EV market share of 7.7 per cent was below the national average of 11.7 per cent and far behind British Columbia and Quebec at 22.9 per cent and 20.4 per cent respectively. London's EV market share is even lower, at 4.3 per cent in 2023, likely due in part to the low availability of EVs in smaller markets like London.

Whether emissions continue to decrease depends upon the impact of energy and fuel conservation efforts, provincial and federal climate change policies (including incentives), climate trends, economic growth, and consumer choices. A summary of major trends influencing 2023 community greenhouse gas emissions are identified on Table 6.



See Appendix A for more performance indicators

Table 6: Summary of Major Trends and Occurrences in 2023 Influencing Community Greenhouse Gas Emissions

Positive	Unchanged or Unsure	Negative
• Residential energy use per person has seen consistent reductions • The number of trips taken by bus, by bike and on foot have increased; • The total distance travelled for in-town trips taken by automobile have decreased	• There is uncertainty whether current post-pandemic "hybrid" work arrangements are permanent	• GHG emissions intensity of Ontario's electricity grid has increased • Market share sales of larger personal vehicles (e.g., pickups and SUVs) has increased • Electric vehicle adoption rate in Ontario was lower than Canada's overall rate

Positive	Unchanged or Unsure	Negative
• The number of hybrid and electric vehicles in London has increased • Retail sales of fuel per person were 14% below pre-pandemic levels • Energy use per capital in the industrial, commercial, and institutional sector has decreased • Energy productivity ($ GDP per unit energy) increased		• Electric vehicle adoption rate in London was lower than Ontario's overall rate

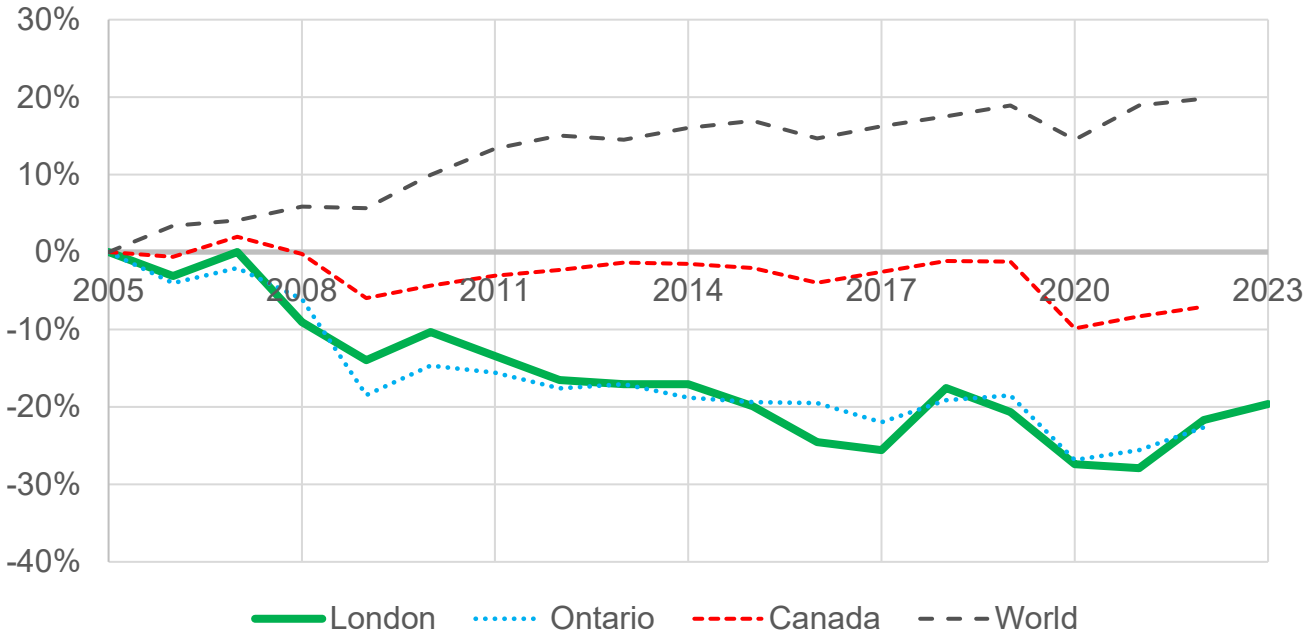
7.2. Scope 1 and 2 GHG Emissions in Context

To limit warming to within 2 degrees Celsius, global action is required. The challenges to reducing emissions are not evenly distributed geographically, however, where some countries are well-equipped to take swift action, others are limited by other priorities. In Canada and other wealthy nations, a "fair share", science-based approach to accelerated climate action is generally believed to be required if international climate targets are to be met. The comparison of the results of international efforts alongside the results of efforts to reduce direct (Scope 1 and 2) emissions in Canada, Ontario and the City of London are presented in Figure 10.

London and Ontario have seen significant reductions to date due to the combination of energy efficiency measures as well as the phase out of coal fired power plants discussed in Section 6.1.2. Canada's emissions overall have seen modest reductions, due in large part to increased emissions associated with Alberta's oil and gas industry offsetting reductions associated with improved energy efficiency. Globally, emissions have been increasing due to increased industrialization and automobile use in China, India, and other countries outside of Europe and North America.

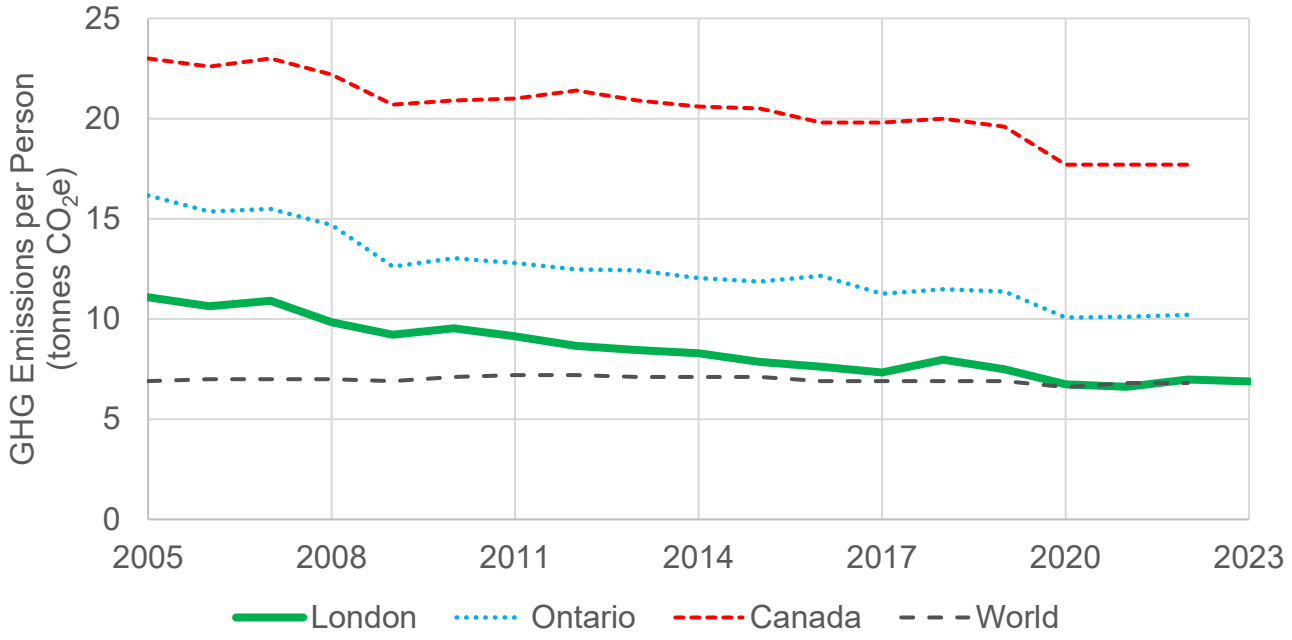
While GHG emissions reduction efforts in Canadian jurisdictions look to be ahead of the global average results, it is very important to understand that the efforts behind these emissions reductions have only just brought London's per capita emissions roughly in line with global per capita emissions, as presented in Figure 11.

Figure 10 – Change in Scope 1 and 2 Total GHG Emissions from 2005 Baselines



(Source: Data provided by City of London, Environment Canada, Our World in Data)

Figure 11 - Scope 1 and 2 GHG Emissions per Capita



(Source: Data provided by City of London, Environment Canada, Our World in Data)

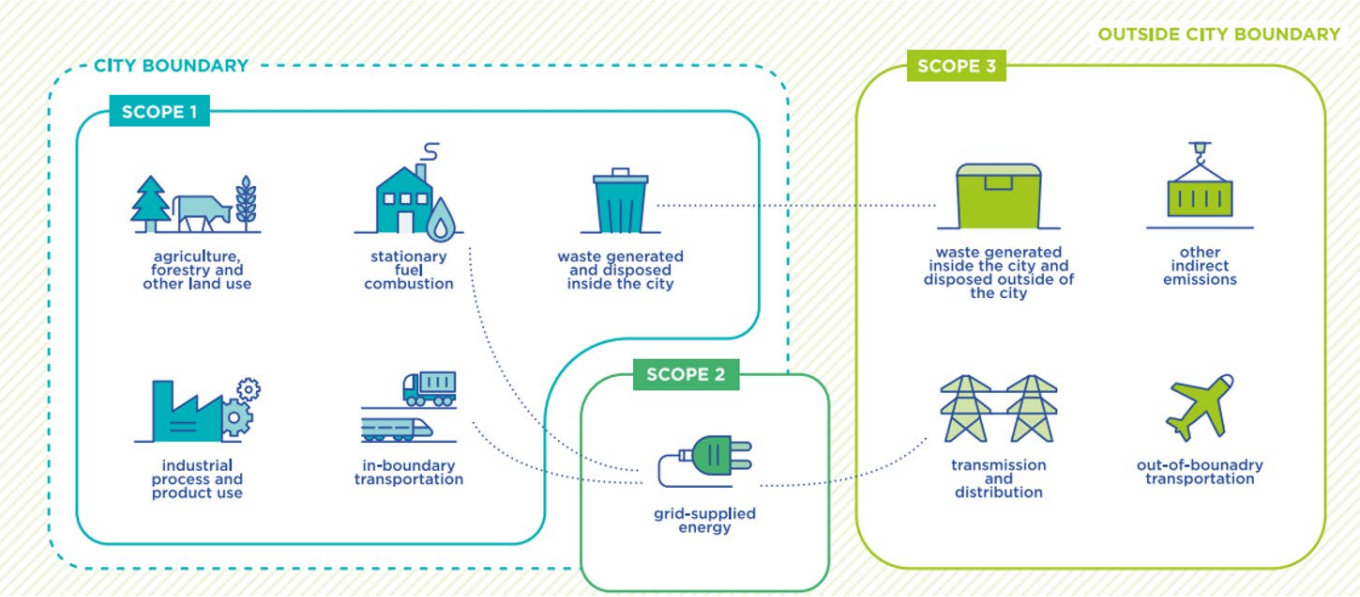
It is also important to note that Londoners use goods and services that are produced in other parts of Ontario, Canada, and the rest of the world. This is discussed further in Section 6.3.

7.3. Consumption-related Emissions (Scope 3)

In 2019, the City of London started highlighting the importance of consumption-related greenhouse gas emissions. These are defined as all the greenhouse gas emissions associated with providing goods and services to Londoners, including those that take place outside London's boundaries. A good example would be the emissions associated with food as the majority comes from outside London. There are emissions associated with growing crops, feeding animals, preparing food products for market, and transporting these to market.

These emissions are also referred to as Scope 3 emissions for London, as illustrated in Figure 12. Local emissions are often referred to as Scope 1 and Scope 2. It is important to note that what may be considered Scope 3 emissions for London would be considered Scope 1 and 2 emissions for someone else. For example, Canada's Scope 1 and Scope 2 emissions per person are a lot higher than London's because they include emissions from Alberta's oil sands, Hamilton's steel mills, and many other sources related to the goods and services Londoners use. This is becoming an emerging area for municipalities to investigate.

Figure 12 - Illustration of Scope 1, 2, and 3 emission sources



(Source: Consumption-Based GHG Emissions of C40 Cities)

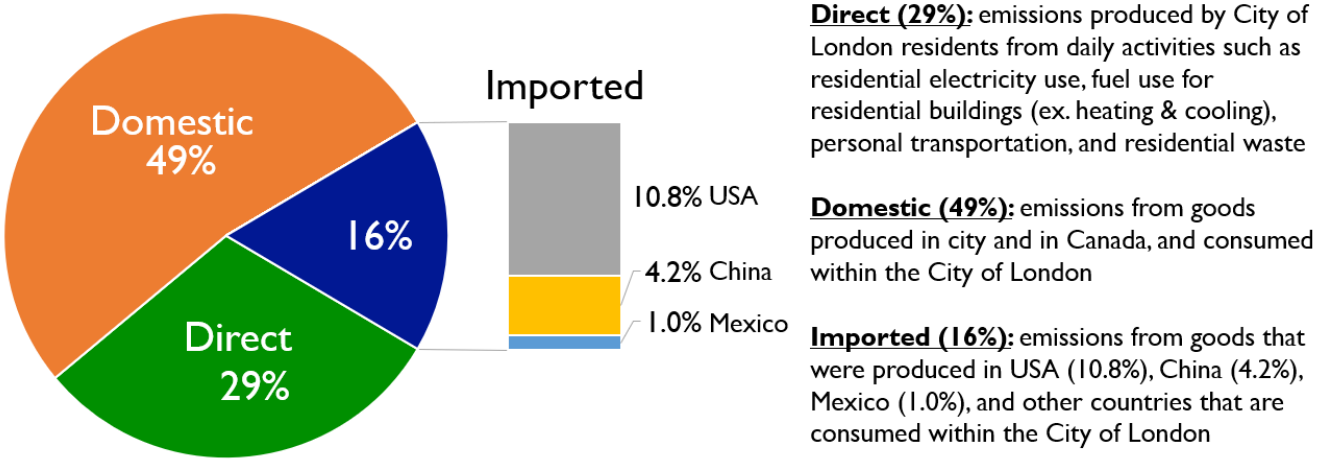
A consumption-based inventory includes the emissions embedded in the goods and services consumed in the city. This includes the direct emissions of households and personal transportation in the city (i.e., Scope 1 emissions), plus the emissions embedded in the goods and services consumed within the city, regardless of where the goods and services are produced.

The calculation of detailed consumption-based inventories is a complex undertaking. However, Corporate Knights has developed a simplified method for developing a high-level estimate of consumption-based emissions at the city scale. Corporate Knights is a Canadian sustainable-economy media and research benefit corporation (B Corp.). Their publications include the Corporate Knights magazine, published quarterly, with an editorial focus on climate change,

responsible investing, and other sustainable economy content that is distributed through The Globe and Mail, The Washington Post, and The Wall Street Journal.

As reported in the 2022 Progress Report, City staff worked with Corporate Knights to apply their methodology to London, Ontario. As shown in Figure 13, London's total consumption-based greenhouse gas emissions per person in 2019 were estimated to be over three times higher than a household's direct (Scope 1 and 2) emissions. About half of the consumption-based emissions are associated with Canadian-made goods and services, including those within London. Imported goods and services accounted for 16 per cent, with the United States and China making up the majority of import-related emissions.

Figure 13 - Breakdown of London's consumption-related GHG emissions in 2019



(Source: Corporate Knights - Consumption-based Greenhouse Gas (GHG) Emissions - City of London report)

Further work will need to be done to develop a more detailed understanding regarding the relative impact of major types of goods and services used here in London (e.g., food, consumer goods, construction materials, etc.) to help develop solutions to reduce consumption-related emissions. However, in summary, understanding London's consumption-related emissions helps to support the importance of local environmental initiatives such as:

- Food waste avoidance (reduction);
- Buying durable products;
- Buying local products;
- Recycling and the circular economy (end-of-product-life material recovery and reuse); and
- Repurposing and renovating existing buildings instead of tearing them down.

Additional details on greenhouse gas emissions can be found in these two reports found on the City's Get Involved website Climate Emergency Action Plan | Get Involved London:

- 2023 Corporate Energy Use and Greenhouse Gas Emissions Report
- 2023 Community Energy Use and Greenhouse Gas Emissions Inventory

8. Weather Trends and Impacts

The City contracted Dr. David Sills, Dr. James Voogt, and Dr. Gregory Kopp, from the Northern Tornadoes Project at Western University, to compile a summary of weather, impacts and trends in 2023. The following sections include research, analysis, and commentary by this team focusing on weather impacts and trends in London, as well as Canada and around the world in 2023.

8.1. Wind Events

While there was only one severe wind gust recorded at London Airport in 2023 (March 25, 91 km/h), there were a few weak tornadoes and downbursts recorded in the area by the Northern Tornadoes Project (Figure 14). The first tornado of the year in Ontario occurred on June 13 at Talbotville (near St. Thomas) where an EF0 tornado damaged trees and a restaurant. A second tornado from that day formed at Beachville (near Ingersoll) and was assigned a default EF0 rating since no damage was associated.

The four EF0 downbursts all occurred with severe storms on July 20 and were documented at Dorchester, Port Burwell, Alvinston and Wardsville. One injury resulted from the downburst at Port Burwell. Otherwise, minor structural damage, snapped and uprooted trees, and crop damage were reported. The same storms caused minor tree and hail damage in southern parts of London (CBC News).

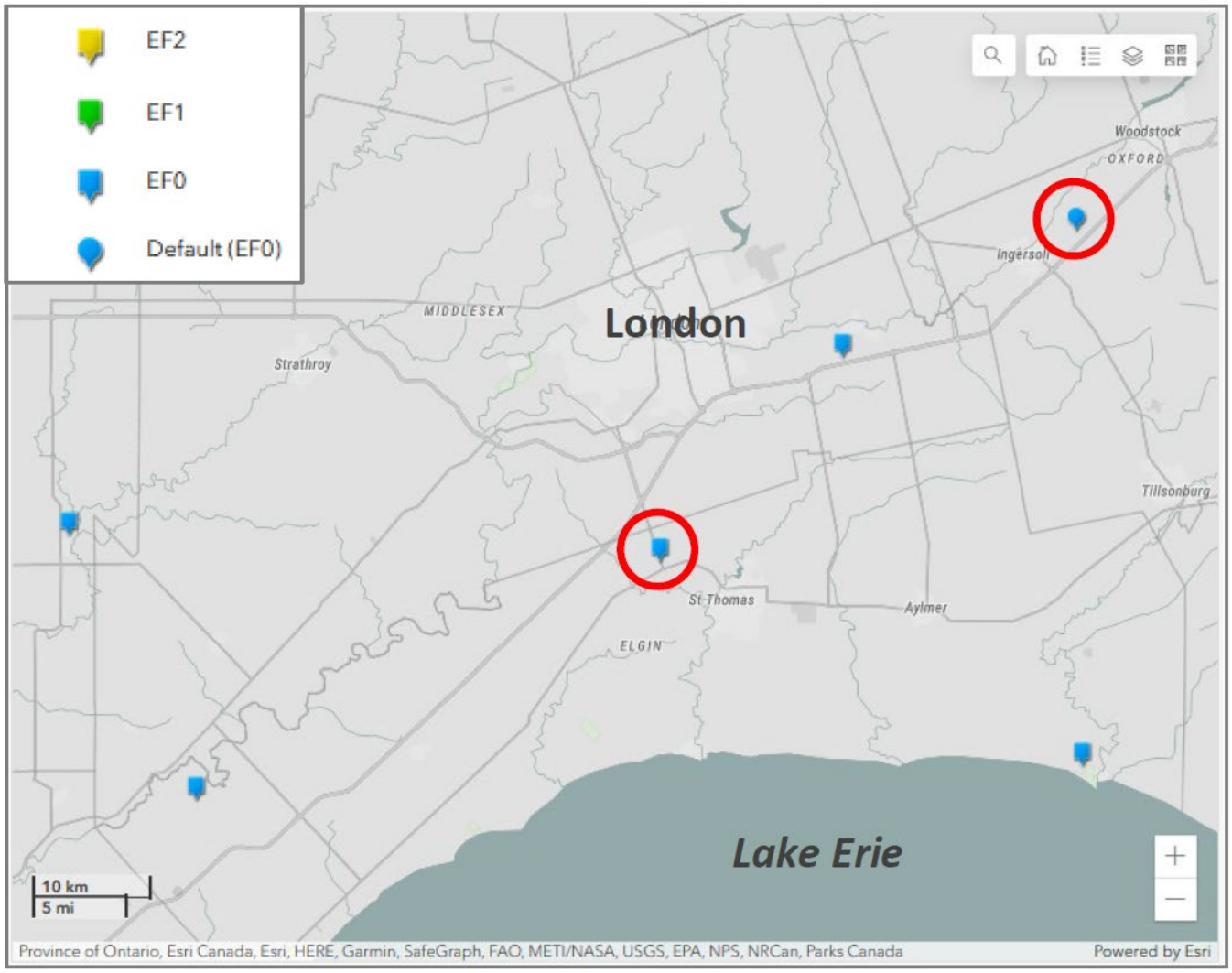
8.2. Rainfall and Flooding Events

London and the areas around the city experienced flooding and drought in 2023. Heavy spring rainfall at the end of March and beginning of April led to flooded basements in parts of London. Then in May, London experienced an extremely rare drought, with only 17 per cent of normal precipitation. This was followed by a much wetter than normal July where precipitation was 260 per cent of normal, including 80 millimetres (mm) of rain falling on July 2 alone.

The most significant rainfall event in the area occurred on August 23 as multiple intense thunderstorms moved from northwest to southeast ahead of a stalled warm front. The areas that experienced flooding rains stretched from Warwick Township to Glencoe to Dutton (Figure 15).

Environment Canada reported that approximately 135 mm of rain fell during this one-in-100-year event, though multiple sources in Warwick Township (where a state of emergency was declared) reported unofficial totals near 175 mm. Multiple roads were closed in the Township, and the Ontario Provincial Police closed Highway 402 between Exit 44 and Exit 52 for more than 12 hours. There were also numerous reports of basement flooding across the region. Unfortunately, there was one fatality related to this storm. A transport truck driver was killed after his vehicle fell into a washed-out section of Dundonald Road near Glencoe. The OPP reported numerous other vehicle crashes due to the flooding in Middlesex and Lambton Counties.

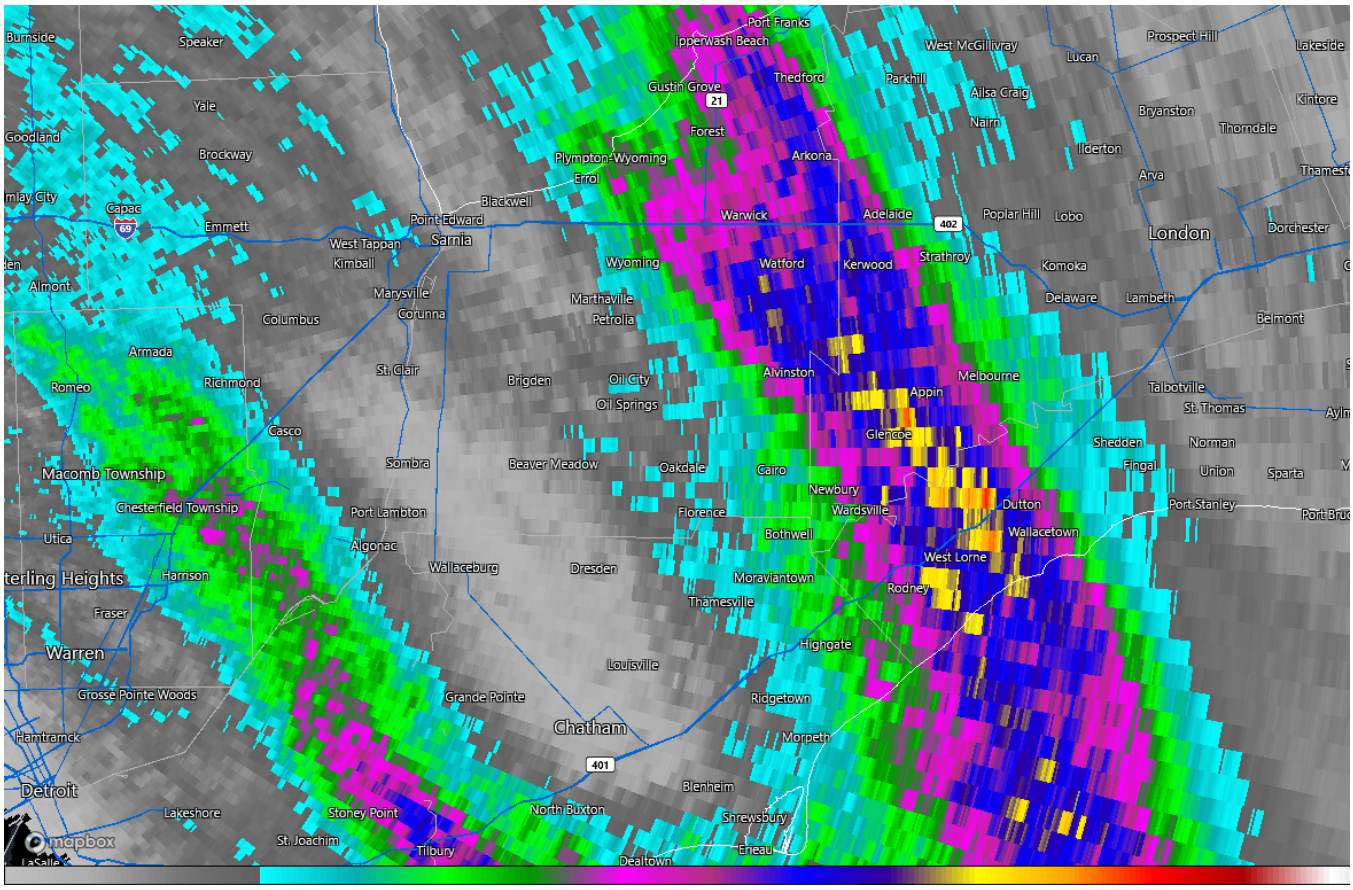
Figure 14 - Map showing the locations of the two EF0 tornadoes (circled) and four EF0 downbursts that affected London and area in 2023, with pin colours and shapes indicating the EF rating.



(Source: Northern Tornadoes Project Dashboard).

In general, it has been found that London has experienced a long-term decline in high-speed wind events (exclusive of tornadoes), particularly for the March through September period.

Figure 15 - Map of storm total rainfall accumulations as of 10 pm on August 23rd from the DTX radar north of Detroit, MI. The map shows radar-estimated accumulation of 112 mm at Warwick Township, 156 mm at Glencoe and 158 mm near Dutton.



(Source: Northern Tornadoes Project, Western University, 2023.)

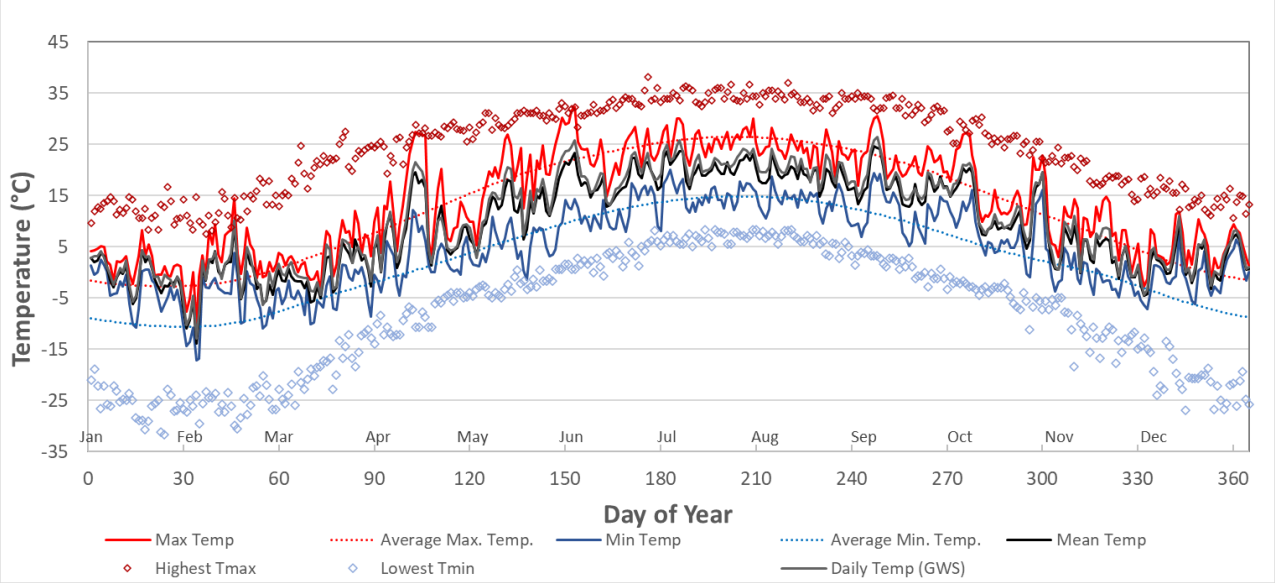
While extreme precipitation events are expected to increase in the future, the observational record for London has not yet shown robust evidence of an upward trend in short-duration rainfall extremes. Analysis of potential long-term trends in annual maxima at various rainfall durations (5 minutes to 24 hours) suggest weak upward trends from 10 to 30 minutes, and weak downward trends from 6 to 24 hours, however none of the trends have statistical significance. A similar lack of robust trends has been the situation for Canada up until as recently as 2022, due in part to high regional variability. However, a new national analysis with updated data is now able to show that, while there is still large variability across the country, Canada is experiencing an increase in precipitation intensity for the shortest sub-hourly to hourly timescales (5-minute to 2-hour durations).

8.3. Average Temperatures

The latest 30-year climate normal data showed that London continues to warm slightly, with notably higher minimum temperatures and an increasing number of days reaching 30°C or more. Figure 16 plots air temperatures recorded at the London International Airport. It combines the reported daily maximum (red solid line), minimum (blue solid line) and average

(black solid line) together with the long-term average maximum (red dotted line) and average minimum (blue dotted line) temperature for that station and day. The open dark red and light blue symbols are the maximum and minimum recorded air temperature for the period 1941-2023 (Jan – Oct) or 1940-2023 (Nov - Dec) at the station on that day. In addition, the mean daily temperature from a non-standard station operated by the Department of Geography and Environment near the Social Science Centre on Western University campus is also shown to represent a station with urban influence in the signal (grey solid line).

Figure 16 - Air temperature data for 2023 recorded at the London International Airport station, including the long-term average maximum and minimum temperatures and the lowest and highest temperatures available from the 77-year record.



(Source: data from ECCC & Department of Geography and Environment, Western University).

On a month-by-month basis, January was characterized by temperatures well above normal with only the last few days of the month falling to normal or below normal temperatures. February began and ended with a few cold days but in between temperatures were consistently above normal with a 12-day period where the daytime high was always above the normal average maximum temperature. The maximum daytime high of 15°C on February 15, 2023, set a new daytime high for that date. March had mostly near normal temperatures, with April showing more cold and warm anomalies; the daytime average temperature exceeded the long-term daytime maximum temperature for six consecutive days. For three of these days, air temperatures were 27°C or above, and missed setting a record on April 14 and 15 by only 0.1 and 0.2°C respectively.

May began relatively cool, but experienced periods of warmth near mid-month and at the end of the month daytime maximum temperatures were close to or above 30°C, which when combined with the hot start to June, just missed the definition of a ‘heatwave’. July and August temperatures were mostly near normal with a few cooler periods in August near the start and end of the month where the daily minimum temperature was substantially less than the long term mean daily temperature. Unusually, there were no days with maximum temperatures above 30°C for London in August. The fall had several warm periods: in September, London

experienced a period of warm daytime temperatures where the daytime maximum temperature exceeded the long-term average maximum for a week at the start of the month. The beginning of October was also anomalously warm with daytime maximum air temperatures coming within a few tenths of a degree of the record for London on October 3 and 4 and in the later part of the month the daily maximum temperature exceeded the record by over 0.5°C. November and December were characterized by generally warmer temperatures that fell within the expected average ranges. December, for instance, included 17 days where the minimum daily temperature did not go below 0°C.

There have been three instances of 2023 equaling or exceeding the maximum recorded air temperature in the record: February 15, June 2, and October 27. There were no instances of daytime minimum air temperatures lower than those recorded over the ~80-year record of comparison. There have been 59 days in 2023 where the mean daytime temperature has been greater than the mean daytime maximum temperature. No heat waves were recorded in London in 2023, based on the definition of a heat wave as three consecutive days where the temperature is 30°C or greater. There were three instances of 2 consecutive days with temperatures exceeding the threshold, however.

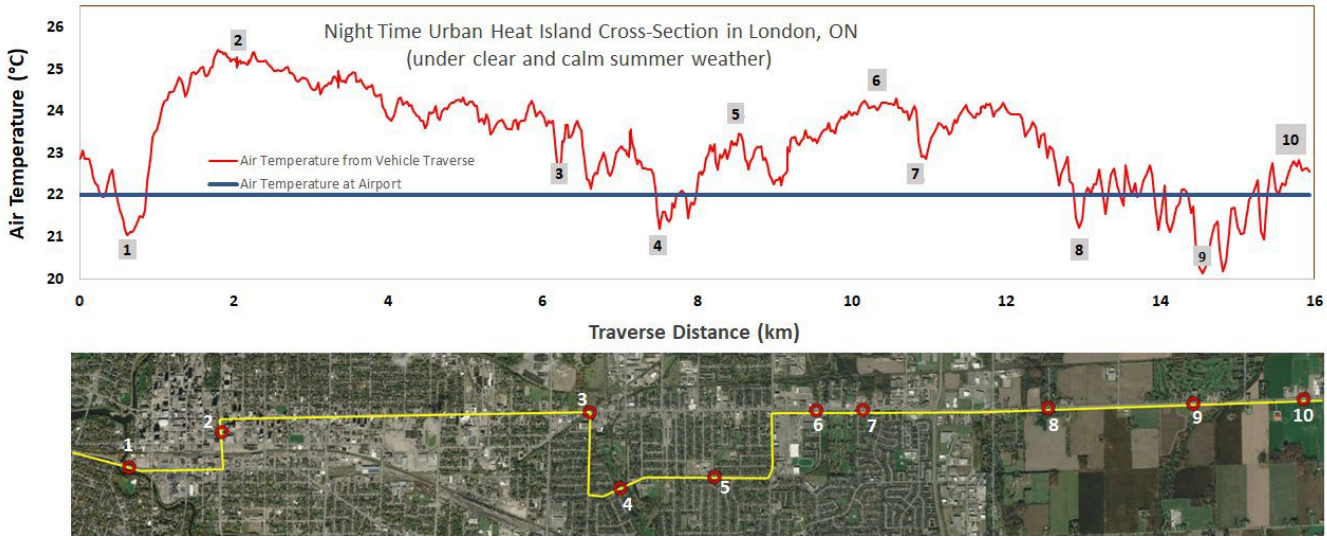
We note that the characterization of temperatures for London here are limited to the London International Airport, where monitored conditions are not necessarily representative of those experienced in the more highly urbanized parts of the city. Urban enhancement of temperature is typical, especially at night in the summer under clear skies and light winds and leads to an urban heat island (UHI) effect. Research shows that, on an annual basis, the enhancement of air temperature may be around 1-2°C in the most built-up part of the city. During select weather conditions that favour UHI formation, the enhancement at night may be 6-8°C in a medium sized, North American city; daytime increases are much smaller, perhaps only a degree or two.

Figure 17 shows an example of a night-time urban heat island cross section through London illustrating intra-urban scale variability of temperature. The horizontal line represents the temperature measured at the London airport and the location markers on the map coincide to the following locations in London:

1 - Horton St. E at the Thames River;
2 – Wellington St. / King St.;
3 - Dundas St. / Hale St.;
4 - Wavell St. / Kiwanis Park
5 - Wavell St. near East Lions Community Centre;
6: Dundas St. just east of Argyle Mall
7: Dundas St. at Forest Lawn Cemetery
8: Dundas St. / Kostis Ave.
9: Dundas St. / Maple Ridge Golf
10: Dundas St. / Trails End Market

Variations in temperature coincide with the most intensely urbanized locations of the city – high amounts of impervious surfaces, lack of vegetation and tall buildings provide the greatest increase in the nighttime air temperature increase. The spatial patterns of heat remain largely constant through time, but the relative heat island magnitude is influenced strongly by weather conditions. Increases in the number of tall buildings in downtown London will contribute to enhancements of nighttime temperature in the core area. Development of new urban lands will also contribute to temperature increases; these are most easily seen in increased surface temperatures that accompany the loss of vegetation and exposed bare dry surfaces during the construction phase.

Figure 17 - Air temperature measured from a nighttime vehicle traverse (red line) on July 22, 2022 just after mid-night from central London to east of the airport illustrating intra-urban scale variability of temperature. The thick blue horizontal line represents the temperature measured at the London Airport.



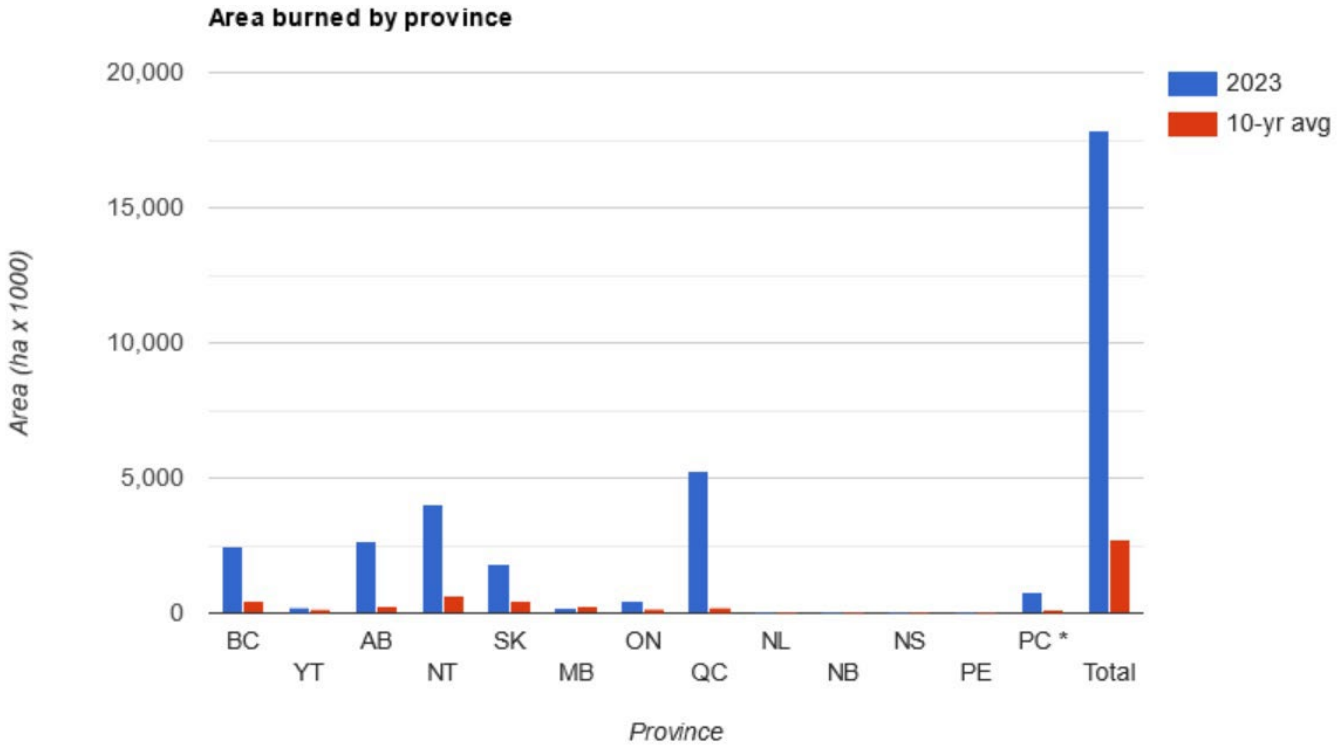
8.4. Canada Weather Trends and Impacts

London and surrounding municipalities were affected by severe and climatologically extreme weather in 2023, though fortunately not to the extent of a number of other regions of Canada. A unifying climate event that affected Canada from coast to coast (and far beyond) in 2023 was a record wildfire season in terms of burned area, and the resulting wildfire smoke. As shown in Figure 18, the burned area in 2023 was extreme relative to past years, and unprecedented in documented history. Of course, the conditions required for extreme wildfire occurrence – prolonged heat and drought – were also prevalent across much of the forested areas of Canada.

The Insurance Bureau of Canada (IBC) statistics indicate that natural catastrophes and severe weather events in 2023 caused $3.1 billion in insured damages. This marks the second year in a row of more than $3 billion in insured damages and 2023 ranks fourth all time for the most insured damages in a year in Canada. The top four natural catastrophes and severe weather events in Canada, each causing at least $300 million in insured damages, were:

- April 5 to 6: Ontario and Quebec spring ice storm ($330 million);
- June 18 to July 26: Prairies summer storms ($300 million);
- July 20 to August 25: Ontario severe summer storms ($340 million); and
- August 15 to September 25: Okanagan and Shuswap area wildfires ($720 million).

Figure 18 - Area burned by wildfires in each province and territory, for both the last 10 years and for the year 2023 (Source: Canadian Wildland Fire Information System / Natural Resources Canada).



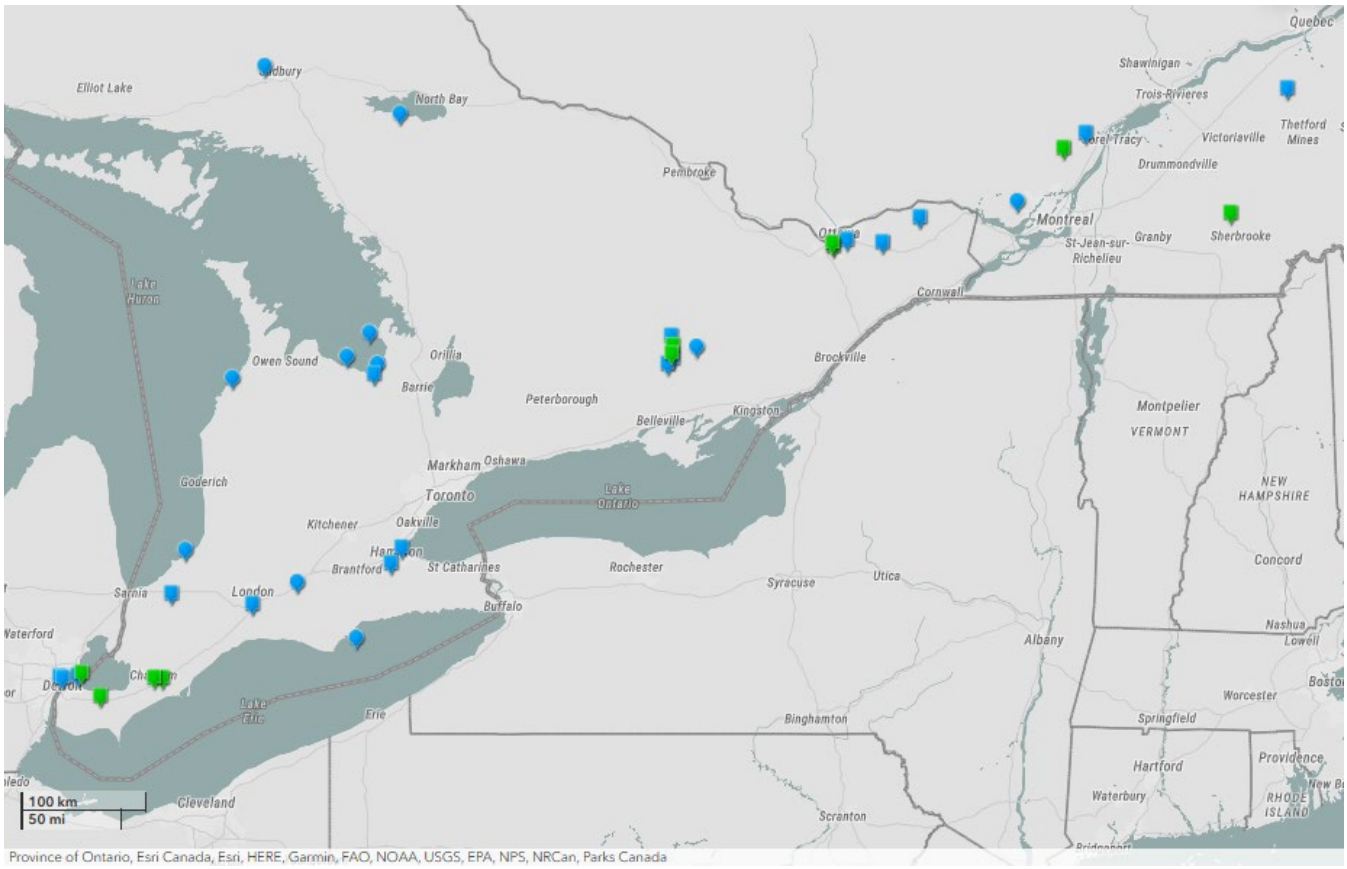
West Coast: A large portion of BC experienced severe to extreme drought in 2023, including almost the entire coastal area and Vancouver Island – referred to as unprecedented. BC experienced a heat emergency in mid-August, with some temperatures in the interior reaching over 40°C. These drought conditions led to extreme wildfires in the Okanagan and Shuswap areas. Even an October 'atmospheric river' event couldn't put much of a dent in the precipitation deficit across the coastal region, and experts warned that the drought could persist into 2024 and may even reflect a new reality for BC.

Ontario / Quebec: As has been the case over the past five years, severe and extreme weather events have hit eastern Ontario and southern Quebec particularly hard and often straddled the provincial border. The first such example is the early April ice storm that hit eastern Ontario and southern Quebec, with the greatest impacts in the Ottawa and Montreal regions. Freezing rain and strong winds resulted in catastrophic impacts to trees and power lines, with up to 1.3 million people losing power and hundreds of millions of dollars in insured losses. It was the worst power outage in Quebec since the 1998 ice storm. There were two fatalities associated with storm, one in each province, both caused by trees falling. Ottawa was also affected by excessive precipitation on August 10th when a severe thunderstorm produced flash flooding.

There were 37 tornadoes in southern Ontario and southern Quebec (Figure 19), roughly half of all tornadoes in Canada in 2023, as documented by the Northern Tornadoes Project. However, all these tornadoes were weak – causing EF0 to EF1 damage. In 2022, there were 5 EF2

tornadoes across this region, and in 2021 there were 12. Three locations with multiple weak tornadoes over the summer were Ottawa, Windsor and the Tweed area (Figure).

Figure 19 - Map showing the locations of tornadoes in southern Ontario and southern Quebec over the 2023 season, with pin colours indicating the EF rating (Source: Northern Tornadoes Project Dashboard).



Thunderstorms with hail are not uncommon in southern Ontario, but some storms from this past summer produced hail of sizes that are considered extreme. On July 20, baseball-sized hail was documented at Courtright and Amherstburg, with tennis ball-sized at Cottam. On July 28, up to tennis ball-sized hail fell in the Ottawa region associated with a storm for which an ‘extreme’ thunderstorm warning was issued. This is a new, broadcast-intrusive type of warning for thunderstorms that can produce hail to 7 cm and/or winds to 130 km/h and was first used in 2022 for the May 21 derecho.

The wildfires that devastated parts of heavily forested central Quebec were investigated by World Weather Attribution, an international scientific collaboration that studies the influence of climate change on extreme weather events. The organization concluded that climate change made peak fire weather like that experienced in Quebec in 2023 twice as likely and 20% more intense. It also estimated that fire seasons of this severity are at least several times more likely due to climate change.

East Coast: That Maritime provinces, and Nova Scotia in particular, experienced severe and extreme weather that residents there are not accustomed to. It was the most destructive wildfire season documented in Nova Scotia, with over 25,000 hectares burned and 200 homes destroyed. That province also experienced significant flooding caused by an 'atmospheric river' on July 23rd that dropped more than 250 mm on the hardest-hit areas, leading to significant damage to infrastructure, flooding of homes and businesses, and a state of emergency declaration. Insured losses reached over $170M. Tragically, it also caused four fatalities. The Maritimes were also hit by the post-tropical remnants of Hurricane Lee, with trees and power lines felled by winds gusting to 120 km/h and storm surge-related flooding in some coastal areas. This storm was not nearly as damaging as 2022's devastating Hurricane Fiona.

8.5. Global Weather Trends and Impacts

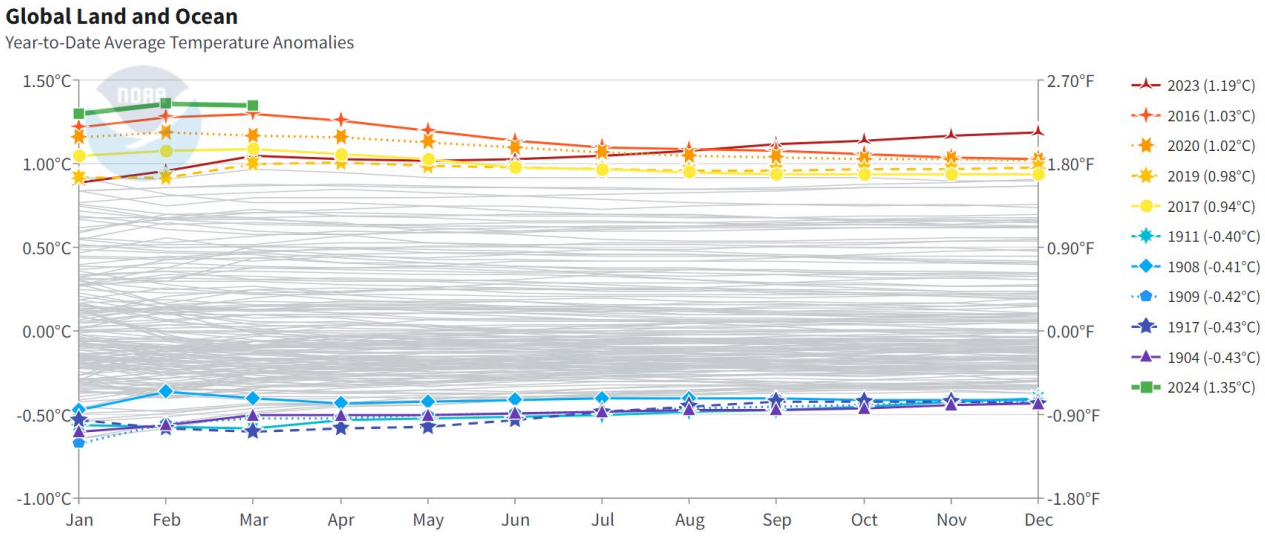
The World Meteorological Organization (WMO) "State of the Global Climate 2023" report issued in March 2024 confirmed that 2023 was the warmest year on record at 1.45 ± 0.12 degrees Celsius above the pre-industrial average global temperature. Key messages from the WMO report also included:

- Ocean heat content reached its highest level in the 65-year observational record;
- Global mean sea level reached a record high. The rate of seal-level rise in the past 10 year (2014-2023) has more than doubled since the first decade of the satellite record (1993-2002);
- Antarctic sea-ice extent reached an absolute record low in February 2023. The annual maximum extent was about 1 million square kilometres below the previous record low maximum;
- Preliminary data from the global set of reference glaciers for the hydrological year 2022-2023 show they experienced the largest loss of ice on record (1950-2023), driven by extremely negative mass balance in both western North America and Europe;
- Extreme weather continued to lead to severe socioeconomic impacts. Extreme heat affected many parts of the world. Wildfires in Canada, Europe and Hawaii led to loss of life, the destruction of homes and large-scale air pollution;
- Flooding associated with extreme rainfall from Mediterranean Cyclone Daniel affected Greece, Bulgaria, Turkey, and Libya, with particularly heavy loss of life in Libya; and
- Food security, population displacement and impacts on vulnerable populations continued to be of mounting concern in 2023, with weather and climate hazards exacerbating the situation in many parts of the world.

Further corroboration of the WMO findings were presented in the Journal Nature in May 2024, in an article detailing a study using a well-established method and record of more than 10,000 tree rings to calculate summertime temperatures for each year since the year 1. No year came even close to summer 2023's high heat, according to the lead author based at the Gutenberg

Research College in Germany. These results are visually represented by the National Oceanic and Atmospheric Administration (NOAA) global air temperature anomalies relative to the 1901-2000 average from 1850 to the present, shown in Figure 20. Also visible on Figure 20 are the average temperature anomalies for the first few months of 2024 which exceed all other anomalies in the period for which data is available.

Figure 20 - Global air temperature anomalies relative to the 1901-2000 average from 1850 to the present. The five warmest years, five coolest years and current year (green) are plotted in colour with all other years in light gray. (Source: National Centers for Environment, NOAA).



9. Looking Ahead

9.1. Early Activities in 2024

In addition to the activities detailed in Section 3 of this report, activities have continued in early 2024 with the following additional items of note advancing:

- Successful launch of the Green Bin program commenced in January 2024 with an initial participation rate estimated at 40 per cent of Londoners, which has grown in the months following launch to approximately 60 per cent (based on monitoring areas). Additional work is underway in 2024 to expand the Green Bin program to multi-unit residential buildings.

- For the Mobility Master Plan, in February 2024, Council resolved to establish a 2050 Mode Share Target for a combined mode share of walking, cycling and transit of 32.5 per cent. This is an increase from the pre-pandemic (2019) combined mode share of 23 per cent.

- The City launched the Transportation Management Association initiative called Smart Commute London in April 2024, which aims to enable and support Londoners in using active transportation, public transit and carpooling for trips within the City.

- The outcome of the Multi-Year Budget process included funding approval for three components of a larger CEAP business case:

    - Providing $1.5 million in capital to support the development of a home energy retrofit program. City staff are working with the Clean Air Partnership to submit a proposal to the Federal of Canadian Municipalities' Community Efficiency Financing program for a $1.5 million grant and a $3.0 million loan to develop a home energy retrofit program that could include concierge-style services to assist Londoners with retrofit planning as well as provide Property-Assessed Clean Energy style loans for up to 150 households. The outcome of this proposal is expected to be known by the end of 2024.

    - Additional investment required to support and grow Smart Commute London and build on opportunities to reduce reliance on single occupant vehicle trips, particularly with the growing need to address multiple areas in London and regional mobility needs as a result of large employers expecting to employ a larger number of Londoners. A funding amount of $60,000 annual operating and $40,000 capital over four years has been approved.

    - The creation of a Climate Change Reserve Fund ($1 million per year) to accelerate implementation of climate actions. The monies standing in the Fund shall be used by The Corporation of the City of London to fund any initiatives that support the Climate Emergency Declaration adopted by Council, April 23, 2019, including operating or capital expenditures related to:

      a. One-time initiatives/projects; or

b. Initiatives/projects that require a temporary source of financing not to exceed four years. Should The Corporation of the City of London wish to deliver an initiative/project on a permanent basis, transition plans must identify permanent sources of financing to commence no later than the fifth year.

- The City's 2024-2027 Multi-Year Grants Program had $2.3 million in funding available, which will provide financial support to London-based not-for-profit organizations and community groups to implement programs, with funding provided for up to four years. Of the organizations and groups receiving funding, eight have strong ties to the implementation of CEAP actions, including Growing Chefs, LOLA (London Ontario Learning Apiary) Organization, London Cycle Link Association, London Environmental Network, ReForest London, Thames Talbot Land Trust, The Reimagine Institute for Community Sustainability, and Urban Roots London.

- Council provided a resolution in January 2024 that Civic Administration be directed to review the legislative framework and municipal best practices to adopt a by-law through Section 97.1 of the *Municipal Act* to implement sustainable building construction features, including but not limited to energy efficiency, water conservation and green roofs and report back to Council with options and recommendations, including identifying any required Official Plan, Zoning By-law and Site Plan Control Bylaw amendments. In addition, staff was directed to report back to Council with a short update regarding the scope and timeline of the Green Development Guidelines and Green parking Lot Guidelines in addition to the above items.

- 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 Mobility Master Plan.

- The City has submitted a proposal to the Federal of Canadian Municipalities' Green Municipal Fund to carryout a feasibility study with funding on options for providing and administering different types of secure bike parking across London. This builds upon the pilot project that tested the use of bike lockers for both short-term hourly rentals and monthly rentals. These bike lockers remain in service.

- 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 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 per cent 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.

- 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.

- City staff have completed 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.

- City staff have completed 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.

- City staff worked on the development of 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's 2030 milestone for corporate energy-related greenhouse gas emissions.

- The City of London is nearing completion of the installation of ten Level 2 electric vehicle charging stations (20 charging ports) at the A.J. Tyler Operations Centre for use by future fleet electric vehicles. This work received $100,000 of funding from Natural Resources Canada's Zero Emission Vehicle Infrastructure Program.

- City staff are working with researchers from Western University and the private sector (Comcor Environmental and GHGSat) on a federally funded project for testing the effectiveness of multi-scale measurement of methane emissions from London's W12A landfill. This project will compare the results from measurements take from ground sweeps, drones, and satellites to improve the ability to detect and measure methane emissions from the landfill. Methane is a potent greenhouse gas with 28 times the global warming potential of carbon dioxide.

- City staff worked with students from Western University to estimate the contribution of common consumer goods towards consumption-based greenhouse gas emissions.

- 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.

- London Hydro and the City co-hosted a two-day community engagement event at the Hellenic Centre in May 2024 to promote electric vehicles. The event had 20 participating dealerships (a 20% increase over 2022), and over 50 electric and plug-in hybrid vehicles (a 25% increase) were available for viewing and test drives. Over 600 people attended (a 50% increase over 2022).

- The City, in partnership with LEN and London Cycle Link, hosted an e-bike test ride event in June to promote cycling and the adoption of e-bikes as a replacement for a household second vehicle.

9.2. Upcoming Activities in 2024

Many activities either underway and finishing or starting later in 2024 will build upon the continued CEAP implementation momentum generated in 2022 and 2023. A sample of those items coming within the next few months include:

- Second phase of public consultation on the Mobility Master Plan, seeking input on the plan's proposed desired outcomes based on the needs and opportunities identified through previous engagement, organized by Area of Focus as well as potential policies and actions that could help shape the future mobility system and achieve mobility goals.

- Consultation and engagement to inform and direct the City's Climate Change Adaptation Framework will continue in 2024 with a draft report intended to be released in Q1 2025. This work is building upon previous efforts from City staff, community members and non-government agencies that have contributed knowledge, expertise and efforts to improve London's climate change resilience. The Climate Change Adaptation Framework will incorporate feedback from Londoners on how best to address vulnerabilities to the impacts of climate change and build upon the actions included in the CEAP's Area of Focus #8 'Adapting and Making London More Resilient'.

- Advancing stormwater construction projects to mitigate flooding, including Mud Creek Phase 2, Harris Park improvements, improvements to West Lions Park, Cavendish Park and Riverside Park.

- Removing combined sewers on York Street at Wellington Street as part of Rapid Transit construction work.

- 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).

- Federal DMAF funding will also be used for construction of earth berms and walls around the Greenway and Adelaide Wastewater Treatment Plants to improve their resilience to flooding. This climate adaptation measure will help keep these important wastewater facilities operational during flooding events.

- Finalization of the biosolids management master plan to guide Wastewater planning for the next 10 to 20 years and capitalize on potential synergies to reduce energy use, reduce greenhouse gas emissions and co-manage landfill gas and source-separated organics management.

- Finalize the creation and installation of signage to both educate and bring attention to climate action projects in the community will be undertaken (e.g., West London Dyke informational sign, Urban Roots urban farm, etc.).

APPENDIX A - Indicators of Progress

Area of Focus	Indicator	2020	2021	2022	2023
1 - Engaging, Inspiring and Learning from People	Number of CEAP related document downloads	Not Applicable	Not Applicable	4,270	7,830
1 - Engaging, Inspiring and Learning from People	Number of organizations engaged	Not Applicable	Not Applicable	124	52
1 - Engaging, Inspiring and Learning from People	Number of participants in City-led or co-led events (estimated)	Not Applicable	Not Applicable	15,000	14,000
1 - Engaging, Inspiring and Learning from People	Number of requests to City Staff for invitations to speak about CEAP	Not Applicable	Not Applicable	15	13
1 - Engaging, Inspiring and Learning from People	Number of new groups reached	Not Applicable	Not Applicable	64	3
2 - Taking Action Now (Household Actions)	Average natural gas use per residential customer (m3/year)	2,062	1,936	2,099	1,932
2 - Taking Action Now (Household Actions)	Number of participants in community gardens (plus waitlist)	Data not compiled	Data not compiled	565	654
2 - Taking Action Now (Household Actions)	Number of residential energy retrofits completed	1,094	944	1,344	1,830

Area of Focus	Indicator	2020	2021	2022	2023
3 - Transforming Buildings and Development	Total GHG emissions per year from Industrial, Commercial & Institutional (IC&I) sources (tonnes CO2e)	930,000	920,000	1,020,000	1,050,000
3 - Transforming Buildings and Development	Total GHG emissions per year from Broader Public Sector Buildings (tonnes CO2e)	144,000	163,000	To be determined	To be determined
3 - Transforming Buildings and Development	Per capita GHG emissions per year from IC&I (tonnes CO2e)	2.27	2.24	2.39	2.32
3 - Transforming Buildings and Development	% of approved new residential developments with >10 units incorporating secure bike parking and storage	11%	17%	19%	18%
3 - Transforming Buildings and Development	% of new residential units (in developments with >10 units) approved within the built area boundary	41.7%	32.1%	56.1%	50.3%
3 - Transforming Buildings and Development	Average GHG emissions per person from all single-family residential buildings (tonnes CO_2e)	1.34	1.25	1.34	1.24

Area of Focus	Indicator	2020	2021	2022	2023
3 - Transforming Buildings and Development	Number of EV charging stations available city-wide	31	52	75	96
3 - Transforming Buildings and Development	# of permits issued for residential rooftop solar installations on existing buildings	17	11	12	17
3 - Transforming Buildings and Development	Total installed renewable electricity generation capacity (MW)	21.4	23.3	24.8	25.3
3 - Transforming Buildings and Development	Density of approved residential greenfield developments with >10 units (units/Ha.)	Data not compiled	Data not compiled	Data not compiled	67.8
3 - Transforming Buildings and Development	# of parking spaces per unit for approved new residential developments with >10 units city-wide	Data not compiled	Data not compiled	Data not compiled	1.15
3 - Transforming Buildings and Development	% of all newly constructed residential units located within the 2016 built area boundary	40.2%	46.9%	16.4%	43.5%
4 - Transforming Transportation and Mobility	% of all light-duty vehicles registered that are ZEV	0.37%	0.50%	0.77%	1.07%

Area of Focus	Indicator	2020	2021	2022	2023
4 - Transforming Transportation and Mobility	% of in-town trips in London taken by active transportation and transit	22.2%	20.4%	21.7%	23.6%
4 - Transforming Transportation and Mobility	% of new model year light-duty vehicles registered that are ZEV	0.8%	1.7%	3.2%	4.3%
4 - Transforming Transportation and Mobility	Number of registered vehicles per person	0.655	0.674	0.617	0.592
4 - Transforming Transportation and Mobility	Total GHG emissions per year from transportation (tonnes CO_2e)	1,140,000	1,180,000	1,260,000	1,330,000
4 - Transforming Transportation and Mobility	Per capita GHG emissions per year from transportation (tonnes CO_2e)	2.73	2.79	2.90	2.94
4 - Transforming Transportation and Mobility	Retail sales of fuel (litres) per person per year	835	837	858	900
4 - Transforming Transportation and Mobility	Retail sales of fuel (litres) per registered vehicle per year	1,250	1,240	1,390	1,520
4 - Transforming Transportation and Mobility	# of m's of new sidewalks provided annually	4,240	3,100	6,600	6,800
4 - Transforming Transportation and Mobility	% of Urban Growth Area streets without sidewalks	29.8%	29%	28.4%	27.5%
4 - Transforming Transportation and Mobility	% of vehicle-for-hire fleet that are ZEV	0.4%	0.9%	5.3%	4.5%

Area of Focus	Indicator	2020	2021	2022	2023
4 - Transforming Transportation and Mobility	Public area serviced by low-impact development (LID) drainage installations (Ha)	3.16	4.82	5.12	To be determined
4 - Transforming Transportation and Mobility	# of EV charge ports per thousand people for public use	0.21	0.32	0.42	0.53
4 - Transforming Transportation and Mobility	Percentage of households within 400 metres of a regular service public transit stop	Data not compiled	Data not compiled	86%	88%
4 - Transforming Transportation and Mobility	Percentage of households within 400 metres of an express bus transit stop	Data not compiled	Data not compiled	21%	17%
4 - Transforming Transportation and Mobility	Number of transit rides per capita	31	20	32	41
4 - Transforming Transportation and Mobility	Number of transit rides	12,700,000	8,300,000	13,400,000	18,400,000
4 - Transforming Transportation and Mobility	Walking trips per capita	98	99	104	107
4 - Transforming Transportation and Mobility	Cycling trips per capita	9.8	9.7	9.4	9.5
4 - Transforming Transportation and Mobility	Vehicle trips per capita	544	593	614	594
4 - Transforming Transportation and Mobility	On-street cycling counts	75,070	69,146	88,946	88,765

Area of Focus	Indicator	2020	2021	2022	2023
4 - Transforming Transportation and Mobility	# of Level 2 EV charging ports available city-wide	67	113	159	201
4 - Transforming Transportation and Mobility	# of Level 3 DC fast charging ports available city-wide	19	23	23	40
5 - Transforming Consumption and Waste as Part of the Circular Economy	Number of reuse, recycle, compost, digest, recover facilities in London and region	Data not compiled	Data not compiled	9	9
5 - Transforming Consumption and Waste as Part of the Circular Economy	Participation rate (household) in Recycling Program	89%	90%	90%	90%
5 - Transforming Consumption and Waste as Part of the Circular Economy	% of residential materials diverted from landfill	44%	45%	44%	45%
5 - Transforming Consumption and Waste as Part of the Circular Economy	Average amount of curbside waste disposed per households (kg/year)	397	381	356	362
6 - Implementing Natural and Engineered Climate Solutions and Carbon Capture	% tree cover outside the urban growth boundary	no new info (15.3% in 2019)	no new info	no new info	no new info
6 - Implementing Natural and Engineered Climate Solutions and Carbon Capture	% tree cover within the urban growth boundary	no new info (26.6% in 2019)	no new info	no new info	27.9%

Area of Focus	Indicator	2020	2021	2022	2023
6 - Implementing Natural and Engineered Climate Solutions and Carbon Capture	Number of trees estimated to be planted per year on private property	50,000 city-wide (30,000 inside 2008 UGB)	50,000 city-wide (30,000 inside 2008 UGB)	50,000 city-wide (30,000 inside 2008 UGB)	50,000 city-wide (30,000 inside 2008 UGB)
6 - Implementing Natural and Engineered Climate Solutions and Carbon Capture	Number of trees planted per year on public property	7,225 (4,004 on streets, rest in Parks)	8,500 (5,294 on streets, rest in Parks)	8,874 (4,250 on streets, rest in Parks)	6,680 (3,454 on streets, rest in parks)
7 - Demonstrating Leadership in Municipal Processes and Collaborations	% of light duty fleet vehicles zero emission	Data not compiled	Data not compiled	2.8%	2.8%
7 - Demonstrating Leadership in Municipal Processes and Collaborations	% of medium duty (off road) fleet vehicles zero emission	Data not compiled	Data not compiled	10.9%	10.9%
7 - Demonstrating Leadership in Municipal Processes and Collaborations	Total energy-related GHG emissions per year (tonnes CO_2e)	18,100	18,000	19,400	21,000
7 - Demonstrating Leadership in Municipal Processes and Collaborations	Per capita corporate energy-related GHG emissions per year (kg CO_2e)	43.4	42.6	44.6	46.5
7 - Demonstrating Leadership in Municipal Processes and Collaborations	Total GHG emissions per year from municipal buildings (tonnes CO_2e)	7,770	6,940	7,880	8,190

Area of Focus	Indicator	2020	2021	2022	2023
7 - Demonstrating Leadership in Municipal Processes and Collaborations	Total GHG emissions per year from fleet vehicles (tonnes CO_2e)	6,910	7,350	7,280	7,210
7 - Demonstrating Leadership in Municipal Processes and Collaborations	Total GHG emissions per year from civic infrastructure (water, wastewater, streetlighting) (tonnes CO_2e)	3,440	3,760	4,240	5,550
7 - Demonstrating Leadership in Municipal Processes and Collaborations	Total GHG emissions from W12A landfill (tonnes CO_2e)	106,000	82,000	94,000	110,000
7 - Demonstrating Leadership in Municipal Processes and Collaborations	Total GHG emissions from closed municipal landfills (tonnes CO_2e)	37,000	36,000	35,000	34,000
8 - Adapting and Making London More Resilient	# of adaptation projects to protect critical City facilities and neighbourhoods from flooding	Data not compiled	Data not compiled	2	3
8 - Adapting and Making London More Resilient	% of wastewater treatment plants with resilience measures	Data not compiled	Data not compiled	60%	60%
8 - Adapting and Making London More Resilient	Number of metres of combined sewer remaining	15,600	14,200	13,300	12,650
9- Advancing Knowledge, Research and Innovation	# City climate change projects ongoing in collaboration with educational institutions	Data not compiled	Data not compiled	13	8

Area of Focus	Indicator	2020	2021	2022	2023
9- Advancing Knowledge, Research and Innovation	# signed Memorandums of Understanding (MoUs)	Not Applicable	Not Applicable	1	1
10 - Measuring, Monitoring and Providing Feedback	Percentage of London Top Employers (over 200 employees) reporting sustainability indicators and/or climate action commitments	Data not compiled	64%	68%	70%
10 - Measuring, Monitoring and Providing Feedback	Total community GHG emissions per year (megatonnes CO2e)	2.77	2.74	2.96	3.11|
10 - Measuring, Monitoring and Providing Feedback	Per capita community GHG emissions per year (tonnes CO2e)	6.7	6.6	7.0	6.9
10 - Measuring, Monitoring and Providing Feedback	Total community energy use per year (terajoules)	55,200	55,200	59,000	58,900
10 - Measuring, Monitoring and Providing Feedback	Per capita energy use per year (gigajoules)	132	131	136	130
10 - Measuring, Monitoring and Providing Feedback	Total community energy costs per year ($ billions)	$1.35	$1.49	$1.85	$1.83
10 - Measuring, Monitoring and Providing Feedback	energy productivity ($GDP per gigajoule)	$341	$366	$361	$368

APPENDIX B – London Hydro

Overview of Recent London Hydro Climate, Sustainability and Resiliency Plans

Summary

London Hydro continues to support 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 will meet future demands and minimize power interruptions. Below is a description of activities that London Hydro is contributing toward the three shared goals of the Climate Emergency Action Plan.

Ready for Growth

To ensure the electrical distribution network is ready for the City of London's growth and to accommodate customers' decarbonization and electrification initiatives, London Hydro has developed a comprehensive Planning Outlook extending to 2050. This outlook is based on forecasts from the City of London's Planning and Economic Development group, historical consumption and demand trends, and the latest information and inquiries from large customers.

Additionally, London Hydro is collaborating on the City of London and Western University's Climate Action and Awareness Fund (CAAF) project, which aims to enhance multi-scale, city-wide energy and emissions modeling. This effort utilizes the CityInSight energy and greenhouse gas (GHG) model developed by SSG (Sustainability Solutions Group) for London. The findings from this study, particularly the estimated impacts of electrifying space heating and transportation, will inform and refine our future load growth projections.

For planning purposes, London Hydro has outlined three potential gross demand projection scenarios:

- Low Growth: 0.35% annual increase;
- Medium Growth: 1.85% annual increase (most probable); and
- High Growth: 2.84% annual increase.

The most likely scenario is a medium growth rate of 1.85% per year, which translates to an additional 476 MW of demand by 2050. This increased demand will necessitate additional capacity between 2033 and 2037. However, depending on the pace and geographic concentration of this growth, specific transformer stations may require expansion even sooner.

London Hydro's method is to incorporate new conservation, demand management, and distributed generation forecasts into joint regional planning initiatives with the provincial transmitter (Hydro One) and the Independent Electricity System Operator (IESO). Future energy conservation efforts and the deployment of distributed energy resources (such as

generators, batteries, and demand response technologies) can help offset the gross demand on the distribution system and potentially delay additional capacity investments.

Electricity system demand trends will continue to be monitored and London Hydro will periodically reassess the complex assumptions affecting our industry and stakeholders during the next regional planning cycle, scheduled to begin in the third quarter of 2024.

In anticipation of increased load growth from electrification efforts, such as the adoption of electric vehicles, London Hydro has implemented several proactive measures:

- A program utilizing smart meter data to monitor transformer loading and identify overloaded transformers;
- New standards with higher capacity for servicing new and rebuilt residential neighbourhoods; and
- Ongoing exploration of various load control technologies.

By staying ahead of these trends and actively managing our infrastructure, London Hydro aims to meet the evolving energy needs of our community while supporting sustainable growth and environmental stewardship.

Supporting Local Business and Industry

London businesses and institutions are a key focus of delivering value in the areas of reliability, cost and efficiency enablement. Customer meetings, communication and online Green-Button based energy tool usage (Interval Data Centre Commerce application) with London's 85 largest electricity consumers helps them take advantage of the Industrial Conservation Initiative (ICI) electricity rates. Not only does this help businesses manage their costs, it can create efficiencies in the Ontario electricity system by reducing natural gas peaker plant usage resulting in lower overall emissions.

Conservation and Demand Management

London businesses are expected to realize beneficial opportunities through the continued delivery of Ontario electricity conservation and demand management (CDM) programs administered by the Independent Electricity System Operator (IESO). London Hydro is actively working to bring IESO programs to energy consumers in London such as the Strategic Energy Management (SEM) program and to 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.

Ensuring Resilience and Reliability

Over the past 15 years, London Hydro has prioritized enhancing its resiliency across three critical areas: system design, system operation, and emergency preparedness. This multifaceted approach has driven substantial improvements in safety and design practices, asset management, inspection protocols, and overall system reliability.

To ensure minimal disruption to customers and faster restoration times, London Hydro has significantly increased capital investments in grid visibility and automation. Emergency

preparedness is an ongoing focus, with continuous improvements in emergency planning and comprehensive follow-ups after major events. This commitment to resilience and adaptation is core to London Hydro's operations, as evidenced by consistent improvements in the overall reliability observed by an average customer. The average customer only saw 45.6 minutes of electricity outage duration last year and less than one outage per year which exceeded targets set by the Ontario Energy Board.

To further bolster grid resiliency, London Hydro has adopted several industry best practices:

- Implementing an extensive vegetation management plan to help keep the grid operating and mitigate impacts during severe weather events.
- Strategic installation of automated devices, such as reclosers and communicating faulted circuit indicators, enhances system visibility for control room operators and improves reliability by isolating fewer customers during faults and accelerating restoration efforts.
- The deployment of insulated conductors helps prevent outages when tree limbs contact power lines.
- Comprehensive pole inspection and reinforcement programs reduce the risk of pole failures under extreme wind and loading conditions.

Emergency Preparedness

Emergency preparedness remains a top priority for London Hydro as it readies itself to respond efficiently to inevitable outages. This includes increasing the stock of safety supplies, forging robust supplier alliances for emergency component supplies, and participating actively in mutual assistance groups like ONMAG and CANMAG to share resources with other Ontario utilities. ONMAG is a not-for-profit entity managed by Electricity Canada and provides members with the ability to share resources among 31 member utilities that represent 91% of all customers in Ontario. With a single phone call, London Hydro can receive or provide assistance to peer utilities that are in need. This collaboration makes us stronger and more responsive during a crisis event.

Additionally, London Hydro maintains a roster of pre-qualified contractors for supplemental support and conducts annual reviews of its emergency response plan, featuring tabletop exercises to simulate various scenarios such as ice storms, tornadoes, and floods. Through these strategies, London Hydro continues to build a more resilient and reliable grid, ensuring better service continuity and faster recovery from disruptions.

London Hydro continues to enhance grid automation to monitor and respond to system outages, restoring unaffected customers quickly and isolating damaged areas. New technologies are being explored that can predict outage locations and recommend system reconfigurations to be executed by our control room staff. London Hydro recently received the OACETT President's Award for Outstanding Technical Achievement (Figure 1) in recognition of the investments that have been made in distribution automation and grid monitoring technologies. An overview presentation is available at: https://youtu.be/9iBmQJ32Gyo



Figure 1. 2024 OACETT Outstanding Technical Achievement Award

Green Button Data

London Hydro has become an early adopter of Green Button and a founding member of the Green Button Alliance.

Convinced of the critical importance of giving our customers the power to make informed energy usage decisions, we were one of the very first utilities to adopt the Green Button standard. This fundamental first step to achieving the Green Button vision enabled residential and small-business customers to access their energy usage data in an understandable, standardized format.

We've used our expertise and experience in Green Button to develop a digital strategy that promotes self-service and streamlines the customer experience, emerging as a leading voice in the Green Button movement.

Developing Award-Winning Customer-Centric Solutions

London Hydro has moved its digital development to the benefit of customers. Leveraging our cloud-based infrastructure and Green Button data, customers have 24/7 access to their energy and water usage in our web-based portal MyLondonHydro and mobile app Trickl. Both applications feature self-serving price plan switches that provide automatic comparisons based on customers' actual usage. Trickl has also supported pilot projects testing behind-the-meter technology and innovative rate plans.

To support our commercial and industrial customers, we developed energy management solutions in the Interval Data Centre (IDC) Commerce application and the Property Management Portal, providing energy tracking and automated reporting. In 2016, London Hydro became the first utility to complete the Green Button Alliance's Training and Certification for electricity, natural gas and water usage data. Then, in 2022, we were the first utility to complete the Green Button Alliance Certification process for 3.3 standard update, establishing London Hydro as an industry-wide leader and authority on the Green Button Standard. Currently, over 65% of London Hydro customers are registered for MyLondonHydro, a self-

service web portal, where they can view their energy consumption to see where and how they can implement change to reduce their usage, costs and carbon footprint.

London Hydro has collaborated with nine utilities on launching Green Button solutions, which will allow over 600,000 customers in Ontario to better view and manage their energy usage.

Electric Vehicle Open Houses

As interest in electric vehicles continues to grow, the City of London and London Hydro partnered to host two Electric Vehicle Open Houses, one in October of 2023 and another in May of 2024. The purpose of the open houses is to help educate our community on the options and benefits of EVs.

Both events were successful with approximately 400 people attending in October and over 600 people coming out in May. Customers were excited to have a one-stop shop to view, compare, and test-drive over 50 hybrid and electric vehicles from 20 local dealerships.

Public Electric Vehicle Charging

London Hydro operates three public Flo charging stations that were put in place through cooperation with the City of London. Each station has two charger connection plugs. These chargers are publicly accessible and are located at 245 Pall Mall Street, 276 Dundas Street, and 352 Talbot Street. Each parking space for these chargers is clearly labeled as a green parking space exclusively for electric vehicles. The public has made significant use of the EV chargers. In 2023, these charging stations provided 2,600 separate charges totalling 37,749 kWh of electricity.

There are other industry policy and process enhancements underway to provide support to transitions toward vehicle electrification. London Hydro has worked to support Ontario's Ministry of Energy and the Ontario Energy Board's (OEB) Electric Vehicle Charging Connection Procedures (EVCCP) streamlining initiative. The EVCCP establishes standardized and streamlined requirements that electricity distributors across the province must follow when dealing with requests to connect these charging facilities. London Hydro's processes are compliant with these Distribution System Code changes and are expected to help customers looking to install charging stations.

In addition, London Hydro has been supporting the OEB in exploring options for an Electric Vehicle Charger Discount Electricity Rate to support the adoption of EVs through stakeholder participation. This proposal would be for an electricity delivery rate for public EV charging stations that have a low load factor and would require changes to London Hydro's billing system to manifest the benefits to this developing sector.

Customer Choice - Ultra-Lo Overnight For At-Home EV Charging

In 2023, the Ontario Government introduced a third electricity price plan for customers to choose from in addition to the Time-Of-Use (TOU) and Tiered plans. Ultra-Low-Overnight (ULO – Figure 2) pricing is similar to TOU and encourages customers to shift their usage overnight when electricity demand is lower.

London Hydro launched ULO to customers ahead of the November deadline in May of 2023, targeting electric vehicle owners who charge at home.

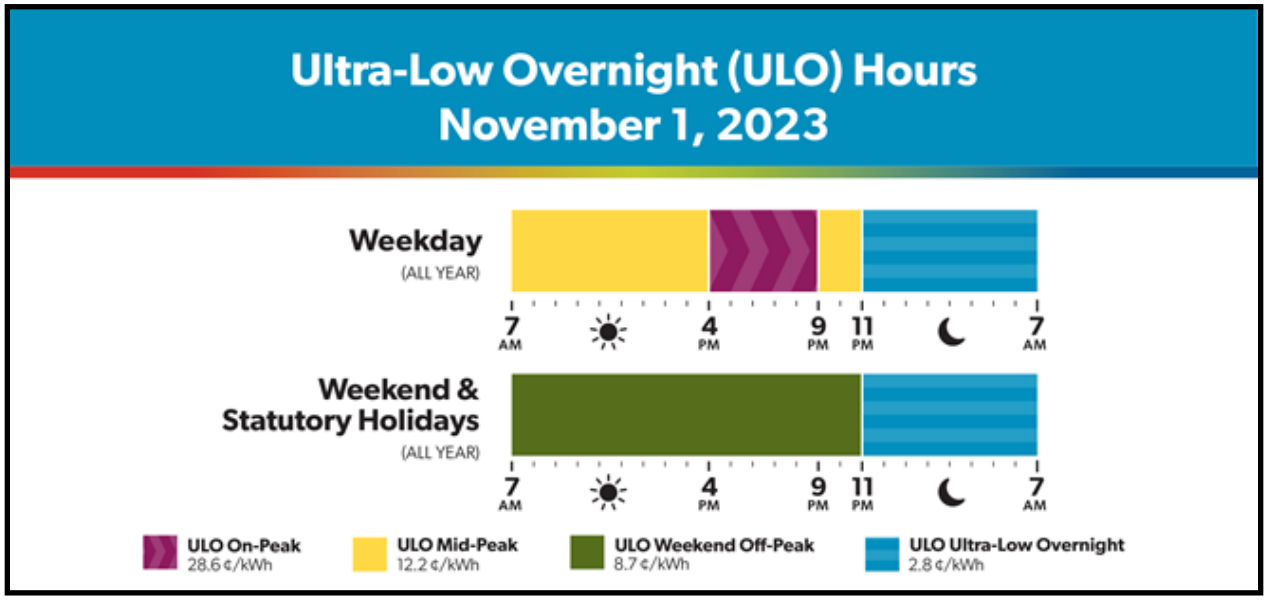


Figure 2. Optional ULO Electricity Rates

Hybrid Heat Pump Pilot

London Hydro supported the Enbridge hybrid heat pump pilot program designed to enhance efficiency with over 100 of our customers. London Hydro's mobile app Trickl (Figure 3), which leverages Green Button data, was expanded to support gas and heat pump-related features including near real-time gas usage, cost insights, hybrid heat pump system performance, and savings. The success of this program has led to its expansion to other communities and utilities across Ontario.

Renewable Energy Integration

London Hydro supports integrating renewable energy into the distribution system. There are currently over 485 generators and grid connected battery energy storage systems connected with a capacity of 113.9 MW of which 30% is renewable generation capacity. 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 to learn more about solar generation opportunities.

In addition, commencing in 2024, Hydro One and London Hydro released additional micro-generation (i.e. maximum 10kW per project) renewable energy connection capacity. These are typically residential net-metered installations. This has allowed more customers in London to connect renewable projects. As of July 2024, 26 new projects have been approved for connection, totaling over 212 kW of green energy capacity.



Figure 3. Custom Trickl App Heat Pump Tiles

Community Net Metering

London Hydro has worked closely with the West 5 Net Zero Community to connect solar generation and microgrid technology as well as implement Ontario's first Community Net Metering billing method. London Hydro and Sifton Properties went live with a Community Net Metering renewable energy billing arrangement starting the 1st of January 2024. This project is a first of its kind in Ontario that allows for electricity generation credits to be shared between multiple buildings in the West 5 community.

West 5 Microgrid Demonstration Project

London Hydro, in partnership with s2e Technologies and Sifton Properties, has embarked on a microgrid pilot project that utilizes battery energy storage system (BESS) facilities to perform multiple power system-related activities such as:

- Demand response initiatives by discharging the BESS.
- Planned (scheduled) islanding of the West 5 community to offset load or support West 5 under severe storm conditions.
- Unplanned (unscheduled) islanding of the West 5 community in times when London Hydro's supply is not available.
- Net zero load following through dynamically following West 5's total load.
- Improving power factor through the injection of reactive power at West 5.
- Programming of charge and discharge activities based on energy price rate schedules.

The 0.99 MW, 2 MWh BESS is nearing construction completion and will allow London Hydro and the other parties to investigate and determine the benefits of BESS facilities and microgrid systems in a real-world scenario.

APPENDIX C – Upper Thames River Conservation Authority

Upper Thames River Conservation Authority: Climate Action Report for the City of London's Climate Emergency Action Plan

July 2024



North Thames River at Harris Park during "Rock the Park," July 2023

The Upper Thames River Conservation Authority's (UTRCA) programs and services focus on five key areas:

- protecting people and property and supporting safe development,
- delivering landowner stewardship,
- providing natural spaces and recreational opportunities,
- making science-based decisions, and
- empowering communities and youth.

As a watershed agency, the work UTRCA undertakes assists the City in increasing resilience to extreme weather events through the implementation of an integrated, science-based watershed approach. UTRCA's programs and services protect life and property from natural hazards such as flooding and erosion and mitigate the effects of natural hazards, including a rapidly changing climate.

UTRCA is currently developing three high level strategies: a Strategic Plan, Watershed-based Resource Management Strategy, and Conservation Areas and Lands Strategy. These plans all recognize that a healthy natural heritage system and water resource system are the foundation for a sustainable and resilient community, and outline nature-based solutions to challenges posed by climate change.

UTRCA's programs and services are closely aligned with several areas of focus in London's Climate Emergency Action Plan, as summarized below.

Engaging, Inspiring and Learning from People (Area of Focus 1)

- Create community partnerships that increase awareness of, support for, and involvement in projects and activities that restore and enhance watershed health and resilience to climate change.
- Empower communities and youth through opportunities to experience and learn about conservation.
- Build capacity in local communities by providing hands-on learning opportunities to address local environmental concerns and the changing climate.
- In partnership with indigenous communities, develop and deliver environmental Indigenous programs and services to implement the actions of the Shared Waters Approach.

2023 Progress:

- Community-engaged flood mitigation and ecological restoration project on Western University campus involving installation of live tree and shrub stakes along Medway Creek. UTRCA and WU worked with representatives from Oneida Nation of the Thames and Chippewas of the Thames First Nation to plan and implement the event, which was framed within Indigenous Traditional Knowledge around water. Live staking assists with climate mitigation and adaptation.
- London Public Library Presentations (November 16 and 21) - "Tree Planting for Watershed Health and Climate Change Resiliency" in partnership with the City of London, London Public Library, and Western University.
- Participated in Western University's GIS Day on November 15th, displaying GIS (Geographic Information Systems) expertise used in various projects at the open-house event hosted by Western Libraries. The event brought students, colleagues, and community leaders together showcasing the latest in GIS products and applications. UTRCA staff demonstrated the Flood Hazard Water Table, teaching attendees about the importance of flood hazard mapping and planning in the watershed. The watershed report cards were also on display. This was the Authority's 5th consecutive year participating in the event.

2024 Completed:

UTRCA Partnerships and Education staff organize and participate in events across the watershed that promote ecological literacy and environmental engagement. These events include:

- Heritage Fair (February 10) - "100 Objects and Hidden Gems" UTRCA display on Sifton Bog and importance of wetlands for climate change adaptation/mitigation.

- Family Literacy Day (February 17) - Discussed trees and their relationship to mitigating climate change.
- EarthFest (April 20) - UTRCA served on the EarthFest steering committee and coordinated the festival's "WaterZone" area, which included community partner displays around water management, protection, and climate change mitigation.
- Go Wild, Grow Wild (May 4) - "Friends Of" booth (Stoney Creek, Medway) presented displays around water management and protection, and climate change mitigation.
- Celebrate the Medway Creek Community Event (June 8) - Hosted at the Museum of Ontario Archaeology with the Friends of Medway Creek. Partner groups ran activities related to climate change and the local environment
- Scotia Bank Scholars – Delivered in partnership with Huron University, Scotia Bank, Thames Valley District School Board, and UTRCA, this program provides an accelerated learning opportunity for local high school students in a summer camp setting. The theme for the year was water and the UTRCA provided education surrounding flooding, climate change, and stormwater management.
- Providing environmental programming for campers and other visitors at Fanshawe, Pittock and Wildwood Conservation Areas.

2024 Proposed/Planned:

- Doors Open London / Green in the City (September 21) at Fanshawe Conservation Area - UTRCA will host the kickoff event for Green in the City, in partnership with the City of London, the London Environmental Network, and the London Public Library with activities and events focused on climate change awareness and adaptation.
- Hope and Action in a Changing Climate (November 1-2) - UTRCA, in partnership with the Thames Talbot Land Trust, City of London, and many other community partners, will lead a community event to celebrate and share positive actions being taken by various organizations across the City around climate change. Plans include speakers, educational sessions, guided walks, demonstrations, local artists, and creative engagements with climate change.

Transforming Transportation and Consumption (Areas of Focus 4 and 5)

- Reduce fleet emissions through a Green Fleet Strategy that includes increasing EV use and researching investment to provide charging units on UTRCA properties.
- Reduce travel by maintaining pandemic business protocols such as on-line meetings and a hybrid work policy.
- Reduce paper usage and carbon emissions by expanding electronic business practices (i.e., paperless accounting).

2023 Progress:

- Replaced three gas powered fleet vehicles with two electric vehicles and one hybrid vehicle.

Implementing Natural and Engineered Climate Solutions and Carbon Capture (Area of Focus 6)

- Preserve, enhance, and protect approximately 6,000 hectares of land including woodlands, riparian meadows, wetlands, and environmentally significant areas. Green infrastructure provides flood retention, reduce peak flows, mitigate erosion hazards, and improve flow regimes.
- Report on local watershed conditions every five years, in partnership with Conservation Ontario. The Upper Thames River Watershed Report Cards provide information on surface water, groundwater, forest, and wetland conditions within 28 subwatersheds to promote an understanding of local (subwatershed) health and emerging trends as a basis for setting environmental management priorities and inspiring local environmental action.
- Manage invasive species and create pollinator habitat and tall grass prairies on UTRCA owned and/or managed lands.
- Provide technical advice and funding for agricultural tenants on UTRCA property to undertake management plans that include practices that support climate change efforts, such as no till, minimum till, and cover crops.
- Provide comprehensive planning, technical services, and engineering planning and design for stewardship practices to improve soil health, protect water quality and quantity, and increase resilience to changing weather patterns. Technical plans are tailored to individual farm projects, recognizing the diverse agricultural landscape across the watershed.
- Provide advice to landowners and watershed “Friends of” on in-stream and riparian restoration as well as wetland restoration and enhancement projects. These projects provide flood retention, reduce peak flows, mitigate erosion hazards, and improve flow regimes.
- Offer tree planting and woodlot management services for landowners. Windbreaks and land retirement plantings reduce soil erosion, increase natural cover and habitat, and build climate change resilience across the watershed.
- Manage the Clean Water Program which provides incentives to landowners to undertake stewardship projects on their own lands, including creating wetlands, establishing tall grass prairies, and implementing projects to improve soil health, water quality and quantity, and biodiversity.
- UTRCA’s Demonstration Farm is an example of efforts to share information and coordinate innovation through research, demonstration projects, workshops, and field tours in partnership with landowners, agencies, academia, and the agriculture industry. Projects include water retention structures that reduce peak flows and improve water availability for growing crops during low water conditions.
- Annual “Tree Power” program with London Hydro provides inexpensive native shade trees to London residents to reduce home cooling costs.

2023 Progress:

- Completed 75 Clean Water Program projects across the watershed in 2023, with 43 of the projects located within 25 km of London.
- Expanded cover crop program by securing funding for projects completed in 2023-2024. Cover crops reduce the impacts of changing weather patterns by reducing soil erosion, improving soil health, and immobilizing nutrients to supply to subsequent crops.

- UTRCA manages an edge-of-field research site in London that investigates the impact of cover crops and land management practices on water quality, water quantity, and soil health as part of the On-Farm Applied Research and Monitoring (ONFARM) program.
- Provided technical assistance and third-party letters of support for tree planting, grassland, and wetland enhancement projects across the watershed under the Resilient Agricultural Landscape Program. Funding is delivered at the provincial level by Ontario Soil and Crop Improvement Association to reduce greenhouse gas emissions and sequester carbon.
- London Hydro and UTRCA partnered once again to deliver the London Hydro Tree Power program to make nine species of native hardwood trees available and affordable for residents of London. 600 trees were sold to London residents in spring 2023.

2024 Completed/Planned:

- Acquired 7.26 hectares of land adjacent to Sifton Bog lands in London and 34 hectares of valleyland along Fish Creek in Perth South.
- The London Hydro Tree Power program ran for the 12th year in spring 2024, making 500 native tree species available for residents to purchase. The program was once again well received by residents and sold out.
- Restore or enhance 22 acres of wetland features upstream of London, by reestablishing the wetland, removing invasive species, and planting native vegetation.
- Manage invasive species, plant native trees, establish prairie habitat within London's Environmentally Significant Areas.
- Maintain and monitor 22 hectares of native prairie habitat for Species at Risk, adjacent to Fanshawe Reservoir and Wildwood Reservoir.

Adapting and Making London More Resilient (Area of Focus 8)

- Reduce the risk of property damage and loss of life due to flooding by providing watershed municipalities with flood forecasting and warning services, including issuing flood bulletins to municipal flood coordinators and other agencies.
- Operate and maintain water control structures (dams, dykes, channels, floodwalls), constructed in partnership with municipalities, to control flood flows and augment stream flow during dry periods.
- Provide outreach and education on flood forecasting programs and safety measures.
- Monitor watershed conditions to detect low water conditions and support the Upper Thames River Low Water Response Team in responding to low water events.
- Maintain floodplain maps and conduct necessary communication initiatives to inform stakeholders and update maps, Board approved policies, official plans, and on-line map tool.
- Deliver the UTRCA's permitting responsibilities, ensuring compliance with Ontario Regulation 41/24 and related policies, site inspections, communications with agents and consultants, and appropriate enforcement action.
- Fulfill the UTRCA's delegated responsibilities to represent the provincial interest in natural hazards providing technical information and advice on land-use planning applications and comprehensive Official Plans and Zoning By-laws.
- Work with the City of London and senior government funding partners to complete the West London Dyke Reconstruction Project. Prior to the current rehabilitation efforts, the dyke protected approximately 1200 structures and 2600 people in the Blackfriars, Petersville, and Cavendish floodplain area to just less than the Regulatory Flood. Once all

the upgrades are completed, the dyke will protect this area to the Regulatory Flood standard, reducing risks from flooding and improving the City's climate change resiliency.

2023 Progress:

- Issued 14 flood bulletins during 11 flood events. No low water response bulletins were issued.
- Annual UTRCA Flood Coordinators meeting was attended by approximately 40 flood coordinators from watershed municipalities and local First Nations, as well as staff from other agencies.
- 16 UTRCA staff completed Basic Emergency Management Training at the City's Emergency Operations Centre.
- Issued 216 Section 28 permits in 2023 with 98% meeting the Provincial standards for issuance timelines.

2024 Completed/Planned:

- Board of Directors approved use of a Two Zone Concept for the Mud Creek subwatershed.
- Issued 9 flood bulletins during 7 flood events.
- Delivered River Safety Education Program to more than 40 Grade 2 classes, teaching students about local flood control structures and how to stay safe near rivers, creeks, and streams, through games and hands-on activities.
- Participated in Western University Science Rendezvous and the City of London Emergency Preparedness Day, running booths focused on flooding safety and awareness.
- UTRCA staff completed Basic Emergency Management Training at the City's Emergency Operations Centre.
- Hazard map updates and policy updates for Thames River in London to improve access to current and accurate flood and erosion hazard maps.
- Continuing work with the City of London on the West London Dyke Rehabilitation project, with project design going to tender for the next phase.

Advancing Knowledge, Research and Innovation (Area of Focus 9)

- In partnership with watershed Boards of Education, UTRCA education staff develop and deliver curriculum-based environmental education programs that reach over 20,000 students per year with place-based information. Education programs help communities and youth understand how to protect watershed resources and avoid risks from flooding and related hazards, and support community partnership activities.
- Partnering with universities and the Ontario Resource Centre for Climate Adaptation to further research the impacts of climate change and actions needed to lower greenhouse gas emissions and create climate-resilient communities. Education, knowledge, research, and innovation have a crucial role in raising awareness about the urgency of addressing climate change and implementing solutions.
- Compiling watershed data and analytics, applied research, technology development, and creating and utilizing networks of individuals, organizations, businesses, and communities to investigate the impact of stewardship practices on water quality, water quantity, and soil health and track climate change impacts.
- Providing technical training and certification opportunities on Low Impact Development (LID) for municipal staff, consultants, and academia, and LID workshops for homeowners through London Environmental Network's Residential Rain Garden Program.

- Reimagining the former Children's Safety Village at Fanshawe Conservation Area, with the intent of developing a visitor and education centre that showcases energy and water conservation retrofits as it progresses toward LEED Certification. Education programs and interpretive elements in the building and model village will highlight climate change resiliency and highlight the local partners adding to a more resilient region.
- UTRCA has partnered with Ontario Resource Centre for Climate Adaptation (ORCCA) to perform a comprehensive review of the UTRCA surface water quality monitoring program and its ability to measure the impacts of climate change on water quality. The program will help UTRCA build climate resilience by enhancing our current monitoring program to quantify the impacts of climate change on water quality in our watershed.
- UTRCA has partnered with the Forest Gene Conservation Association to create the Bur Oak Seed Orchard for a Changing Climate. The project is testing whether oak from warmer climates (Tennessee and Pennsylvania) will be better adapted for Southern Ontario in the future. In autumn 2023, seed was collected from these southern sources and sent to partner nurseries to support future restoration initiatives.
- In spring 2024, UTRCA stewardship staff partnered with the Forest Gene Conservation Association and Forests Ontario to utilize ~1500 White Pine seedlings of southern genetics (North Carolina), which will be better adapted for southern Ontario in the future.
- UTRCA staff is working with municipal partners and private landowners to reduce invasive species (Japanese Knotweed, Phragmites, Buckthorn, and Giant Hogweed) throughout the watershed.
- Monitoring climate impacts on aquatic species at risk (e.g., Black Redhorse, Silver Shiner, Round Pigtoe) and aquatic invasive species distribution (e.g., Round Goby, Goldfish).
- Assessing climate impacts on watershed health by monitoring benthic macroinvertebrates.

2023 Progress:

- October – Offered Low Impact Development Operations and Maintenance Workshop at the Watershed Conservation Centre, in collaboration with the Western Water Centre. The 55 attendees included municipal staff, consultants, academia, and First Nations staff.
- Completed the acquisition of the former Children's Safety Village. Energy and water conservation retrofits and the model village's reimagining began.

2024 Completed:

- Facilitated GREEN Leaders, a year-long environmental education and civic engagement program for 12 local Grade 7/8 classes. Each class identified an environmental issue in their local community and then implemented a sustainable solution to the issue. Students shared their projects with community partners at the year-end Student Forum held at Huron University College. The program curriculum includes educating students about climate change causes, impacts, and mitigation. Many of the classes chose issues directly related to climate change, and all were encouraged to consider how climate change relates to their chosen issue.
- Delivered Stream of Dreams education program to four local schools. This program focuses on watersheds, stream health, and stormwater impacts in the context of a changing climate and encourages community involvement.
- Launched Climate Change in Our Watershed, a new education program for Grade 9-12 science and geography students.
- Delivered 30 hands-on "Slow the Flow," "Focus on Flooding," and "Watershed" Science, Technology, Engineering, and Math (STEM) days for Grade 3-8 students. Student learning

focused on local impacts of climate change and the role of natural features, Low Impact Development, and flood management structures in reducing flood risk.

- Reached 55 students through Climate Change, A Hot Issue program.
- Delivered “walking field trips” at London’s Environmentally Significant Areas, highlighting the natural heritage of the areas and the ecosystem services they provide.
- Partnering with University of Waterloo to include carbon and silica analysis in sample collection within the headwaters of Medway Creek to integrate research on the impacts of climate change into monitoring, which will continue throughout 2024.
- Offered Low Impact Development Design and Construction Workshop at the Watershed Conservation Centre for Construction Project Management students at Fanshawe College, with 35 attendees.

2024-2028 Corporate Conservation and Demand Management Plan

July 2024



#LdnOnt ClimateAction

London CANADA

Land Acknowledgement

We acknowledge that we are gathered today on the traditional lands of the Anishinaabek (ᐊUh-nish-in-ah-bek), Haudenosaunee (Ho-den-no-show-nee), Lūnaapéewak (Len-ah-pay-wuk) and Attawandaron (Add-a-won-da-run).

We acknowledge all the treaties that are specific to this area: the Two Row Wampum Belt Treaty of the Haudenosaunee Confederacy/Silver Covenant Chain; the Beaver Hunting Grounds of the Haudenosaunee NANFAN Treaty of 1701; the McKee Treaty of 1790, the London Township Treaty of 1796, the Huron Tract Treaty of 1827, with the Anishinaabeg, and the Dish with One Spoon Covenant Wampum of the Anishnaabek and Haudenosaunee.

This land continues to be home to diverse Indigenous peoples (First Nations, Métis, and Inuit) whom we recognize as contemporary stewards of the land and vital contributors to society. We hold all that is in the natural world in our highest esteem and give honor to the wonderment of all things within Creation. We bring our minds together as one to share good words, thoughts, feelings and sincerely send them out to each other and to all parts of creation. We are grateful for the natural gifts in our world, and we encourage everyone to be faithful to the natural laws of Creation.

The three Indigenous Nations that are neighbours to London are the Chippewas of the Thames First Nation; Oneida Nation of the Thames; and the Munsee-Delaware Nation who all continue to live as sovereign Nations with individual and unique languages, cultures, and customs.

This Land Acknowledgement is a first step towards reconciliation. It is the work of all citizens to steps towards decolonizing practices and bringing our awareness into action. We encourage everyone to be informed about the traditional lands, Treaties, history, and cultures of the Indigenous people local to their region.



Executive Summary

The City of London (the City) has been committed to corporate energy management since the 1990s.

On July 1st, 2014, the City submitted its first Corporate Energy Conservation and Demand Management (CDM) Plan to the Ontario Ministry of Energy in compliance with the former Ontario Regulation 397/11 Green Energy Act (now O. Reg 25/23 Electricity Act 1998). The regulation also mandates municipalities to document and report on the results of their CDM plans and update their CDM Plans every five years. The development of the CDM Plan in 2014 was also vital to curb the increasing utility costs to the City.

This report meets the regulatory requirements by providing:

- The results from the 2019-2023 CDM Plan, documenting energy management initiatives implemented between 2019 and 2023 within various Service Areas, and

- The 2024-2028 CDM Plan, which outlines the goals and energy management initiatives to be undertaken by the City over the next five years.

2019-2023 CDM Plan Update

The 2019-2023 CDM Plan covered the City's plan to reduce energy use and greenhouse gas (GHG) emissions across its corporate service areas, including:

- Facilities and buildings owned and operated by the City of London;
- Wastewater treatment and pumping facilities and operations;
- Water distribution and storage facilities and operations;
- Street lighting; and
- Fleet vehicles and equipment.

The 2019-2023 CDM Plan was developed according to Ministry of Energy's direction to provide the City's annual energy consumption information to the public and set goals and actions for conserving energy and reducing greenhouse gas emissions from 2019 to 2023. However, the City's 2019-2023 CDM Plan went above and beyond regulatory requirements with the inclusion of vehicle fleet fuel use.

The 2019-2023 CDM Plan had primary goals and secondary goals and measurable action items to achieve these goals. The highlights of the 2019-2023 CDM Plan's performance are as follows:

- ✓ Achieved a 5% total energy reduction from the 2018 baseline year, meeting the primary goal of a 5% reduction.

- ✓ Exceeded energy efficiency (energy use per capita) target by achieving 16% reduction compared to the target of 10%.

- ✓ Reduced 915 tonnes per year of greenhouse gas emissions as a result of implementing energy efficiency projects, noting that the overall corporate energy-related greenhouse gas emissions increased by 2% (300 tonnes per year) due to the increase in carbon intensity of Ontario's electricity grid because of the increased use of natural gas for electricity generation.

- ✓ Achieved a 53% reduction in corporate energy-related greenhouse gas emissions compared to 2007 level.

- ✓ Avoided $6 million in total energy costs over the last five years.

- ✓ Started monitoring and tracking the City's water consumption and water conservation initiatives.

- ✓ Established a target to achieve net-zero corporate emissions by 2045 through the Climate Emergency Action Plan (CEAP) approved in 2022.

New 2024-2028 CDM Plan

The new 2024-2028 CDM Plan builds on the successful foundation laid by the previous two CDM Plans. The new plan aligns with the City's 2023-2027 Strategic Plan, with "Climate Action & Sustainable Growth" as one of the main Areas of Focus, as well as aligns with the Climate Emergency Action Plan and its "Demonstrating Leadership in Municipal Processes and Collaborations" Area of Focus.

The 2024-2028 CDM Plan adopts an Enterprise-wide approach, developing greenhouse gas emission reduction initiatives where they are most suitable, based on:

- Available technology;
- Building or equipment life cycle timelines; and
- Funding and resources available.

The initiatives were developed through inter-divisional consultations and detailed energy consumption analysis for each service area.

Goals for the Next Five Years

The goals are divided into primary and secondary goals based on measurable initiatives that directly and indirectly contribute to the reduction of energy consumption and greenhouse gas emissions.

Primary Goals:

- 7% reduction in total energy use from 2023 to 2028; and
- 56% reduction in energy related GHG emissions from the 2007 baseline year by 2028.

The energy efficiency and conservation initiatives contributing to the primary goals are categorized as Planned and Proposed initiatives:

- Planned Initiatives: Measures with an approved business case that have been funded by City Council.
- Proposed Initiatives: Projects under investigation that will be developed into business cases and requested for future funding approval.

Implementing just the Planned measures will result in a seven per cent total energy reduction from 2023 to 2028, with an additional two per cent reduction achievable by implementing both Planned and Proposed projects. This combined effort is equivalent to a reduction of 2,270 tonnes per year of greenhouse gas emissions by 2028.

Secondary Goals:

- Foster a culture of conservation; and
- Develop a pathway to achieve net-zero corporate energy-related emissions by 2045.

Implementation and Funding

To implement these energy measures, the City's Service Areas will:

- Apply for federal and provincial incentives as they become available; and
- Utilize the new internal Climate Change Reserve Fund alongside existing internal funding sources such as the Effectiveness, Efficiency and Economy (EEE) Reserve.

Living Document

The 2024-2028 CDM Plan will be a dynamic document, providing a roadmap to enhance internal energy management knowledge and awareness. This will lay the groundwork for successful energy management decisions and actions across all corporate operations over the next five years and beyond.



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1. Background

In compliance with Ontario Regulation 25/23 under the Electricity Act, 1998, the Corporation of the City of London has developed its third iteration of the Corporate Energy Conservation and Demand Management (CDM) Plan, incorporating updated goals and initiatives. Since July 2014, this regulation has mandated that Ontario municipalities, universities, schools, and hospitals develop a CDM plan and update it every five years. These plans must address energy conservation and demand management strategies for buildings and facilities related to water or sewage treatment, regardless of whether they are heated or cooled. The regulation aims to promote energy conservation and demand management within the broader public sector.

1.1. Historical Commitment to Energy Management

The City of London has been dedicated to energy management and cost reduction since the early 2000s, with some initiatives dating back to the 1990s. Significant milestones include:

2007: The City began tracking and monitoring its energy consumption.

2009-2014: A series of reports were published to assess the City's energy management performance:

- *Past and Current Energy Management Activities*
- *Culture of Conservation – The Next Steps*
- *2011 Corporate Energy Consumption Report*
- *2011 Energy Consumption and Greenhouse Gas Emissions (Ministry of Energy)*

1.2. Impact of the CDM Plan

The introduction of the CDM Plan in 2014, mandated by the province, has streamlined the City of London’s reporting of corporate energy management activities and initiatives to the public. The City has published two five-year CDM Plans so far:

2014-2018 CDM Plan: Targeted a 10% reduction in total energy consumption
2019-2023 CDM Plan: Targeted a 5% reduction in total energy consumption

The detailed performance of the previous CDM Plan (2019-2023) is outlined in Section 4 of this report, showcasing the City's commitment to continuous improvement in energy conservation and demand management. By adhering to these regulations and setting clear goals, the City of London demonstrates its commitment to sustainable energy practices and efficient resource management.

2. Commitment to Climate Change

Commitment to climate change, energy management, and conservation is essential for municipalities in Canada to reduce emissions, save costs, enhance resilience, improve public health, stimulate economic growth, meet regulatory requirements, engage communities, and ensure long-term sustainability in alignment with national and global climate goals.

City of London's Climate Emergency Declaration
In April 2019, the City of London declared a *Climate Emergency*. This declaration underscores the City's commitment to prioritizing climate change and its impacts.

Climate Emergency Action Plan (CEAP)
Following the declaration, City Council approved the Climate Emergency Action Plan (CEAP) in April 2022. The CEAP sets ambitious goals:

- Achieving net-zero emissions for the community by 2050
- Achieving net-zero energy-related emissions for corporate operations by 2045 along with interim targets
    - 65% reduction from 2007 levels by 2030
    - 75% reduction by 2035
    - 90% reduction by 2040

Strategic Plan Integration
To reinforce its commitment to climate action, the City has included "Climate Action and Sustainable Growth" as one of the eight Strategic Areas of Focus in the 2023-2027 Strategic Plan.

Alignment of CDM Plan with Climate Goals
The initiatives and targets of the current 2024-2028 CDM Plan are designed to align with both the City's CEAP and its Strategic Plan.

By integrating these efforts, the City of London is demonstrating leadership in sustainable growth and climate resilience, ensuring that its actions contribute to broader environmental and economic objectives.

3. 2024-2028 CDM Plan Goals

To ensure the success of the 2024-2028 CDM Plan, four goals have been established. The CDM Plan adopts an "Enterprise-wide" strategy to effectively meet the objectives outlined in both the CEAP and the 2023-2027 Strategic Plan. By integrating various energy efficiency and renewable energy measures across individual facilities, the City aims to maximize energy consumption reduction in the shortest timeframe possible where they are most suitable, based on:

- Available technology;
- Building or equipment life cycle timelines; and
- Funding and resources available.

The Plan has four distinct goals, categorized as primary goals and secondary goals to differentiate between those linked to energy consumption and those associated with initiatives promoting energy awareness.

Formulating Goals

These goals were developed through consultations with staff, managers, and directors using a "bottom-to-top" approach. This ensures that the goals are both realistic and ambitious, closely aligning with CEAP initiatives.

3.1. Primary Goals

Primary goals were developed by calculating the total energy and associated greenhouse gas emissions reductions from planned projects with approved budgets. These projects lead to measurable savings.

1. Seven per cent reduction in total energy use from 2023 levels by 2028.

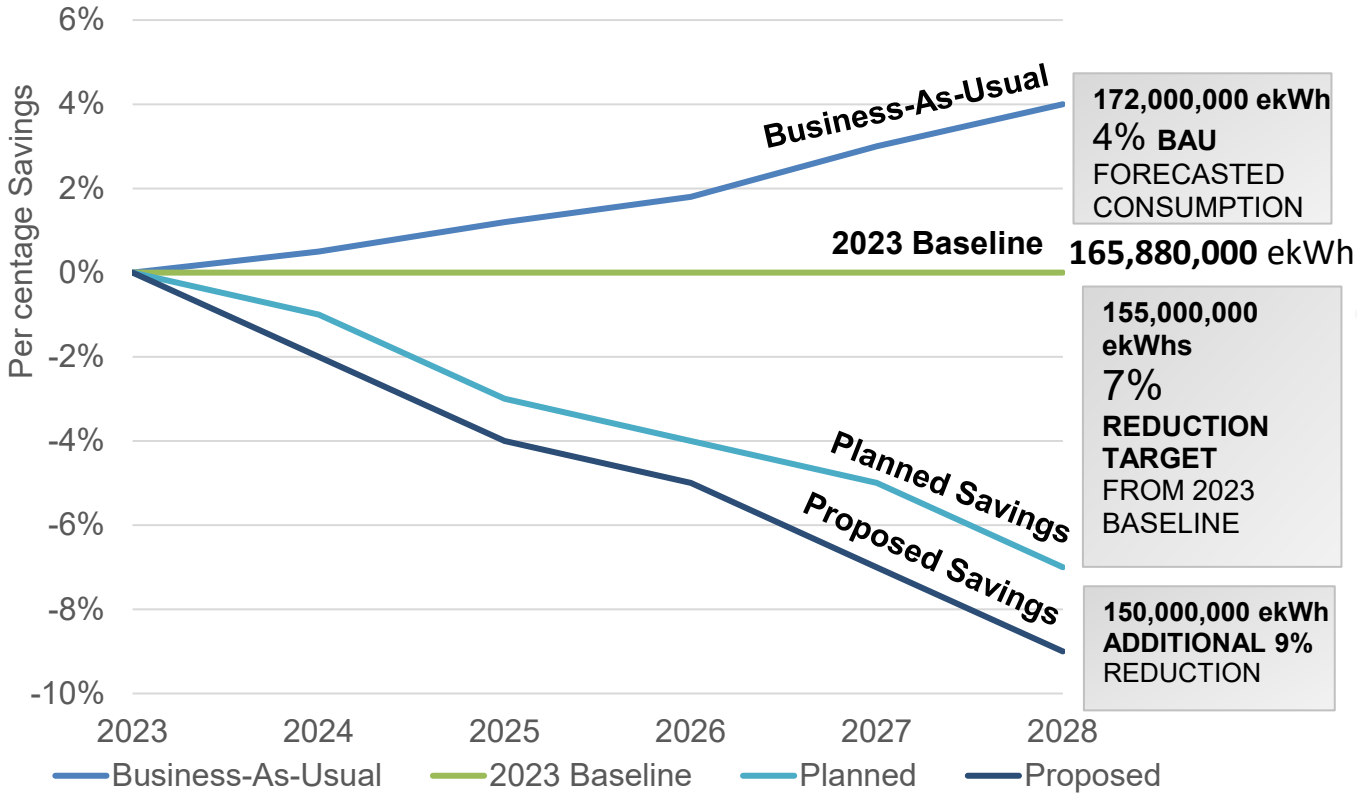
- This will be achieved by reducing 11,000 equivalent megawatt-hours per year of energy consumption by 2028.

Figure 1 illustrates the energy-related goals outlined in the 2024-2028 CDM Plan. The goal is to achieve a seven per cent reduction from 2023 levels by implementing all planned projects across various service areas. These planned projects have approved budgets.

A more ambitious goal of nine per cent can be achieved by implementing proposed projects, which will be presented to Council once business cases are developed and funding sources identified within the next four years. Comprehensive details and descriptions of both planned and proposed projects are provided in each Service Area section of this report.

In comparison, if the City does not implement any energy or decarbonization projects within the next four years, total energy consumption is projected to rise by four per cent, as illustrated in the Business-As-Usual (BAU) scenario in Figure 1.

Figure 1 - 2024-2028 CDM Plan Energy Goal



2. 56 per cent of GHG reductions from the 2007 baseline by 2028.

- This will be achieved by reducing 1,550 tonnes per year (or 8%) of GHG emissions from 2023 levels.

This assumes no change in the emissions intensity of Ontario's electricity grid from current levels.

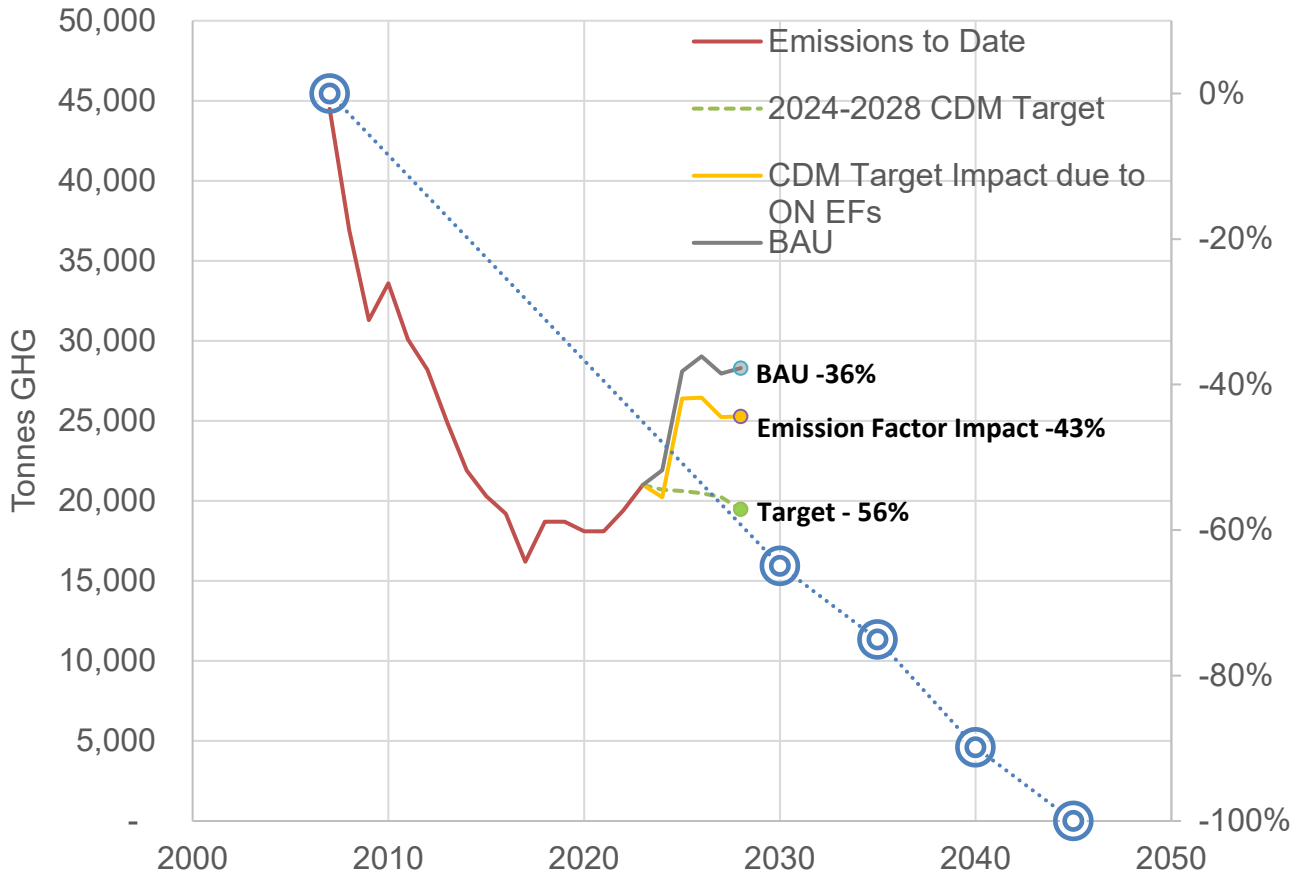
Figure 2 illustrates the corporate energy-related emissions to date, the 2024-2028 CDM Plan goal, and the CEAP targets. As depicted in the figure, the 2024-2028 CDM Plan goal is set at 56 per cent relative to the 2007 baseline year. An additional one per cent or 57 per cent reduction can be achieved by implementing proposed savings projects as described under primary energy reduction goal 1.

It is anticipated that the rise in Ontario's electricity grid emission factors (EFs), which fall outside the City's jurisdiction, will affect the City's corporate greenhouse gas emissions performance to CEAP greenhouse gas target. Due to ongoing refurbishments of nuclear plants in Ontario, there has been an increase in natural gas-powered generation which has increased the emission factor for the electricity grid. The details of an increasing grid electricity emission factor are explained the Section 5 of this report. The estimated impact of this forecasted increase in carbon intensity of the electricity grid would be for

corporate energy-related emissions to be 43 per cent below 2007 levels instead of the targeted 56 per cent reduction.

Conversely, if the proposed projects are not executed, total GHGs would increase by 8,800 tonnes in the next five years to up to 36 per cent below 2007 levels in a Business-As-Usual (BAU) scenario, as depicted in Figure 2. This would be a 35 per cent increase from 2023.

Figure 2 - 2024-2028 CDM Plan GHG Emissions Goal



3.2. Secondary Goals

Secondary goals are long-term initiatives that significantly impact greenhouse gas emissions and overall utility consumption. These goals promote energy awareness, a sense of responsibility, and support the City's CEAP and Strategic Plan.



1. **Foster a culture of conservation** by providing tools and resources that empower City staff to reduce energy consumption and contribute to sustainable practices.

The City launched the *Culture of Conservation* campaign in 2012 and has conducted several employee engagement events and activities since then. However, due to organizational changes and the pandemic, many energy awareness activities were delayed. Under the current CDM Plan, the Climate Change and Environmental Stewardship (CC&ES) team will lead and implement six specific activities to empower corporate employees to actively contribute to energy conservation efforts and promote sustainable practices within the organization.

2. **Identify and develop a Net-Zero by 2045 Pathway for corporate energy-related greenhouse gas emissions**.

With a Council-endorsed net-zero target by 2045, the City aims to develop a comprehensive plan to achieve this target for its operations. Currently, the City is investigating different scenarios for reaching the net-zero goal. These include:

- Investing solely in energy efficiency measures;
- Invest in a mix of energy efficiency and renewable energy measures as the technology advances; and
- Forecasting policy or regulation changes for use of renewable energy and establish a carbon offset policy.

The City engaged Blackstone Energy Services (Blackstone) and Stantec to complete decarbonization and renewable energy studies which will be major inputs to the net-zero pathway for reducing corporate emissions. These studies are anticipated to be completed by September 2024. Details of these two studies are as follows:

Decarbonization Study: The City engaged Blackstone to complete a decarbonization study for 36 municipally owned buildings to define the necessary strategic planning, technology, implementation timelines, government incentives, utility rate structures, grid emissions, funding, and implementation solutions to achieve the emissions outcomes defined in the CEAP. The main types of buildings included in the scope of this study are:

- Arenas
- Community Centres
- Fire Halls
- Office Buildings
- Senior Centres

The objectives and expected outcomes of the Decarbonization Study are:

1. Aim to reach net-zero by 2045.
2. Implementation of a decarbonization program leveraging grants, incentives, and innovative funding structures to maximize value for the City.
3. Reduce deferred maintenance and replace end of life equipment and systems.
4. Offset electricity consumption with on-site renewable generation and generate revenue when possible.

Solar PV Study at Water and Wastewater Sites: Renewable energy such as net-metered solar PV installations at water pumping and wastewater treatment sites is ideal as both these operations are 90 per cent dependant on electricity from the grid. Solar PV installation at these sites would reduce corporate emissions associated with using electricity from the grid (especially in the short term with increased grid emission factors in Ontario) and reduce uncertainty associated with electricity costs which are projected to increase by more than 50 per cent in the next 15 years.

As part of this study, Stantec performed a high-level assessment for solar projects on City's water and wastewater properties as identified below. Modelling was done to assess where solar PV panels could be placed and included ground-mounted racks, tank-mounted racks, and parking canopies. This study will also include estimated costs for solar projects for the five locations listed as follows:

- Greenway Pollution Control Plant (PCP)
- Vauxhall PCP
- Pottersburg PCP
- Adelaide PCP
- Arva Water Pumping Station

With input from the above-mentioned studies and internal staff engagement, the CC&ES team aims to complete the Net-Zero by 2045 Pathway for Corporate operations within the current CDM Plan timeframe.

4. Review of the 2019-2023 CDM Plan

The implementation of the 2019-2023 CDM Plan was successful, with 95 per cent completion of the planned projects and the achievement of the energy reduction goal of five per cent. The performance against goals is outlined next, and project highlights for each service area are listed in their respective sections of this report. Additionally, a detailed list of completed past energy projects is provided in Appendix A.

4.1. Performance to Goals

The 2019-2023 CDM Goals were categorized into primary and secondary, using 2018 as the baseline year. Primary goals were the focal point, driving the achievement of secondary goals and long-term goals and initiatives with a significant impact on greenhouse gas emissions and total utility consumption.

The primary goals included:

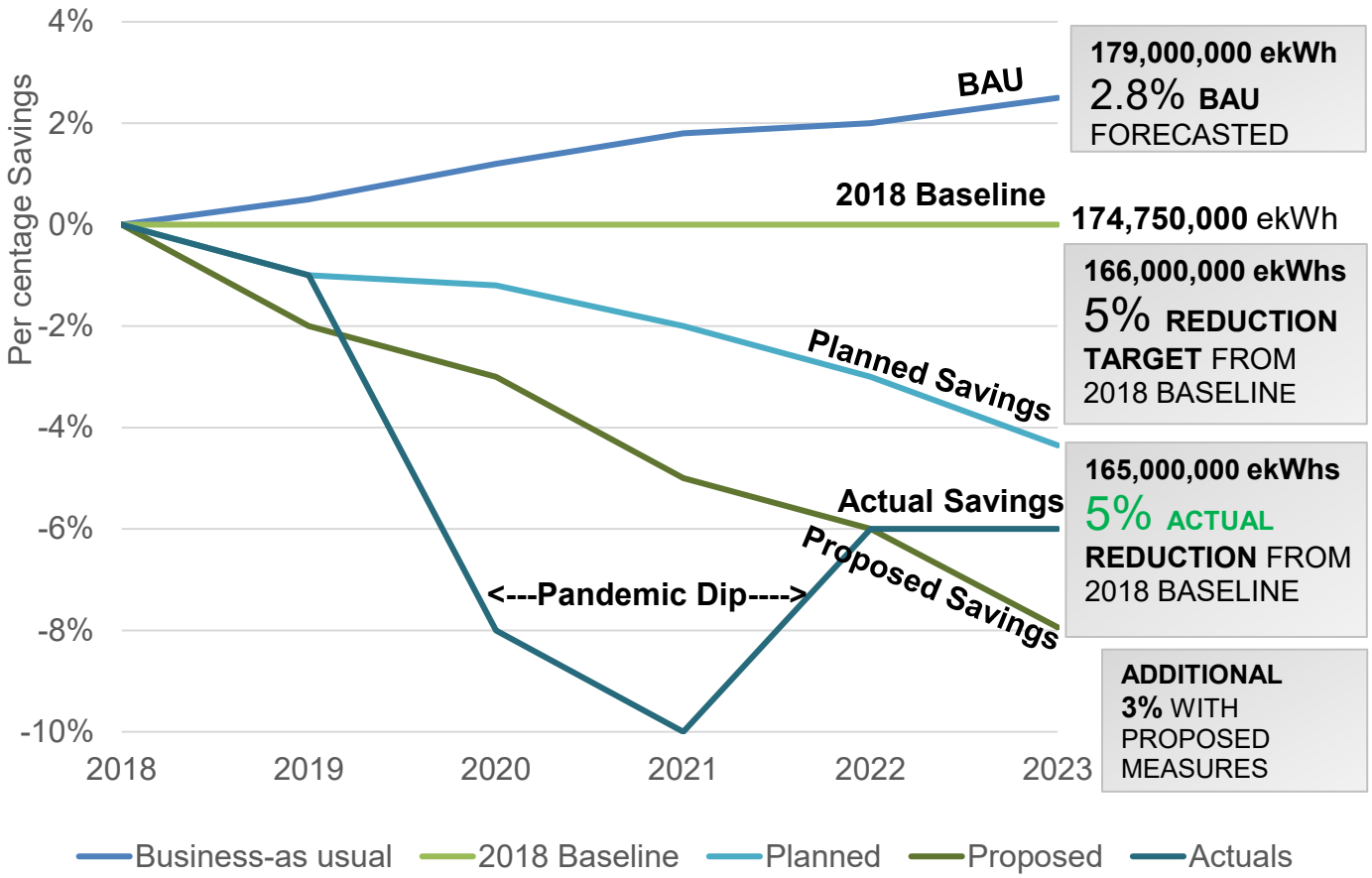
1. Total energy reduction of 5% by 2023, tied to this are:
    a. 10% decrease in energy use per capita
    b. 900 tonnes of avoided GHG emissions by 2023; and
2. Keep total energy cost increases within 5% from 2018 baseline year.

The secondary goals included:

1. Monitor and track City of London's corporate water consumption starting 2018; and
2. Investigate possible pathways for achieving net zero emissions by 2050 or sooner (2030, 2040).

Primary goals were established by encompassing all planned, behavioral, and proposed initiatives aimed at measurable savings. The performance against primary and secondary goals is illustrated in Figure 3 and detailed in Table 1.

Figure 3 2019-2023 CDM Plan Target & Performance



As shown in Figure 3, the 2019-2023 CDM Plan's energy performance goal was met. The performance in 2020 and 2021 was influenced by COVID-19 restrictions. A similar consumption pattern continued in 2021. However, corporate energy management activities also continued during this period which led to the six per cent reduction overall in 2023.

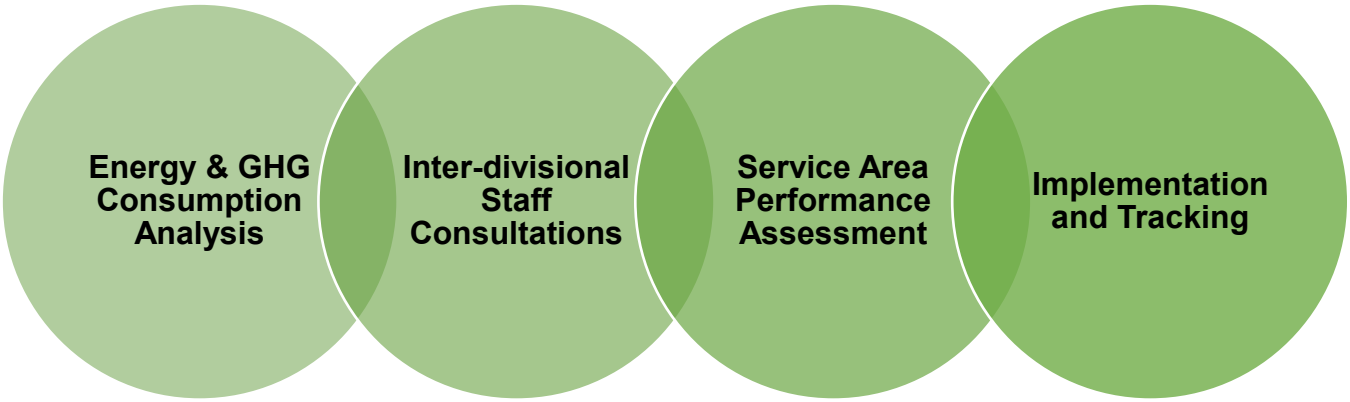
A breakdown of this goal and performance to secondary goals is explained in Table 1.

Table 1 2019-2023 CDM Performance to Goals

Goals	2018 Baseline	2023 Reduction Goal	Progress as of end of 2023	Comments
Primary (short-term)				
Total energy use (million ekWh/year)	174	166	**165**	5% reduction in total energy to a target of 5%
Total GHG (tonnes)	18,700	17,800	**21,000**	Impact of increased Ontario electricity grid carbon intensity is 3,600 tonnes or 21 percent. Electricity related emissions increased by 120% between 2018 and 2023 and natural gas emissions reduced by 13% during the same time.
Energy Per Capita (ekWh/pp)	435	392	**367**	As the city operations are expanding to meet the rapid population growth in the last five years the total per capita energy target exceeded expectations by achieving 16% reductions to a target of 10%.
Energy Costs (millions)	$18.0	$18.8	**$19.1**	Utility costs increase is not entirely under city's control. Even though total consumption dropped by 6%, utility costs increased by 7%. The global fossil fuel market and the nuclear plant refurbishments underway in Ontario are all impacting the utility price increase. Carbon pricing contributed to 5% of the total utility cost in 2023
Secondary (long-term)				
Monitor, track, and develop conservation initiatives for Water.	Starting 2019	On-going	**On Target**	Started tracking, monitoring, and reporting on water conservation projects, corporate consumption, and costs since 2019.
Investigate Net-Zero emissions target	Starting 2020	By 2023	**On Target**	With the CEAP in progress City has set a Net-Zero target by 2045.

5. 2024-2028 CDM Development Strategy

Staff from the City's Climate Change & Environmental Stewardship section informed the development of the 2024-2028 CDM Plan by analyzing current consumption, conducting service area staff reviews and past performance and resources identification. Through this systematic approach, City staff created a comprehensive and adaptable plan aimed at enhancing sustainability across the organization.

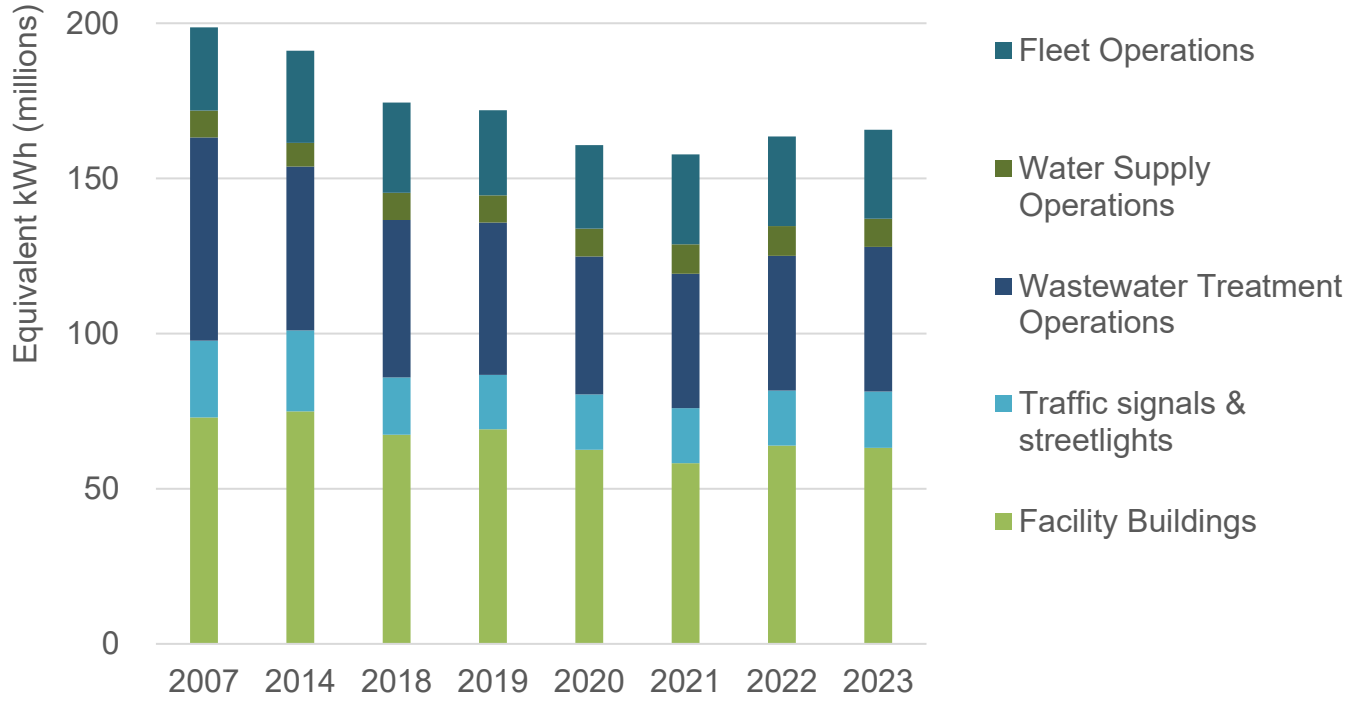


5.1. Energy Consumption and GHG Analysis

The 2024-2028 CDM Plan goals were developed by reviewing total energy consumption, emissions, and cost trends for the previous five years. The City has expanded its portfolio of buildings by 3,900 square metres (42,000 square feet) by adding the new East Lions Community Centre in 2021. Currently, City operations span over 480,000 square metres (5.2 million square feet) and has 249 utility meters. The total City operations have been divided by operational type as follows to better understand the unique energy portfolio within the City's operations:

- Facility buildings
- Wastewater treatment operations
- Water supply operations
- Traffic signals & streetlights
- Fleet operations

Figure 4 Total Energy Use by Service Area Categories



There has been a consistent decline in total energy consumption year over year, resulting in an overall five per cent reduction from 2018 to 2023 as shown in Figure 4. However, greenhouse gas emission have increased by twelve per cent (2,300 tonnes per year) in the last five years due to the impact of higher carbon intensity of Ontario's electricity grid, but overall, there has still been a reduction of 53 per cent since 2007. A detailed analysis of energy use, greenhouse gas emissions and utility cost analysis are listed in Appendix C.

5.2. Inter-divisional Staff Consultations

City of London takes a 'Enterprise-wide' approach in managing its Corporate energy activities. The structure of corporate energy management within the City is identified in Figure 5.

A series of staff meetings were held for Service Areas whose operations have direct control over energy use and greenhouse gas emissions. A review of current consumption, proposed purpose of the 2023-2028 CDM Plan, direction, and ingredients for future success were discussed in these meetings. A collaborative process to implement the key initiatives in the 2024-2028 CDM Plan was introduced.

These focused meetings facilitated sharing of best practices and identification of opportunities and requirements that will work towards achieving the overall GHG goals of the 2024-2028 CDM Plan. These are identified in Figure 6.

Figure 5 Corporate Energy Management Structure

Corporate Energy Team	Leadership And Accountability

• **Facilities**
  • Director Fleet & Faacilities
  • Planning Energy & Assets Manager
  • Corporate Energy Manager
• **Climate Change, Environment, and Solid Waste**
  • Director, Climate Change, Environment & Waste Mangement
  • Manager, Energy & Climate Change
  • Corporate Energy Management Engineer
• **Purchasing & Supply**
  • Purchasing & Supply Manager
	• Rests with the Deputy City Managers, Directors, Division Managers responsible for programs and projects across the Corporation

Figure 6 Strengths and Opportunities for Improvement

Strengths	Opportunities for Improvements
• Strong energy policy • Organizational structure • Continued commitment towards energy conservation projects • Monitoring & tracking • Reporting	• Dedicated funding for energy/renewable projects • Human resources for renewable project implementation • Employee engagement in conservation

The key measures identified by staff are divided into planned and proposed measures:

Planned measures lists all the projects that have funding assigned in the current muti-year budget. These measures are included in existing capital and operating forecasts. All of these measures are near-term actions within each Service Area and supports the proposed 2028 goals. By 2028, these initiatives are expected to account for seven per cent of corporate energy use reduction and 1,550 tonnes per year of greenhouse gas emission reductions from 2023 levels.

Proposed measures are built upon planned measures and initiatives and required operational or policy changes. Business cases will be required to justify project funding. Capital budgets will be impacted by the additional qualified and approved projects. These initiatives will rely heavily on staff time, additional dedicated human resources and additional capital investment and will account for additional two per cent of corporate energy use reductions and 720 tonnes per year of greenhouse gas emission reductions.

The measures identified in the staff meetings provided specific guidance and direction to set new goals that were realistic and achievable. These measures are elaborated further under each service area, Section 5.3 of this report.

5.3. Service Area Performance Assessment

It is important to note that for the success of the 2024-2028 CDM Plan, Service Areas need to adopt and implement measures identified in this plan. The Service Areas that include planned and proposed measures are categorized into Facility Buildings, Water Supply Operations, Wastewater Treatment Operations, Traffic Signals & Streetlights, and Fleet Operations (Figure 7).

5.3.1. Facility Buildings

Facilities is responsible for the design, construction, energy management, life cycle renewal works, and maintenance of facilities operated by the City except for streetlights, water and wastewater treatment and Fleet.

5.3.1.1 Energy Use and GHG Emissions

Facilities maintains and operates over 95 sites, 279 buildings, 304 hectares (750 acres) of property and approximately 315,870 square meters (3,400,000 square feet) of owned and leased space.

Currently, Facilities contributes the highest (39 per cent) greenhouse gas emissions in the City due to the dependence on fossil fuel for building heat. This is followed by Fleet at 34 per cent as shown in Figure 8.

Figure 7 Greenhouse Gas Emissions by Service Area Categories

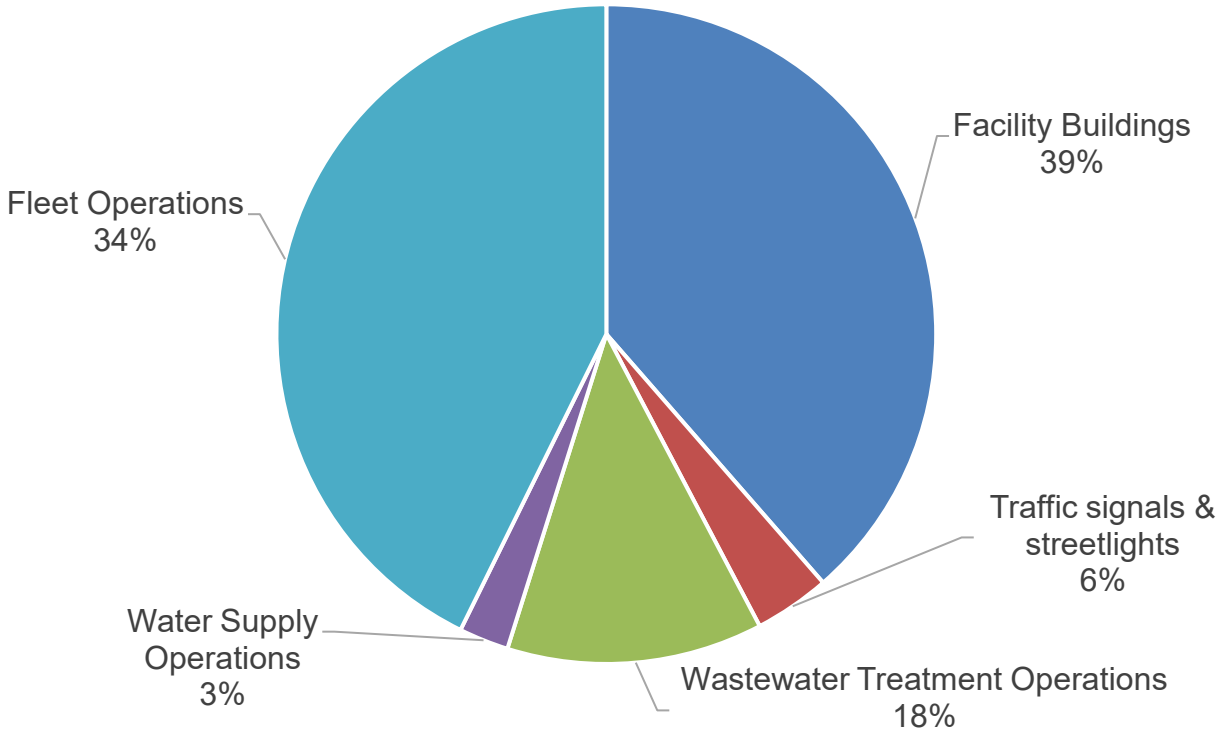
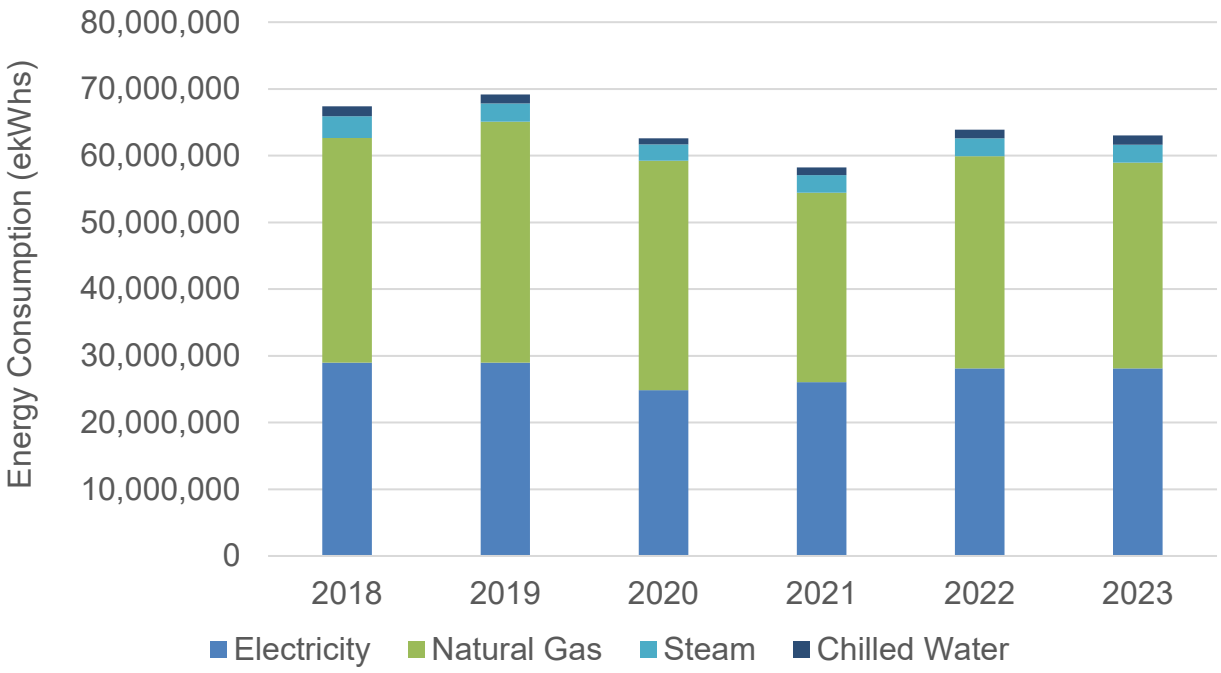


Figure 8 Facilities Energy Consumption by Commodity



About 95 per cent of the City's facility buildings are heated using natural gas, except for the downtown office buildings (e.g., City Hall, J. Allen Taylor Building), which are heated and cooled by a district heating system managed by Enwave.

Over the past five years, total energy consumption across all City facilities has decreased by five per cent.

With the goal of reducing greenhouse gas emissions from City buildings, Facilities has proposed 36 decarbonization heating, ventilation, and air conditioning (HVAC) projects with two deep building retrofit projects in the 2024-2028 CDM Plan. These projects are expected to reduce total energy consumption by eight per cent and cut greenhouse gas emissions by 990 tonnes per year over the next five years. These projects are part of the regular lifecycle renewal of HVAC equipment, which helps to make a stronger business case for decarbonization efforts.

5.3.1.2 2018-2023 CDM Plan Energy Conservation Measures

Facilities has consistently invested in energy conservation, adopting newer and greener technologies. In the last five years, Facilities implemented 14 energy projects in buildings that resulted in $150,000 in annual savings (Table 2). A detailed list of past energy projects is provided in Appendix A.

Table 2 Facility Buildings – 2019-2023 CDM Energy Project Savings

Service Area/Utility Type	Energy Savings (kWhs/year)	Incentives	Utility Cost Savings/Year	GHG Reductions (tonnes/year)
Facilities – Electrical	760,000	$ 105,000	$ 108,000	43
Facilities – Natural Gas	130,000	N/A	$ 21,000	27

Lighting Retrofits: In 2022, Facilities participated in IESO's Auction Pilot program where it replaced seven arena pad lighting systems with LEDs (Figure 9) and upgraded all the lights to LEDs at North London Optimist Community Center. This project received $92,000 in incentives from the IESO. This project costed $650,000 and resulted in 650 megawatt-hours of electricity savings per year, which is equal to $103,000 in electricity cost savings per year.

In addition to the above-mentioned program, facilities have also replaced indoor and outdoor lights with energy efficient LEDs at Canada Games Aquatic Centre, Dearness Home, and the Adelaide Operations Centre as part of the life cycle replacements and on-going energy efficiency initiatives. This initiative received $9,000 in incentives from the IESO.

Figure 9 Earl Nichols indoor ice rink with new LEDs



Additionally, at the J. Allen Taylor building, Facilities replaced the existing lights with smart LED lights with individual dimming capability. This resulted in $10,000 in annual electricity savings and received $4,000 in incentives from the IESO.

HVAC optimization at Fire Hall and Civic Garden Complex*:* Roof Top Unit (RTU) coils were treated to offer better heat transfer rate using Blue Box technology at Fire Hall 2 and Museum London as part of maintenance project.

Boiler performance improvement projects were completed at Fire Hall 1 and Civic Garden Complex where Endotherm additives applied to the boiler loop increased heat transfer efficiency.

Solar PV at New East Lions Community Centre: As a demonstration project, the City invested in a 10-kilowatt PV array, placed on the roof of the East Lions Community Centre. This unit generates 12,500 kilowatt-hours of electricity annually.

5.3.1.3 Planned 2024-2028 CDM Measures

Facilities is undertaking decarbonization projects as part of the building HVAC life cycle renewal upgrades. The total expected energy savings from planned projects is 5,000 equivalent megawatt hours and 990 tonnes per year of avoided greenhouse gas emissions. Measures listed so far are focused on the following energy savings initiatives:

- Energy management upgrades
- Heating, ventilation, and air conditioning (HVAC) upgrades
- Lighting upgrades
- Deep energy retrofits

A detailed list of planned and proposed 2024-2028 energy conservation projects are provided in Appendix B, including several described below.

Deep Energy Retrofits – Kinsmen Arena (Figure 10): This project is expected to increase energy efficiency of the existing building by 43 per cent which will result in a 167 tonnes per year reduction of greenhouse gas emissions. The energy retrofit components of this project include:

- Renewal of existing hydronic distribution, Building Automation System (BAS) HVAC infrastructure.
- Construction of a new central heat pump plant.
- Installation of electric personal mobility device charging infrastructure
- Installation of a new modified bitumen roof and structural upgrades for a future solar project

The estimated cost of this project is approximately $2.7 million. This project has been approved for the Federal Green and Inclusive Community Buildings (GICB) funding which will cover 80 per cent ($2.1 million) of the project costs, with the City of London contributing the remaining $550,000. Currently a detailed design and planning is underway with construction to begin in 2025.

Figure 10 Kinsmen Arena Building



Deep Energy Retrofit – Earl Nichols Arena: The expected energy savings from this project are 43 per cent along with 200 tonnes per year reductions in greenhouse gas emissions. The energy retrofit components of this project include:

- Replacement of existing ice plant with new heat pump plant coupled to geothermal energy system to capture of waste heat from the existing ammonia refrigeration plant;
- Replacement of existing natural gas fired appliances with electric;
- Installation of a new hydronic HVAC system including electric heat pump; and
- Installation of high-contrast painting and electric personal mobility device charging stations.

This project has also been approved under federal GICB funding which covers $2 million, or 80 per cent of the project costs, with the balance covered by the City's contribution of $600,000.

Heat Pump Rooftop Unit at Carling Arena: This project is replacing an existing gas-fired rooftop unit (RTU) with hybrid heat pump RTUs. The new RTUs will run mostly on electricity in heat pump mode which is up to 300 per cent more efficient than traditional RTUs. However, these units utilize natural gas as a backup source of heat during extreme cold weather days to ensure uninterrupted service.

This project is planned to be completed in 2025 with estimated annual energy savings of 201,000 equivalent kilowatt-hours and 45 tonnes per year reduction in greenhouse gas emissions.

5.3.1.4 Proposed 2024-2028 Energy Measures

In addition to the planned energy projects, the City is targeting an additional two per cent reduction in overall energy use (resulting in 116 tonnes per year greenhouse gas emissions reduction) in City facilities from:

- Energy Management System (EMS) optimization projects which will be undertaken as part of life cycle renewal of the HVAC system in various facilities buildings.

5.3.2. Wastewater Treatment Operations

Wastewater Treatment Operations focuses on treating sewage to meet Ministry of Environment, Conservation & Parks standards. Its initiatives aim to optimize energy use, maintain treatment standards, and enhance on-site energy generation and recovery. The initiatives in this plan build on energy projects from the past five years.

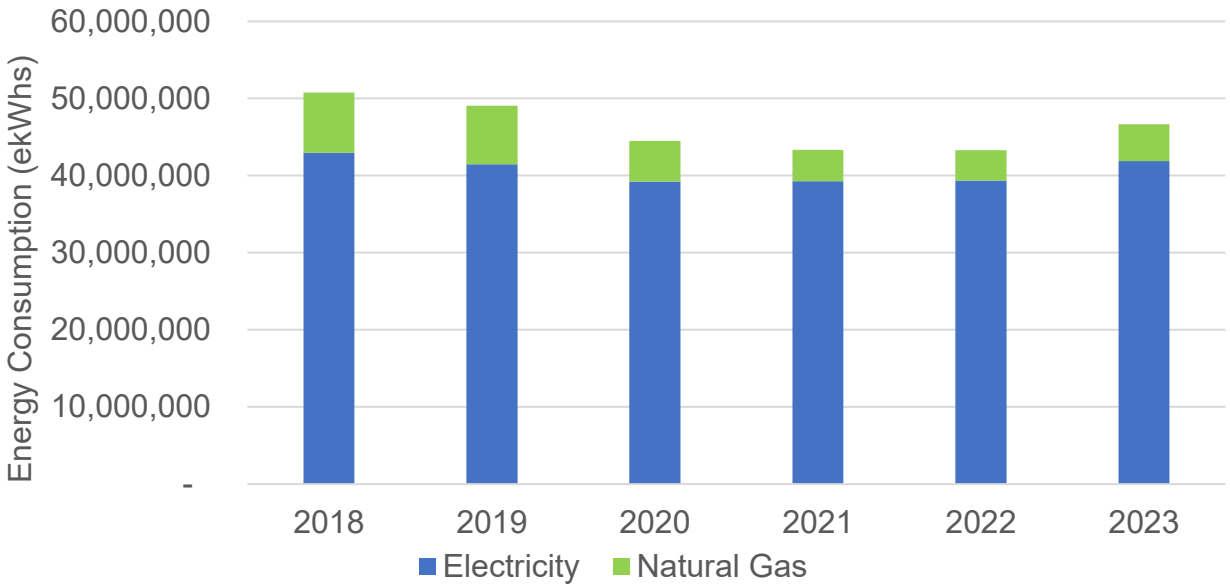
5.3.2.1 Energy Use and Greenhouse Gas Emissions

The City owns and operates five wastewater treatment plants (WWTPs) and 36 pumping stations to assist wastewater flow to plants from gravity sewers or force mains. A new Dingman creek pumping station under construction and expected to be in operation in the next five years.

Currently, the wastewater treatment plants have the second highest (29 per cent) total energy consumption after facilities, but it contributes only 18 per cent of total City

greenhouse gas emissions (as shown in Figure 7) due to its high dependence on electricity for processing sewage (as shown in Figure 11).

Figure 11 Wastewater Treatment Operations Energy Use by Commodity



5.3.2.2 Past Energy Conservation Measures

As shown in Figure 11, both natural gas and electricity consumption have decreased each year, resulting in a 40 per cent reduction in natural gas and a three per cent reduction in electricity from 2018 to 2023.

The electricity reduction is due to the ultraviolet light (UV) disinfection upgrade project, while the natural gas reduction is due to the temporary shutdown of the Greenway plant's sludge incinerator during the Organic Rankine Cycle (ORC) engine installation. Other contributing factors include completing HVAC upgrades at the Grit Building in the Adelaide and Greenway wastewater treatment plants by the end of 2019. All these projects together resulted in $1 million in energy savings per year and received $750,000 in incentives as shown in Table 3.

Table 3 Wastewater Treatment Operations - 2019-2023 CDM Energy Project Savings

Service Area	Energy Savings (ekWhs/year)	Incentives	Utility Cost Savings/Year	GHG Reductions (tonnes/year)
Wastewater Treatment Operations	4,300	$ 750,000	$1 million	150

However, total natural gas consumption is expected to increase to five million equivalent megawatt-hours once the Greenway sludge incinerator refurbishments are completed over the next five years. Highlights of past projects are as follows:

UV Disinfection System Upgrades: The City's wastewater operations have also completed upgrading the existing disinfection system, which was approaching the end of its asset life, with more current technology. UV disinfection is recognized as the most effective, safe, and environmentally friendly method for treating wastewater. The upgraded system, Trojan UV Signa™, has also provided 685,000 kilowatt-hours per year in energy savings at both the Greenway and Adelaide wastewater treatment plants, along with reductions in costs and significantly simplified operation and maintenance of the system.

5.3.2.3 Planned Energy Measures

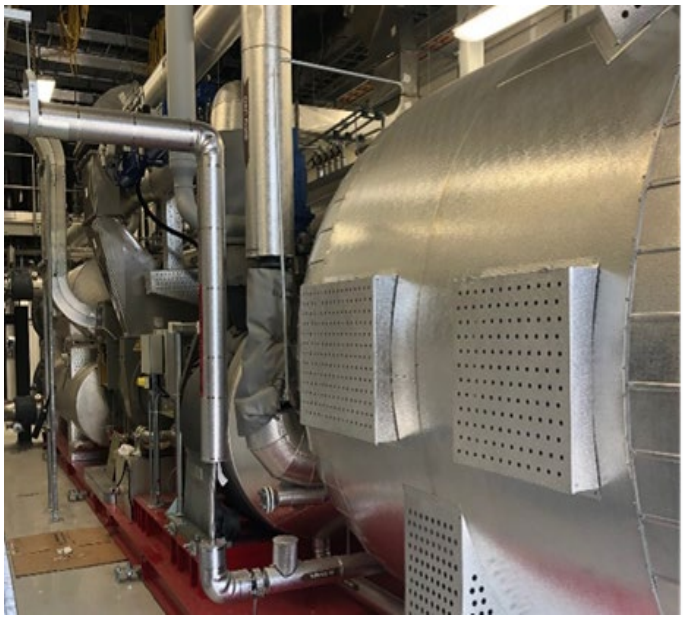
Historically, wastewater treatment plants have made the largest investments among City facilities in energy projects, resulting in a reduction of greenhouse gas emissions by more than 50 per cent over the last 10 years.

In the 2024-2028 CDM Plan, energy savings depend on the recently installed ORC project (Figure 12). The Greenway WWTP, the City's largest, has installed an ORC engine to use waste heat from the Fluidized Bed Combustor (FBC) unit to generate electricity and additional heat for building air heating. The installation was completed in 2022.

The ORC system is expected to generate 3,675 megawatt-hours of electricity annually, operating 24 hours a day for 330 days per year, and produce 9,300 equivalent megawatt-hours of reusable heat energy.

However, not all expected savings have been realized yet as the system is still being fine-tuned for efficiency. Additionally, the existing incinerator at Greenway is scheduled for refurbishment in 2024, which will require the ORC to be shut down for six months. Full energy savings from this initiative will be realized once the refurbishment is completed in 2025.

Figure 12 ORC Engine at Greenway WWTP



New Dingman Creek Pumping Station: A new wastewater pumping facility is currently being built to meet the growing demand within London and to treat new industrial wastewater in the south end. This facility will consume only electricity and will not use any fossil fuels, thus having no significant impact on the corporate greenhouse gas emissions**.**

5.3.2.4 Proposed Energy Measures

The City recently collaborated with Stantec to conduct a Solar PV Feasibility Study, assessing the potential, cost, and capacity of solar PV installations at the City's water

pumping and wastewater treatment sites. The study suggests that installing a 2.5-megawatt solar PV system at the Pottersburg and Vauxhall treatment plants within the next five years could save an estimated 4,000 megawatt-hours of electricity, equating to $972,000 in annual utility savings and reducing greenhouse gas emissions by 180 tonnes per year.

Pottersburg and Vauxhall are identified as ideal locations for solar projects, as no major process or operational projects are scheduled at these sites in the next five years. The City will focus on developing a business case, investigating funding sources, and assessing necessary resources, such as human resources, to undertake these renewable energy projects.

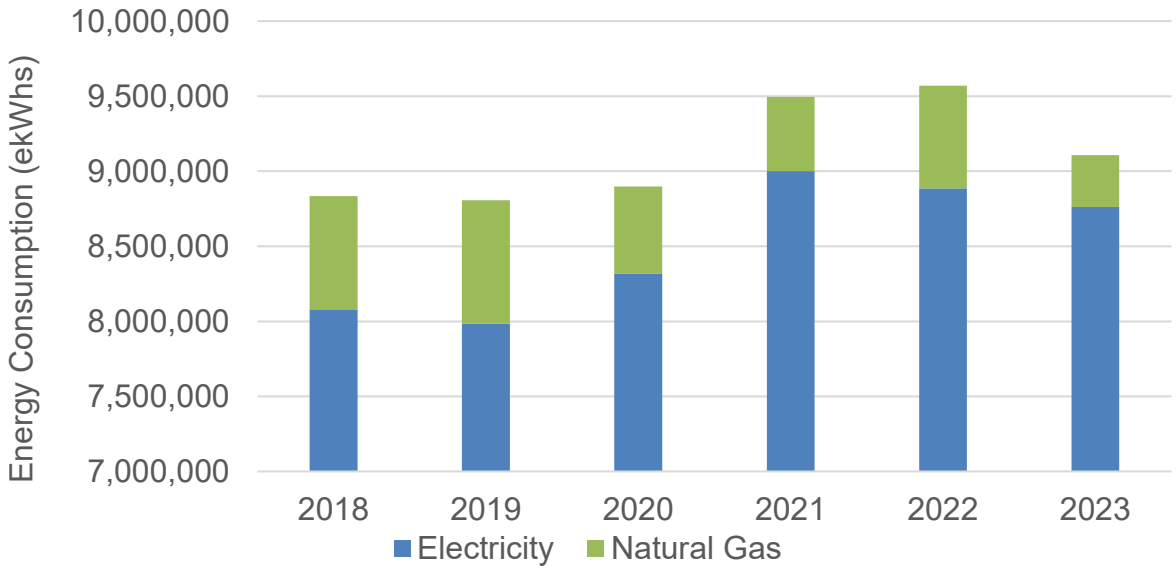
5.3.3. Water Supply Operations

The City receives water from Lake Huron to the Arva Pumping Station, where the City of London's water distribution system begins. Similarly, water from Lake Erie is pumped to the Elgin-Middlesex Pumping Station, from which the City assumes responsibility. Water Operations maintain, operate and control drinking water infrastructure, fire hydrants, water meters, and standby emergency well supplies through both operator-controlled and automated processes.

5.3.3.1 Energy Use and Greenhouse Gas Emissions

As represented earlier in Figure 7 under section 5.3, water supply operations accounts to only three per cent of the total corporate greenhouse gas emissions. Similar to wastewater, water operations are electricity dependent (Figure 13) operations with 86 per cent of greenhouse gas emissions from electricity and 14 per cent coming from natural gas use.

Figure 13 Water Supply Operations Energy Use By Commodity



It should be noted that only one water pumping station, the Southeast Reservoir Pumping Station (SERPS), uses natural gas for heating. This facility was recently

constructed and has been operational since 2018. Due to its relatively new age, no decarbonization efforts will be undertaken at this facility in the near term.

Over the past five years, the total water pumped by water operations has increased by three per cent, with a corresponding 1.5 per cent increase in electricity usage. Natural gas is only utilized for building heat in the occupied areas of the SERPS, which is 90 per cent unoccupied. Natural gas consumption at this facility has decreased by 55 per cent over the last five years, closely following heating degree days.

5.3.3.2 Past Energy Conservation measures

Water Engineering and Operations administers several pump optimization studies in the past years. One highlight contributing to on-going energy savings is as follows.

Table 4 Water Supply Operations - 2019-2023 CDM Energy Project Savings

Service Area	Energy Savings (ekWhs/year)	Incentives	Utility Cost Savings/Year	GHG Reductions (tonnes/year)
Water Operations	Peak Demand Reduction	$ 40,000	$ 2,000	200* (peak grid emission reductions

**Calculated using Marginal Emission Factors (MEFs) as natural gas generators operate at peak electricity demand periods*

Arva and SERPS Demand Response Program Participation: Arva Pumping Station stands as the City's largest freshwater pumping station, closely followed by the SERPS. Operating around the clock, seven days a week, both facilities ensure a steady supply of fresh water from Huron and Elgin water sources to the City. Despite their continuous operation, both Arva and SERPS can adjust pump operations to shift electricity demand to off-peak hours. This helps alleviate strain on the provincial grid during peak periods.

After six months of demand analysis and pump optimization testing, the City entered a Demand Response (DR) agreement with Voltus in 2020. Under this agreement, the City reduces electricity consumption at Arva and SERPS during peak demand days in the province. This not only safeguards the provincial grid from blackouts but also cuts down greenhouse gas emissions associated with natural gas-generated electricity during peak hours. Additionally, the City benefits financially by participating in this program with Voltus, having received approximately $40,000 in incentives over the last five years (Table 4).

5.3.3.3 Planned Energy Measures

Water Operations is seeing a steady increase in total water demand as London’s population increases, rising by three per cent over the past five years and expected to grow by another four per cent in the next five years. To meet this projected capacity, Water Operations is currently working on several pump upsizing and optimization projects. During the 2024-2028 CDM Plan, the total energy demand for Water Operations is expected to increase by at least two per cent. However, no energy-saving projects have been identified for Water Operations in the next five years.

5.3.3.4 Proposed Energy Measures

Similar to wastewater operations, the City will explore funding sources and develop a business case to install a 1-megawatt solar PV system at the Arva pumping station. If approved, the project is expected to save twelve per cent of the total energy consumption at the Arva pumping station.

5.3.4. Traffic Signals and Streetlights

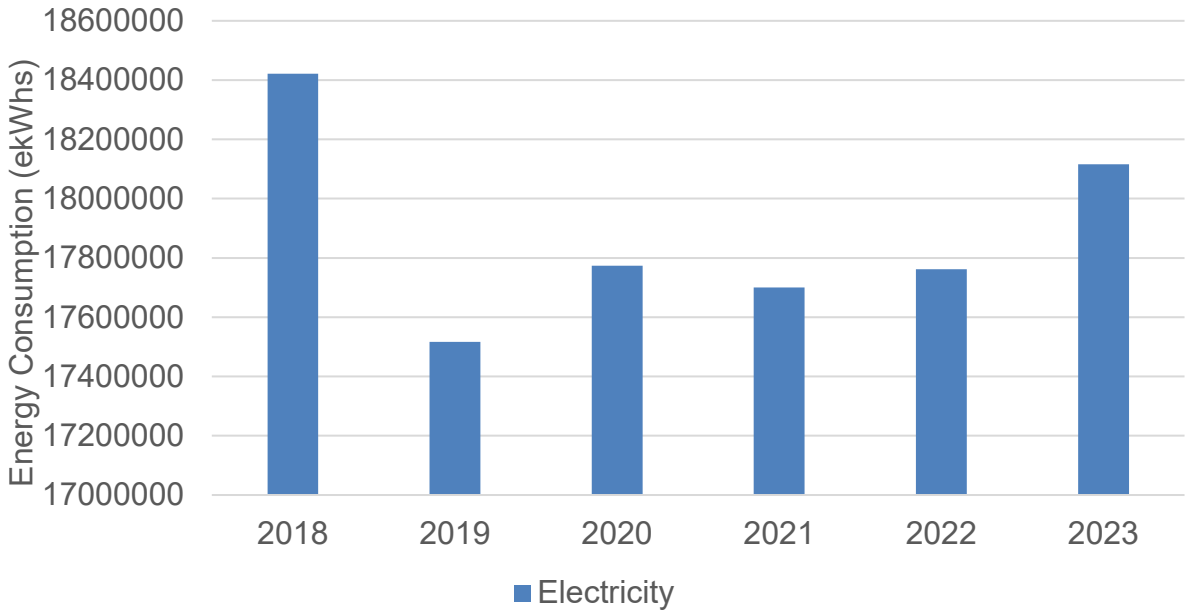
This section covers all the energy consumption related to traffic signals and streetlights. This does not include energy related to the City's parking lots, which comes under Facilities service area.

5.3.4.1 Energy Use and Greenhouse Gas Emissions

Traffic signals and streetlights contribute to six per cent of the total corporate greenhouse gas emissions, all of which are attributable to electricity-related emissions as shown in Figure 14.

The total energy consumption in the last five years has reduced by two per cent, these savings are attributed to the completion of phase two LED lighting project. Also, there is

Figure 14 Traffic Signals & Streetlights Energy Use by Commodity



a slight increase of three per cent in total energy consumed in 2023 compared to 2022, due to the increase in total streetlights inventory by ten per cent in the last two years.

5.3.4.2 Planned Energy Measures

The City has completed LED conversions for 20,000 streetlights, resulting in utility cost reductions of 30 per cent and 14 per cent in Phases One and Two by 2018. Over the past five years, the streetlight stock has increased by ten per cent, with all new lights being LED. However, the remaining 15,000 fixtures, including decorative and pedestrian tunnel lights, await conversion in Phase Three. Lack of funding has hindered this

process, but the current plan aims to retrofit at least 5,000 fixtures to LED, contingent upon funding.

If implemented, this project will result in 1,000 megawatt-hours in energy savings per year which is equivalent to $480,000 utility cost savings annually and 55 tonnes of greenhouse gas reductions annually.

5.3.4.3 Proposed Energy Measures

The proposed energy measure assumes that all the remaining 15,000 fixtures will be converted to LEDs if a feasible business case is developed. This will reduce the energy consumption by additional 2,000 megawatt-hours and contributes to 110 tonnes per year reduction in greenhouse gas emissions.

5.3.5. Fleet Operations

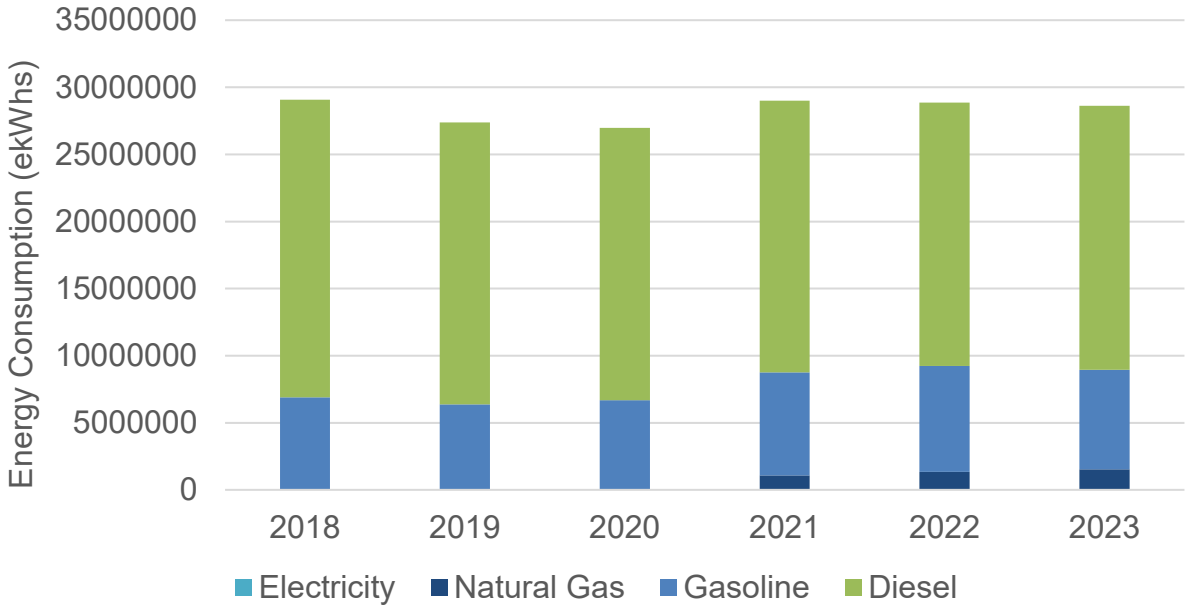
Fleet Services oversees vehicle and equipment purchases, disposals, maintenance, asset management, and fuel management. It supports more than 30 City of London service areas, including Water, Sewer, Wastewater, Transportation, Solid Waste, and Parks & Recreation. Additionally, it serves agencies such as the London Public Library, Tourism London, London Animal Care Centre, EMS, Fire, and Police Services. The division manages municipal assets worth over $70 million, comprising over 1,410 units ranging from handheld equipment to commercial vehicles and heavy machinery.

5.3.5.1 Energy Use and Greenhouse Gas Emissions

The corporate fleet fuel consumption does not include fuel used by Police and EMS services. Currently, the fleet operates only one electric vehicle, which consumes an average of 3,000 kilowatt-hours of electricity annually.

As shown in Figure 7 previously, Fleet is the corporation's second-largest source of greenhouse gas emissions at 34 per cent, after Facilities (39 per cent). Diesel accounts for 70 per cent of fuel-related energy use, followed by gasoline at 25 per cent and compressed natural gas at five per cent. Figure 15 shows a year-over-year reduction in diesel consumption due to fuel conservation and switching projects initiated by Fleet Services, with few projects highlighted in the next section.

Figure 15 Fleet Operations Fuel Consumption by Commodity



5.3.5.2 Past Energy Measures

Fleet has invested in Green Fleet initiatives and projects over the last five years. The combined energy savings and utility cost savings from these initiatives amount to 2,000,000 ekWh and $260,000, as shown in Table 5. The results of these initiatives, along with a couple of project highlights, are:

Table 5 Fleet Operations - 2019-2023 CDM Energy Project Savings

Service Area	Energy Savings (ekWhs/year)	Incentives	Utility Cost Savings/Year	GHG Reductions (tonnes/year)
Fleet Operations	2,000,000	N/A	$ 260,000	250

Diesel to Compressed Natural Gas Conversion of Solid Waste Collection Trucks (Figure 16): Fleet has been continuously investing in green fleet strategies over the year. Conversion of 39 waste management trucks to compressed natural gas (CNG) has been one of the major undertakings by Fleet in the last five years. Despite delays due to pandemic, Fleet was able to convert 39 trucks to from diesel to CNG before the target year of 2025. Any future solid waste collection trucks purchased by Fleet in the foreseeable future will be CNG fuelled vehicles. This initiative was estimated to have reduced greenhouse gas emissions by 150 tonnes per year as of 2023 with the conversion to 23 CNG trucks at that time, but with all the 39 trucks converted to CNG in 2024, emission reductions will increase to around 250 tonnes GHG per year.

Further, Fleet is currently investigating conversion of these CNG operated trucks to RNG.

Figure 16 Compressed Natural Gas Solid Waste Collection Truck



Natural Gas to Electric Zambonis (Figure 17): In September 2019, Zamboni Company Ltd. delivered an electric Zamboni Model 450 ice resurfacer to the Bostwick Community Centre. After a successful trial and testing for over a year, the City got approval from Council in 2020 to convert 12 ice resurfacers to electric from natural gas. This transition was completed by 2023. The City of London was one of the first cities in North America to adopt electric ice resurfacers.

The transition to battery electric engines eliminates the greenhouse gases and harmful air pollutants produced from burning natural gas. Each unit converted to battery electric resulted in a savings of 19 tonnes of GHGs annually. Following the conversion of the entire fleet to battery electric, operational units mitigated 212 tonnes of greenhouse gas emissions annually and contributed to 24 per cent of the corporation's overall greenhouse gas curtailment target of 900 tonnes annually, and 85 per cent of Fleet's greenhouse gas curtailment target of 250 tonnes annually.

Furthermore, this move to battery electric powered equipment has enabled the City to investigate and move to renewable energy sources such as solar PV to reduce operational costs and eliminate greenhouse gas emissions.

Overall, in addition to the environmental benefits this move has also resulted in operations and mechanical savings, infrastructure benefits and increase in the expected extended lifecycles of electric ice resurfacers.

Figure 17 City of London Electric Ice Resurfacer



5.3.5.3 Planned Energy Measures

Fleet has secured a $100,000 grant from Natural Resources Canada over the past five years to install 20 electric vehicle chargers at the A.J Tyler Operations Centre. With Council approval, Fleet Operations will replace up to 20 end of life internal combustion engine vehicles with new all electric models.

Also, Fleet is replacing eight cargo vans from gasoline to electric in 2024-2025, which will use these charging stations. This project when implemented reduces greenhouse gas emissions by 42 tonnes per year by 2028 compared to 2023 levels.

Along with this Fleet will see an additional 260 tonnes reduction in greenhouse gas emissions per year starting end of 2025 due to the conversion of the remaining 12 Solid waste trucks (out of 51) to CNG in 2025.

5.3.5.4 Proposed Energy Measures

As part of fuel conservation efforts, Fleet completed an optimization study with Deloitte last year to identify and eliminate fuel waste. The strategies from this report may lead to indirect fuel savings, which will be quantified as different initiatives are implemented during the current Conservation and Demand Management (CDM) Plan.

Additionally, contingent upon a source of finance, it is estimated that Fleet can reduce greenhouse gas emissions by an additional 280 tonnes per year through electrification of its light duty vehicle fleet and by incorporating active transportation strategies for employee fleet vehicle use, such as cycling, walking, virtual meetings, transit etc.

Fleet's fuel conservation efforts rely on the adoption of green fleet initiatives by every service area.

5.3.4. Other Area Measures

5.3.4.1 Past CDM Measures

***Corporate EV Charging**:* After successful pilot projects at City Hall in 2012, City conducted employee EV charging survey and identified demand at various employee parking locations. The City currently owns and operates 16 charging ports of which ten ports are located at City Hall, four at AJ Tyler Operations Centre and couple more at Fire Hall One. The City owns, operates, and maintains these stations. A user fee is collected as revenue from these chargers which is designed to help with charger's life cycle replacement.

Climate Lens Framework: The purpose of the Climate Lens Framework is to:

- Ensure climate change considerations and issues are included in decision-making and evaluation of existing practices.

- Establish a clear process for accountability and tracking of the consideration and/or issue of climate change issues in decision-making, including collection of information on decision outcomes.

- Elevate understanding of the importance of climate change issues in decision-making across the Corporation.

The Climate Lens Framework includes the following five streams of activities:

1. Master Plans, Guidelines and Strategies
2. Existing and New Projects/Programs
3. Quick Assessment of Existing Operations
4. Multi-year Budget & Annual Budget Updates
5. Building Climate Change Capacity within the Service Area

The development of the Climate Lens Framework has increased the visibility and awareness of the need for energy conservation measures for City facilities, programs, projects, and operations.

5.3.4.2 Proposed CDM Measures

Other service areas of the City of London listed below contributed indirectly to the CDM goals:

Table 6 Other Service Area – 2024-2028 CDM Measures

Service Area	Goal	Expected Results
Purchasing and Supply	Sources and identify energy efficient products during the procurement of equipment	Build upon the existing sustainable purchasing policy. Adopt Green procurement standards.
Purchasing and Supply	Energy procurement strategy for energy commodity	Continue to evaluate utility rates on behalf of the City's commodity supply arrangements to optimize rates favourable to the City
Asset Management (Facilities)	Adopt climate change impacts in financial planning	Assign funds to climate change mitigation actions such as reduced energy consumption and emissions reductions which are significant decision drivers when planning new assets or renovating existing assets.
Planning – Environmental and Parks Planning	Reduce energy consumption in City of London parks	Review lighting standards for parks to assess the needs and to adjust lighting requirements to suit time of use. Expand the use of solar-powered lighting and LED technology.

5.4. Implementation and Tracking

The implementation strategy identified next targets both the short term CDM and the long-term CEAP targets, considering anticipated changes in federal and provincial legislation, regulations, and technological advancements that will influence long-term initiatives. The core elements of the framework are:

- Organizing and collaboration
- Funding opportunities
- Annual reporting
- Communication and motivation

5.4.1 Organizing and Collaboration

The 2024-2028 CDM Plan will undergo annual review and updates to Council along with the CEAP report update, relying on commitment and collaboration among City staff for

successful implementation. The level of commitment to the plan hinges on Council, senior management, and staff dedication. To enhance adoption, it is recommended that:

- The City establish and maintain energy-focused Service Area group meetings weekly or bi-weekly to discuss ongoing initiatives and best practices; and
- Assign corporate energy management engineers to these committees, representing all users, to track progress and share regional initiatives as needed.

5.4.2 Funding Opportunities

Since expanding the Corporate Energy Management program in 2007, the City of London allocates an annual budget ranging from $300,000 to $600,000 for program costs, including energy management staff, feasibility studies, and consulting. Additionally, the City invests between $250,000 and $1 million annually in capital expenditures for energy efficiency projects. Additionally, to implement standalone energy and climate change adaptation/resiliency projects and initiatives with no budget constraints, City is taking the following initiatives:

Climate Change Reserve (CCR) Fund: The creation of a Climate Change Reserve Fund ($1 million per year for four years) to accelerate implementation of climate actions. The monies standing in the Fund shall be used by The Corporation of the City of London to fund any initiatives that support the Climate Emergency Declaration adopted by Council, April 23, 2019, including operating or capital expenditures related to:

a. One-time initiatives/projects; or

b. Initiatives/projects that require a temporary source of financing not to exceed four years. Should The Corporation of the City of London wish to deliver an initiative/project on a permanent basis, transition plans must identify permanent sources of financing to commence no later than the fifth year.

Efficiency, Effectiveness & Economy (EEE) Reserve: the EEE Reserve will also be used, where appropriate, to implement energy efficiency projects and green initiatives that provide financial payback which contribute to the Strategic Plan's Climate Change and Sustainability and Well-Run City goals.

Federal and Provincial Funding/Incentives: The City will proactively seize external funding opportunities when available, while also incorporating necessary operating and capital budgets into future planning to secure funding and support the City's long-term Net-Zero goals. The city has been actively pursuing the Demand Side Management (DSM) incentives available from Enbridge, the electricity rebates and incentives available from Independent Electricity System Operator (IESO), Federal Green and Inclusive Community Building (GICB) program funding, the Federation of Canadian Municipalities' Green Municipal Fund (GMF), and Canada Infrastructure Banks' (CIB) funding and will continue to investigate and participate in any existing and new funding opportunities for decarbonization and conservation projects.

5.4.3 Annual Reporting

The City uses EnergyCAP software for billing analysis and London Hydro's Interval Data Centre for detailed electrical consumption analysis. Additionally, Natural Resources Canada's RETScreen software is employed to improve energy monitoring and project assessment.

Using these tools, City staff will provide annual updates to Council on the corporation's greenhouse gas emission reduction progress through annual progress reports on CEAP implementation which will include the annual CDM update report. This informs the public about progress towards short-term and long-term net-zero goals, including updates on energy conservation measures implemented across city operations.

The annual updates will also identify any potential challenges, such as an increase in grid emission factors, which could undermine the City's conservation efforts. Strategies for mitigating and addressing these challenges will be outlined.

5.4.4 Communication and Motivation

Previously, energy management relied on informal contacts. The focus of the 2024-2028 CDM Plan is to highlight the value of energy efficiency both within and outside the organization. Implemented energy measures and their results will be promoted internally through the Culture of Conservation program. Staff and service areas making significant strides in emission reductions will be recognized through employee awards, celebrations, forums, and engagement events.

CDM Plan goals will be met by adoption of the plan by various service areas and staff. The City is committed to implementing and ensuring the success of the plan, which serves as a living document guiding energy management decisions and actions for the next five years and beyond.

Appendix A – Past Energy Projects

Service Area	2019-2023 Energy Conservation Projects	GHG Reductions (tonnes/year)
Facility Buildings	Demand Response	4 (associated with peak grid emission factor)
Facility Buildings	Demand Response	4 (associated with peak grid emission factor)
Facility Buildings	Bostwick Heat Recovery	12
Facility Buildings	Bostwick feasibility Study	N/A
Facility Buildings	Winter Ops-Energy Recovery Ventilators	7
Facility Buildings	Canada Games CHP	N/A
Facility Buildings	Fire Station #1 HVAC retrofit	2
Facility Buildings	AJ Tyler Ops – RTU replacement	5
Facility Buildings	Argyle Arena – Building automation system implementation	7
Facility Buildings	Fire Station #1 – Replace Roof Top Unit	3
Facility Buildings	Exterior and Parking lot lights retrofit	15
Facility Buildings	Lighting controls & upgrades at AJT	5
Facility Buildings	Replace glass wall in arena with insulated panels – Bostwick	Not available
Facility Buildings	Adelaide ops Centre - lights retrofit	5
Facility Buildings	Fire hall 9- lights upgrade	3
Facility Buildings	Dearness - BAS upgrades	40
Facility Buildings	Adelaide Ops Centre ERV	3
Facility Buildings	Argyle Arena lighting upgrade	4

Service Area	2019-2023 Energy Conservation Projects	GHG Reductions (tonnes/year)
Facility Buildings	Carling Arena	4
Facility Buildings	Kinsmen Arena	4
Facility Buildings	Lambeth Community Centre	2
Facility Buildings	Medway Community Centre	2
Facility Buildings	Earl Nichols Arena	6
Facility Buildings	Stronach Arena & Community Centre	4
Facility Buildings	North London Optimist Community Center	10
Facility Buildings	Fire Hall 2	1
Facility Buildings	Museum London	4
Facility Buildings	Fire Hall 1	7
Facility Buildings	Civic Garden Complex	15
Facility Buildings	indoor/outdoor Lighting retrofits - CGAC, Dearness, Adelaide Ops Centre, and Fire Hall 9	1
Facility Buildings	J. Allen Taylor	1
Facility Buildings	EROC main ERV	4
Facility Buildings	EROC Bldg. 2 ERV	3
Facility Buildings	Oxford Ops Centre ERV	7
Fleet Operations	Solid waste trucks conversion from diesel to CNG	150 (100 tonnes savings associated with 14 trucks conversion in 2024)
Fleet Operations	Natural Gas Zamboni conversion to Electric	212
Wastewater Treatment Operations	Greenway – Organic Rankine Cycle Project	110 (savings will be realized after incinerator refurbishment completes in 2024-2025)
Wastewater Treatment Operations	Aeration building lighting retrofit- Greenway	6

Service Area	2019-2023 Energy Conservation Projects	GHG Reductions (tonnes/year)
Wastewater Treatment Operations	Greenway Fluorescent lights	5
Wastewater Treatment Operations	UV Disinfection upgrade at Greenway and Adelaide WWTPs	38
Water Supply Operations	Demand Response for SERPS & ARVA	200 (associated with peak grid emission factor)
	Total	**915**

Appendix B – 2024-2028 Planned and Proposed Energy Projects

Service Area	2024-2028 Energy Conservation Projects	GHG Reductions
Facility Buildings	Adelaide Ops Centre HVAC upgrade	17
Facility Buildings	Argyle Arena rooftop-hybrid heating	26
Facility Buildings	Carling Arena – Rooftop Hybrid Heat Pump	49
Facility Buildings	Carling Heights Optimist Community Centre and Pool – HVAC upgrades	144
Facility Buildings	City Hall – Hybrid Heating	13
Facility Buildings	Fire Station # 4 & 6 Rooftop Hybrid Heat Pump	14
Facility Buildings	Fire Station # 8 & 10 – Outdoor Hybrid heat pumps	25
Facility Buildings	Fire Station #12 & Emergency operations centre – Hybrid heap pumps	27
Facility Buildings	Hamilton Road Seniors Community Centre – Rooftop Hybrid Heat Pump	25
Facility Buildings	Lambeth Arena and community centre – HVAC upgrades	113
Facility Buildings	Oakridge arena – Rooftop Hybrid Heat Pump	17
Facility Buildings	Ray Lanctin Arena – Rooftop Hybrid Heat Pump	54
Facility Buildings	South London Community Centre – HVAC upgrades and Heat pumps	51

Service Area	2024-2028 Energy Conservation Projects	GHG Reductions
Facility Buildings	Tourism London Information Centre – HVAC upgrades and heat pumps	17
Facility Buildings	Kinsmen Arena – Deep energy retrofit	167
Fleet Operations	Conversion of 8 cargo vans from gasoline to electric	42
Facility Buildings	Earl Nichols Arena – Deep energy retrofit	150 (100 tonnes savings associated with 14 trucks conversion in 2024)
Facility Buildings	Proposed – 2% reduction in natural gas from EMS optimization projects	120
Fleet Operations	Savings from 14 Diesel to CNG solid waste trucks conversion in 2024	261
Fleet Operations	Proposed – 2% reduction in gasoline and 2% in overall other Fleet fuels due to additional fuel switching, optimization and awareness strategies	110
Traffic signals & Streetlights	Planned and Proposed – Phase 3 LED lighting project	165
Wastewater Treatment Operations	Actual savings from ORC project after incineration refurbishments completed in 2024-2025	212
Wastewater Treatment Operations	Proposed – Solar PV at Vauxhall and Pottersburg PCP	184 – Peak emissions reductions
Water Supply Operations	Proposed – Solar PV at Arva	50 – Peak emissions reductions
Water Supply Operations	Demand Response Participation for Arva and SERPS	200 – Peak emissions reduction
Total		**2,250 (1,550 from planned projects and 700 from proposed projects)**

Appendix C - 2023 Corporate Energy Use and Greenhouse Gas Emissions Report

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London CANADA

1. Methods and Limitations of Measurement

The City procured the EnergyCap software in 2007 to log monthly utility bills for municipally owned and administered buildings and facilities. This software has the capability to track, monitor and capture data to assist the City with reporting consumption and providing historical data.

Fleet fuel use data is provided from the PetroVend fuel management software system which is used for tracking vehicle fuelling at operation centres.

The annual energy consumption and greenhouse gas emissions for the City does not include energy consumed in leased office space where the utility costs are incorporated in the leasing agreements. However, a rough estimate for leased space is provided in Section 3.4.

1.1. Service Area Categories and Energy Consumption

The City manages diverse operations of buildings, including office spaces, community centres, arenas, and fire halls which use energy for interior and exterior lighting, heating, and cooling of buildings, and energy associated with maintaining recreational services like pools and arenas. The City also manages linear assets such as wastewater treatment facilities, water supply and pumping facilities, traffic lights, and City fleet operations. Ninety per cent of the energy consumed by linear assets is electricity associated with running and maintaining the processes.

For this report, all the City's service categories are divided in the following categories to compare their individual contribution to City's total energy consumption:

- Facility Buildings
- Wastewater Treatment Operations
- Water Supply Operations
- Traffic Signals & Streetlights
- Fleet Operations

1.2. Sources and Emission Factors for Greenhouse Gases

Greenhouse gas emissions within City operations are contributed by consumption of electricity, natural gas, steam, chilled water, diesel, and gasoline. Among these, fleet

fuel, followed by natural gas and steam have the highest emissions per equivalent kWh of fuel as shown in Table C-1.

Table C-1 - Commodity Emission Factors - Grams of CO_2 equivalent per equivalent kilowatt-hour (kWh)

Commodity	2023
Electricity	67
Natural Gas	182
Diesel	262
Gasoline (E-10 blend)	237
Steam	143
Chilled Water	98

Table Notes:

- The electricity emission factors are based on the Ontario Electricity Emissions Factors and Guidelines – 2024 Edition from The Atmospheric Fund (TAF).

Steam and chilled water are supplied by London District Energy (LDE) for City's downtown office building locations and its associated emissions have been provided by LDE.

2. Annual Corporate Energy Analysis

In 2023, the City's energy use is categorized by consumption, associated emissions, and costs by commodity. The 2023 energy data are also normalized to London's population to measure improvements in efficiency. This allows the City to demonstrate and relay to Londoners the energy consumed in relationship to service delivery provided by the City. For this report, all the 2023 energy emissions data are compared to the following years:

- 2007 – as this was the first year that City started measuring and monitoring its corporate energy consumption; and
- 2018 – as this is the baseline year for the 2019-2023 CDM Plan.

2.1 Total Corporate Energy Consumption

With the use of the EnergyCap software, the City has the ability to breakdown and report annual energy consumption by commodity and by service category.

Table C-2 – Total Energy Consumption by Commodity

Energy Consumption (ekWh)	2007	2018	2023	Change from 2007	Change from 2018
electricity	108,328,000	98,448,000	96,885,000	-11%	-2%
natural gas	58,682,000	42,430,000	36,038,000	-38%	-14%
steam	3,499,000	3,269,000	2,723,000	-22%	-17%
chilled water	1,759,000	1,521,000	1,385,000	-21%	-9%
diesel fuel	20,129,000	22,194,000	19,694,000	-2%	-11%
gasoline	6,718,000	6,889,000	7,417,000	10%	8%
CNG fuel	-	-	1,516,000	n/a	n/a
Total	199,115,000	174,751,000	165,658,000	-17%	-5%

Table C-2 shows the City's energy consumption by commodity, which amounts to 165 million equivalent kilowatt-hours (kWh) in 2023. Energy consumption has decreased for every energy commodity except gasoline, which has seen an eight per cent increase since 2018. Overall, total energy use is 17 per cent lower compared to 2007 and five per cent lower compared to 2018. Energy associated with heating and cooling buildings (steam, electricity, chilled water, and natural gas) have shown greatest reduction from 2007. This shows that energy efficiency measures in place since 2007 have played a significant role in conservation.

Electricity represents 57 per cent of all the energy used by the City. Out of this, 52 per cent is consumed by electricity-intensive operations such as water supply and wastewater treatment plants, 19 per cent is consumed by streetlights and traffic lights, and the remaining 29 per cent is consumed by building ventilation, lighting, and office equipment.

Natural gas is the second highest commodity, representing 23 per cent of the total energy consumption. Most of the natural gas is used for space heating and hot water heating, but 13 per cent of the total natural gas is used in wastewater treatment facilities every year.

Diesel and gasoline are consumed by a variety of fleet vehicles and equipment which include waste collection trucks, snowplows, off-road construction equipment, and portable hand-held tools used by Parks & Recreation.

Compressed natural gas (CNG) was consumed by 24 of the waste collection packer trucks in the vehicle fleet. Steam and chilled water account for only one per cent of the total energy consumption each and both are completely used by administration buildings owned by the City in downtown London including City Hall. Steam and chilled water are supplied by Enwave London District Energy.

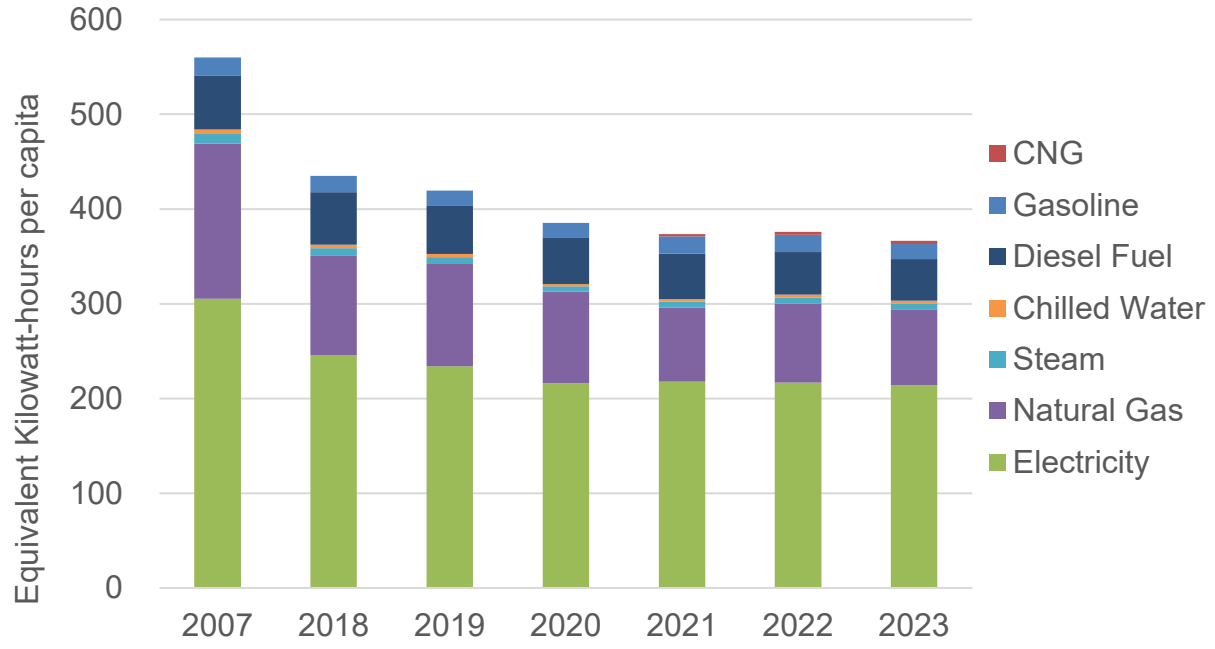
2.2 Total Corporate Energy Consumption Per Capita

The City's energy consumption is a direct function of serving the public, businesses, and visitors of London. The trends in consumption reported is significant to the services provided to the community. London continues to grow in population and increased services are required to support that growth. It is important to capture energy usage per capita to demonstrate the City's achievements in energy reductions while continued growth occurs in London.

Figure C-1 shows total energy consumption per capita by commodity which is explained as follows:

16 years of data show continued improvement of corporate energy use per capita with an overall reduction of 34 per cent in 2023 compared to 2007; and in 2023, overall energy efficiency improved by about 16 per cent compared to 2018. The increase in population by more than three per cent per year in 2023, contributed to increased efficiency in 2023.

Figure C-1 - Corporate Total Energy Consumption per Capita by Commodity Type



2.3 Total Corporate Energy Consumption by Service Category

Separating the municipal service by categories gives the City the ability to see where progress is being made and the opportunity to target areas for improvements.

Figure C-2 shows facility buildings as the highest energy consumer at 38 per cent followed by wastewater treatment operations at 28 per cent, fleet operations at 17 per cent, traffic signals & streetlights at eleven per cent, and water operations at six per cent.

Figure C-3 shows the overall energy consumption (ekWh) by the municipal service categories over the last five years compared to the 2007 baseline year. The five years are highlighted in this figure to show continuous improvement year over year since 2018 with 2020 and 2021 at eight per cent and nine per cent dip due to pandemic. With all the operations returning to normal starting 2022, the expected energy use is at 165,000,000 ekWhs.

Most of the energy consumption reductions have been observed in buildings and wastewater treatment operations. Facility buildings reduced energy consumption by 13 per cent compared to 2007 and six per cent to 2018. Most of the reduction is a result of heating, ventilation, and air conditioning (HVAC) upgrades and LED lighting upgrades.

Figure C-2 - City of London 2023 Energy Consumption by Municipal Service Category

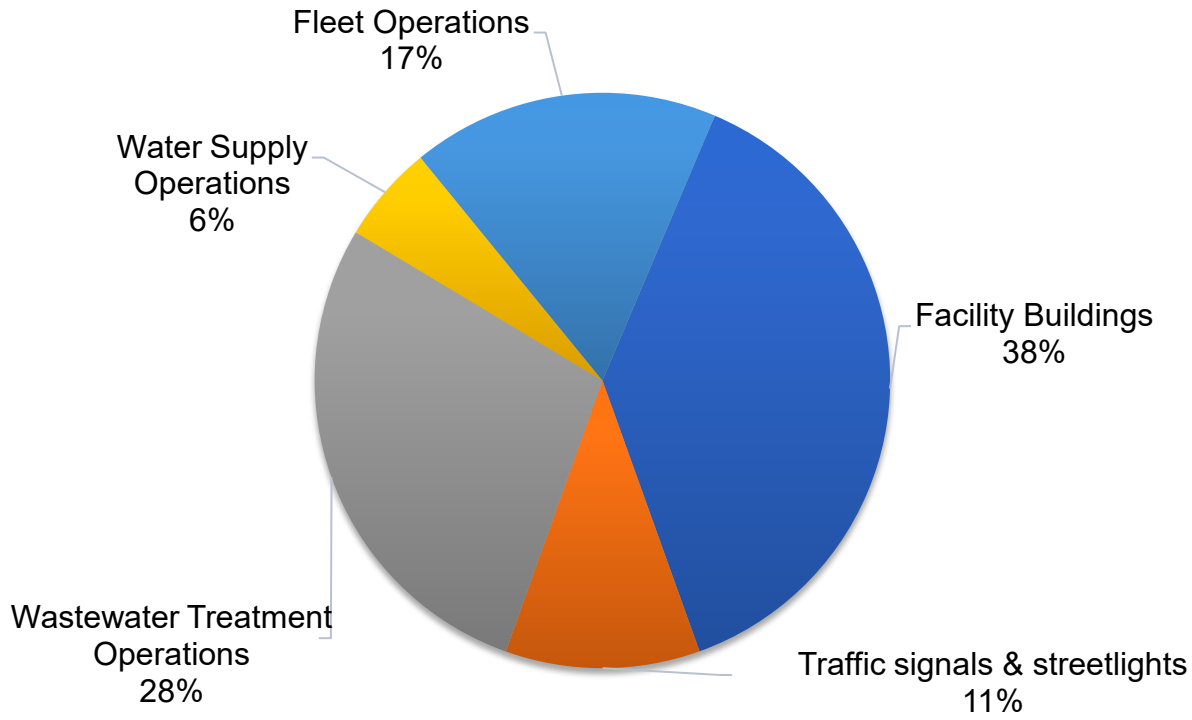
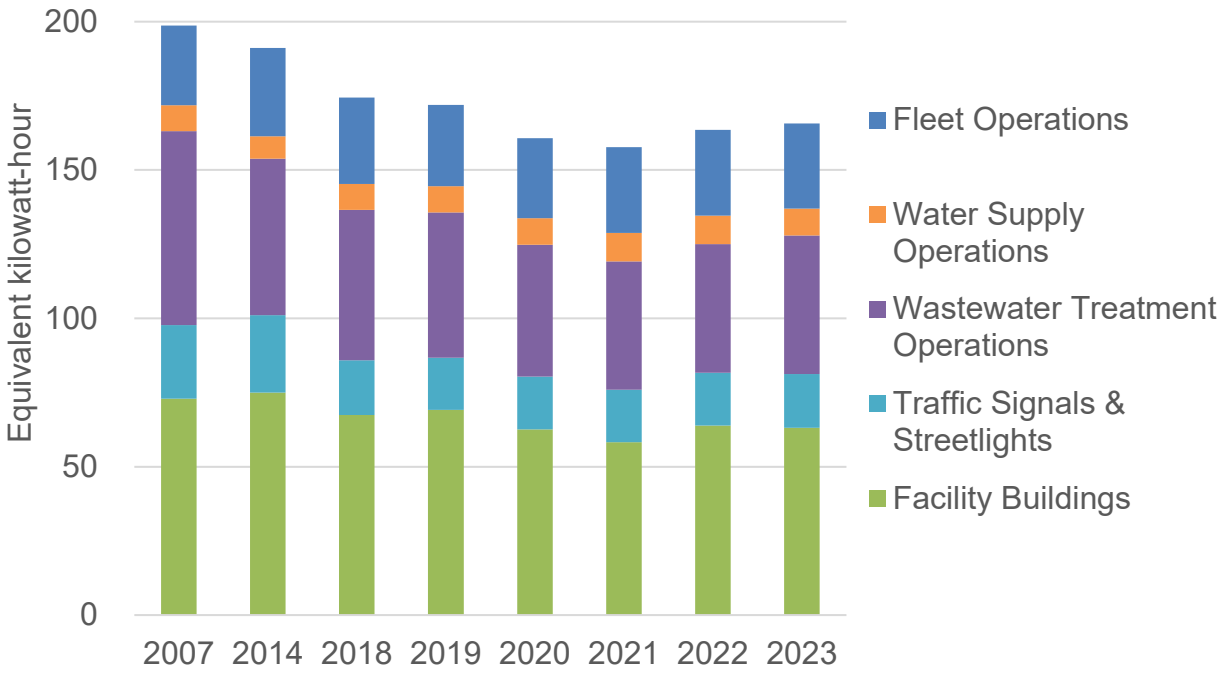


Figure C-3 – Total Corporate Energy Consumption by Service Category (ekWhs)



Wastewater treatment continues to see improved energy efficiency as a result of HVAC upgrades, aeration blower upgrades and using waste heat. Energy consumption was reduced by 29 per cent compared to 2007 and eight per cent compared to 2018. Energy use by traffic signals and streetlights has decreased by 27 per cent from 2007 and two per cent from 2018. Total Streetlights inventory increased by ten per cent during the same period.

Fleet fuel consumption has increase by seven per cent since 2018 and is influenced by increased rental Fleet since the pandemic. Although total Fleet consumption increased by seven per cent compared to 2007, the per capita consumption shows a decrease of 15 per cent. This shows that the efficiency of fleet operations increased over the years.

Operational issues at the new Southeast Reservoir and Pumping Station (SERPS) water supply facility and increased water demand by three per cent increased water supply's overall energy consumption by four per cent compared to 2018.

2.4 Leased Spaces

Leased spaces, for which the City does not pay for utility use, make up 7.3 per cent of city-owned spaces. The energy used by these spaces is not included within the City's reported energy use, but it has been estimated to provide an understanding of its potential contribution overall.

The energy intensity in Canada for office buildings in 2018 was reported to be 0.99 gigajoules per square metre (GJ/m^2) in a report by Natural Resources Canada (NRCan). Assuming the same in 2023, the City's leased spaces are estimated to have consumed about 4,500,000 ekWh which is almost three per cent (2.7%) of the total corporate energy consumption. Considering the leased space would have the same per unit cost and emission factor as the city owned buildings, leased space energy cost would be approximately $430,000 and would result in about 540 tonnes of greenhouse gas emissions in 2023.

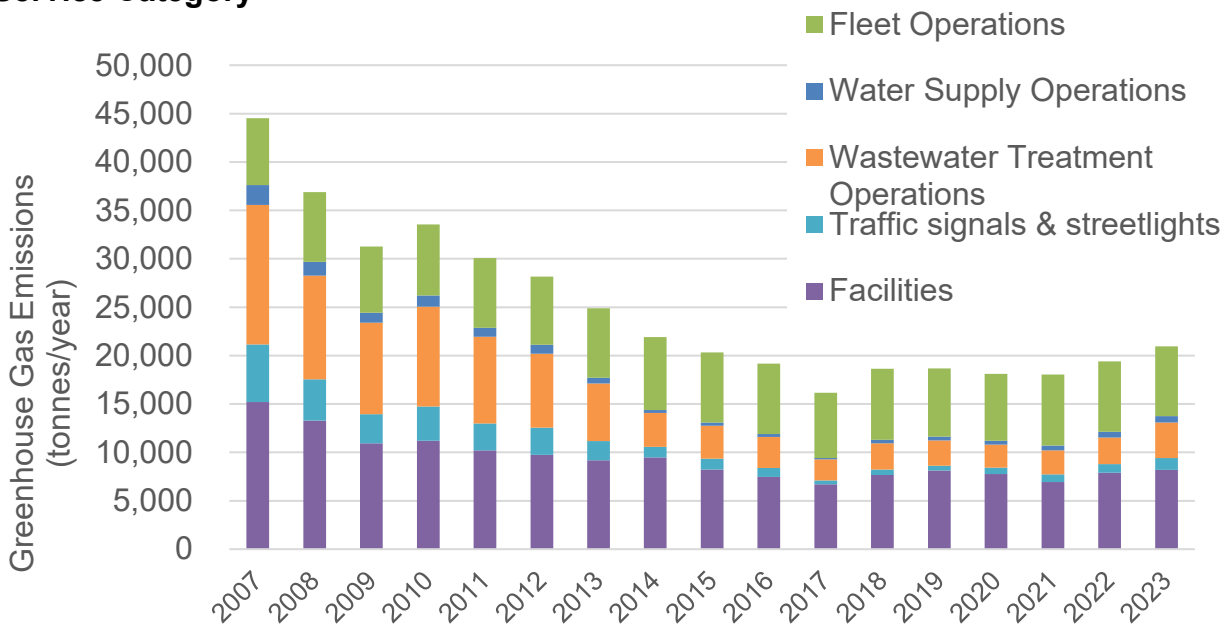
These emissions are accounted for within the reported community GHG emission values for commercial office buildings.

2.5 Energy-Related Corporate Greenhouse Gas Emissions

In 2023, greenhouse gas emissions from energy use were twelve per cent (2,300 tonnes) higher than 2018, but 53 per cent lower compared to 2007. Figures C-4 and C-5 show the greenhouse gas emission reduction trend since 2007. Greenhouse gas emission reductions have been observed across the corporation since 2007, except for Fleet.

Fleet's greenhouse gas emissions are now a larger share of corporate energy-related emissions due to emissions from burning gasoline, diesel, and compressed natural gas as explained in section 4.2 of this report.

Figure C-4 – Corporate Energy-Related Greenhouse Gas Emissions since 2007 by Service Category



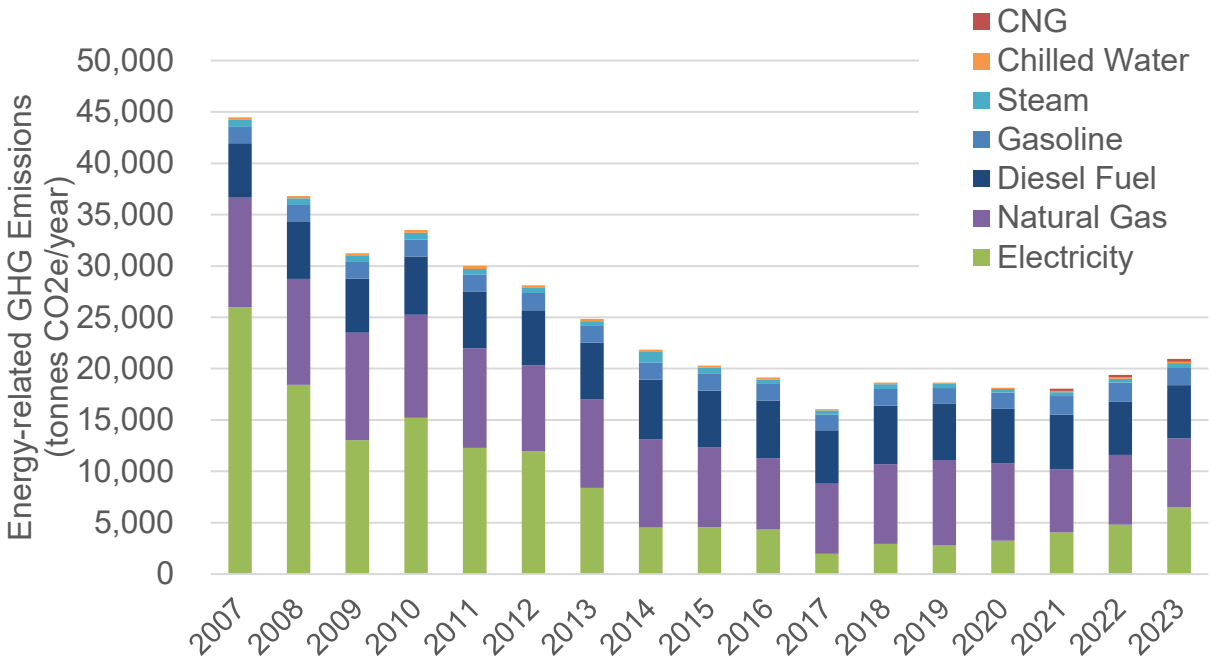
Most of the emission reductions since 2007 are due to a cleaner electricity grid in Ontario due to increased conservation efforts and cleaner sources of energy used to generate electricity in Ontario:

- 84% reduction in electricity-related emissions;
- 46% reduction in steam-related emissions, due solely to corporate actions; and
- 33% reduction in natural gas related emissions, due solely to corporate actions.

However, in the last couple of years, greenhouse emissions from Ontario's electricity grid have increased, from 29 grams equivalent carbon dioxide per kilowatt-hour in 2019 to 67 grams per kilowatt-hour in 2023. Given that electricity represents 57 per cent of all the energy used by the City, changes in Ontario's electricity grid will have a significant impact on corporate energy-related emissions. As a result, the City's greenhouse gas emissions in 2023 are about 3,600 tonnes (21 per cent) higher than they would have been if Ontario's grid emissions had not changed.

Looking ahead, based on power supply forecasts provided by Ontario's Independent Electricity System Operator (IESO), The Atmospheric Fund estimates that greenhouse gas emission factors for Ontario's electricity grid will increase between 2018 and 2030, from 30 to 126 grams of equivalent carbon dioxide per kilowatt hour. This is due to an expected greater reliance on gas-fired power plants after the closure of the Pickering Nuclear Generating Station as well as the Provincial Government's cancellation of the last round of renewable power generation procurement in 2018.

Figure C-5 – Corporate Energy-Related Greenhouse Gas Emissions since 2007 by Energy Commodity



2.6 Non-Energy Related Greenhouse Gas Emissions

The City also has direct control over two major sources of greenhouse gas emissions not associated with energy use:

- Methane emissions from the W12A Landfill as well as closed landfills; and
- Nitrous oxide (N_2O) emissions from the incineration of sewage sludge at the Greenway Wastewater Treatment Facility.

In fact, methane emissions from landfill sites are significantly larger in magnitude than energy related greenhouse gas emissions. With the installation and ongoing expansion of the landfill gas collection and flaring system at the W12A landfill, the City has made significant reductions in greenhouse gas emissions as seen in Table C-3.

As a result of London having joined the Compact of Mayors in 2015, nitrous oxide (N_2O) emissions from sewage treatment are now included within London's energy and greenhouse gas emissions inventory as per the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories. Nitrous oxide, a potent greenhouse gas with 310 times the global warming potential of carbon dioxide, is a combustion by-product from the incineration of sewage sludge and its formation is influenced by incinerator operating conditions (i.e., combustion temperature).

Since 2008, annual stack testing at the Greenway Wastewater Treatment Facility

sludge incinerator has included the measurement to nitrous oxide alongside other air pollutants. Table C-4 summarizes the nitrous oxide stack test results. As can be seen from this table, measured emissions of nitrous oxide can vary from year to year.

Table C-3 - Summary of Landfill Gas Flaring at W12A Landfill

Year	Methane Flared (tonnes)	Equivalent CO_2 Reduced (tonnes)	Cumulative Methane Flared (tonnes)	Cumulative CO_2e Reduced (tonnes)
2004	852	24,000	852	24,000
2005	1,980	55,000	2,830	79,000
2006	1,800	50,000	4,630	129,000
2007	1,440	40,000	6,070	169,000
2008	1,850	52,000	7,910	221,000
2009	2,280	64,000	10,200	285,000
2010	2,320	65,000	12,520	350,000
2011	2,660	74,000	15,180	424,000
2012	3,240	91,000	18,420	515,000
2013	4,520	127,000	22,930	642,000
2014	4,170	117,000	27,100	759,000
2015	4,300	120,000	31,400	879,000
2016	5,990	168,000	37,380	1,047,000
2017	6,380	179,000	43,760	1,226,000
2018	4,290	120,000	48,060	1,346,000
2019	5,250	147,000	53,300	1,493,000
2020	6,790	190,000	60,100	1,683,000
2021	7,860	220,000	67,950	1,903,000
2022	7,670	215,000	75,600	2,118,000
2023	7,450	209,000	83,050	2,327,000

Landfill gas emissions have decreased significantly since 2005 due to the installation of the landfill gas collection and flaring system at the W12A Landfill, London's active landfill. In 2023, the flaring system collected and destroyed around 7,450 tonnes per year of methane (209,000 tonnes per year of equivalent carbon dioxide), which is approximately 66 per cent of overall emissions from the landfill. The installation of the new landfill gas flare in late 2024 will help increase this amount towards the target of 85 per cent collection and destruction.

Table C-4 - Summary of Stack Test Results for N_2O Emissions from the Greenway Wastewater Treatment Plant's Sewage Sludge Incinerator

Year	Measured average N_2O emissions g/s	Measured average N_2O emissions kg/hour	Estimated annual N_2O emissions tonnes/year	Estimated annual CO2e tonnes/year
2008	0.1	0.4	3.1	800
2009	1.1	3.9	28.3	7,500
2010	1.1	3.9	28.0	7,400
2011	1.2	4.4	31.9	8,400
2012	1.0	3.5	25.5	6,800
2013	0.2	0.6	4.4	1,200
2014	1.1	4.1	29.3	7,800
2015	1.0	3.7	26.4	7,000
2016	0.3	1.1	7.4	2,000
2017	2.4	8.6	65.3	17,300
2018	1.7	6.0	42.6	11,300
2019	1.5	5.5	32.9	8,700
2020	0.8	3.0	16.4	4,400
2021	0.5	1.6	9.4	2,500
2022	1.2	4.4	26.2	6,900
2023	1.6	5.7	34.2	9,100

2.7 Water Consumption

Water is the second highest utility cost for the City. In 2023 alone, water cost was $2.35 million for the City and hence is an important utility to monitor and track consumption. Figure 6 shows total water consumed by the City plotted along cooling degree-days (CDD - a measure of how hot the summer weather was for that year), given that water use for municipal buildings tends to increase during hot weather when it also tends to be dry. Most of the water consumed at municipal buildings is for public facilities or employee use. Also, the portion of water consumed by buildings and wastewater treatment facilities is identified in the graph.

Figure C-6 also shows:

- Buildings consume 80 per cent of the total water consumed by City;
- Buildings water consumption is influenced by weather i.e., with hotter weather, as measured by cooling degree days, water consumption and vice versa; and
- Wastewater operations consume about 20 per cent of the total water consumed by the City. Majority of this usage is in summer months to flush and clean wastewater holding tanks at pumping stations.

Figure C-7 shows how water consumption has been reduced by 24 per cent from 2007 to 2023. During the same period, water cost increased by more than double due to the changes made to water billing between 2012 and 2014.

Figure C-6 – Total Water Consumption (cubic meters per year)

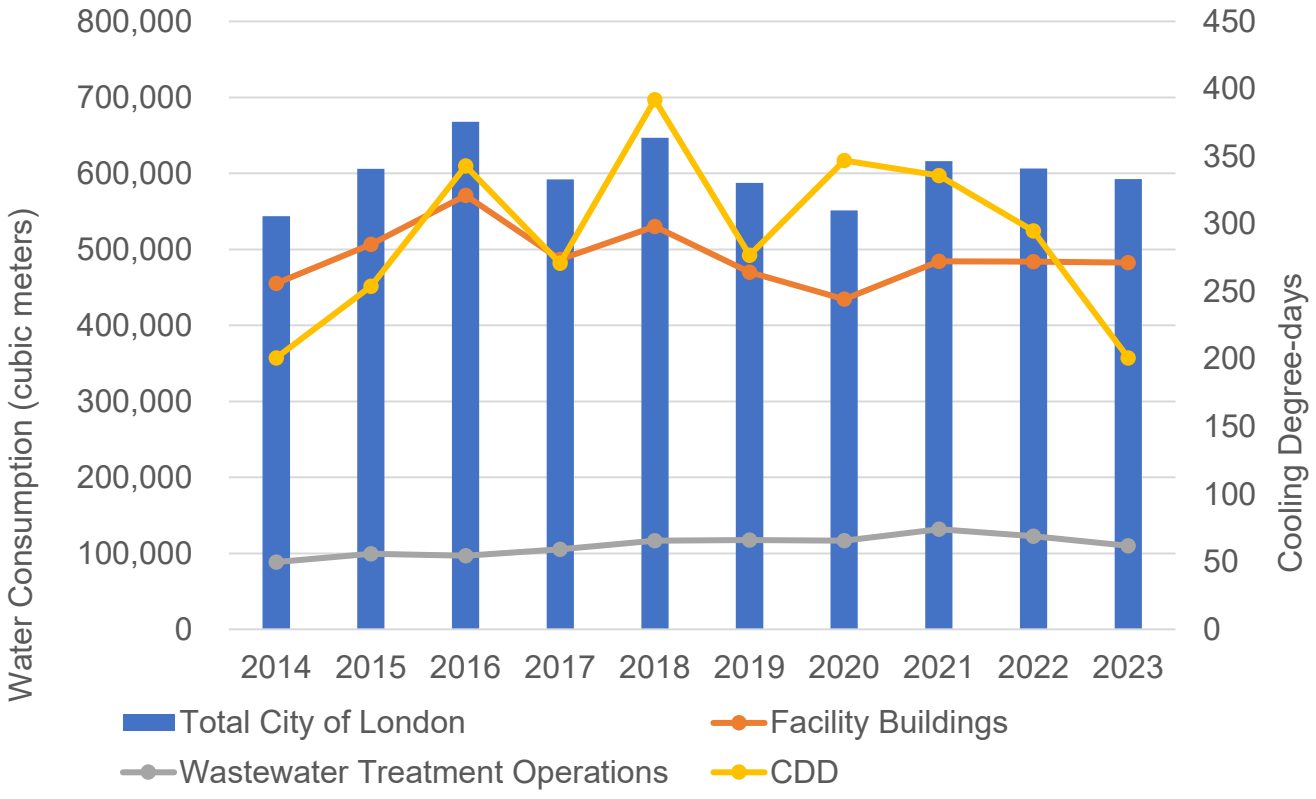
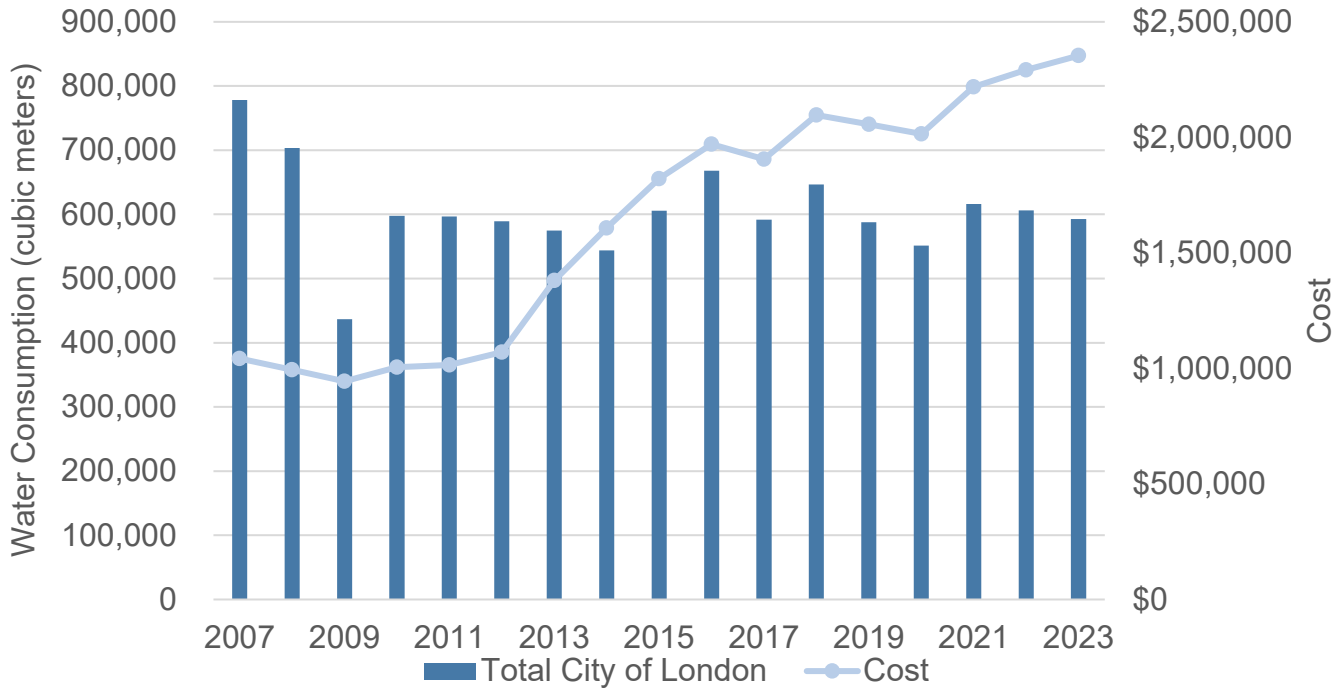


Figure C-7 – Water Cost and Consumption (cubic metres per year)



2.8 Corporate Energy Cost

In 2023, similar to 2022 corporate energy costs were significantly impacted by the global price increases on fossil fuels because of the Russian invasion of Ukraine. This was offset somewhat by lower electricity prices in Ontario because of the provincial government's decision to subsidize electricity prices in Ontario.

Corporate energy management practices by the City including cost avoidance measures through procurement, building retrofits, and other conservation measures assist in continued efforts to reduce amounts of energy used to help reduce the market cost increase.

Total energy costs in 2023 were $19.2 million, 34 per cent higher than 2007 and seven per cent higher compared to 2018. As shown in Table C-5, electricity price still plays a key role in overall commodity costs.

Over the short term, compared to 2018, electricity prices are lower due to the Arva Pumping Station being classified as a Class A customer by the IESO and other reliefs on electricity rates made by provincial government on hourly rates.

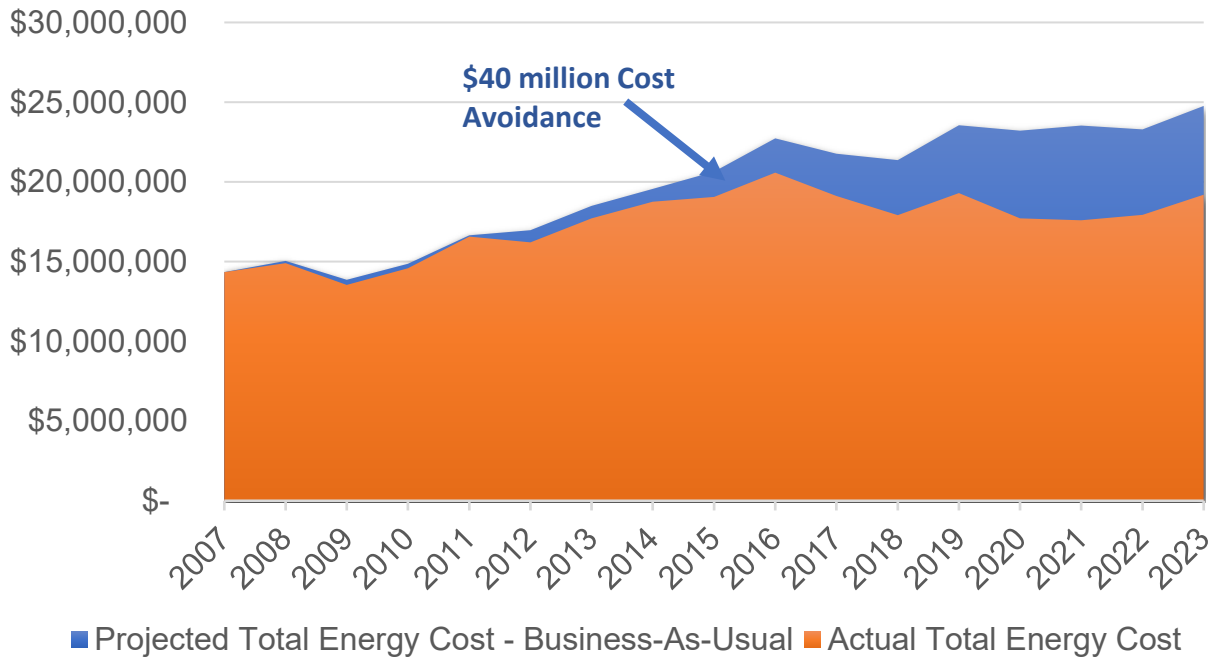
Table C-5 – Energy Costs by Commodity

Commodity	2007	2018	2023	Change since 2007	Change since 2018
Electricity	$9,289,000	$13,520,000	$13,215,000	42%	-2%
Natural Gas	$2,350,000	$1,029,000	$1,854,000	-21%	80%
Steam	$273,000	$192,000	$257,000	-6%	34%
Chilled Water	$251,000	$277,000	$257,000	2%	-7%
Diesel Fuel	$1,518,000	$2,133,000	$2,472,000	63%	16%
Gasoline	$664,000	$755,000	$1,024,000	54%	36%
CNG fuel	-	-	$105,000	n/a	n/a
Total	**$14,345,000**	**$17,906,000**	**$19,184,000**	**34%**	**7%**

Natural gas and gasoline fuel cost increases are also related to carbon pricing. However, the impact of this was only five per cent and the major influence is still by the global increase in commodity costs.

Energy efficiency and conservation measures have a cumulative financial benefit for the City of London. Avoided energy costs are estimated by comparing the City's use of energy commodities on a per person basis (an estimate of energy efficiency for service delivery) every year compared to our baseline year (2007). Figure C-8 shows that

Figure C-8 - Actual and Avoided Energy Costs



approximately $6 million in energy costs were avoided in 2023 compared to 2007 levels and more than $39 million in avoided energy costs have been accumulated since 2007. This chart also shows that energy efficiency and conservation measures have counteracted the impact that higher energy commodity prices could have had on the City of London's Operating Budget.

The City requires several different initiatives to sustain and/or reduce energy costs. The cost per capita dropped between 2016 and 2023 (from $54 per person to $43 per person in 2023) even with higher fossil fuel costs. The energy improvements and cost avoidance measures being implemented today are trying to avoid and sustain the market changes and inflation costs the City is faced with in the associated costs to procure energy.

2.8.1 Utility Cost Forecast

To assist the City of London in preparing forecasts for long-term budgetary considerations, Blackstone has provided the following commodity price escalation estimates in Table C-6.

Table C-6 Commodity Cost Forecast 2024-2028

	2024	2025	2026	2027	2028
Electricity	1.9%	2.3%	2.7%	3.0%	3.2%
Natural gas	2.7%	15.6%	7.2%	6.8%	4.5%
Steam	7.4%	23.5%	12.5%	7.2%	6.4%
Water	2.5%	1.5%	2.6%	4.8%	3.2%

3. Conclusion

Overall, in 2023 the focus shifted from purely reducing energy use to making decisions with a climate change perspective. Numerous internal studies are underway to identify net-zero opportunities at individual facilities. Additionally, energy consumption and emissions in recent years have decreased due to the shutdown of some municipal facility buildings during pandemic restrictions.

The City declared a climate emergency to focus its future development, infrastructure, corporate energy planning and community engagement to improve the City's resiliency plans and favorable climate change outcomes.

The City will always require energy to operate its facilities, vehicles, and operations, but strategic management of energy usage, emissions, investment in renewable technologies and a keen focus on climate change can help use less, become carbon neutral and greener overall. Detailed energy consumption and cost numbers are listed in Appendix D.

Appendix D – Energy Consumption and Cost Tables

Total Energy Consumption

Table D-1 – Consumption (equivalent kilowatt-hours) by Commodity 2018-2023

Energy Commodity	2018	2023	Change since 2018	% Change
Electricity	98,448,000	96,885,000	(1,563,000)	-2%
Natural Gas	42,430,000	36,038,000	(6,082,000)	-14%
Steam	3,269,000	2,723,000	(546,000)	-17%
Chilled Water	1,521,000	1,385,000	(136,000)	-9%
Diesel Fuel	22,194,000	19,694,000	(2,500,000)	-11%
Gasoline	6,889,000	7,417,000	528,000	8%
CNG	-	1,516,000	1,516,000	n/a
Total	***174,751,000***	***165,658,000***	***(8,783,000)***	***-5%***

Table D-2 – Consumption (equivalent kilowatt-hours) by Commodity 2007 – 2023

Energy Commodity	2007	2023	Change since 2007	% Change
Electricity	108,328,000	96,885,000	(11,443,000)	-11%
Natural Gas	58,682,000	36,038,000	(22,216,000)	-38%
Steam	3,499,000	2,723,000	(776,000)	-22%
Chilled Water	1,759,000	1,385,000	(374,000)	-21%
Diesel Fuel	20,129,000	19,694,000	(435,000)	-2%
Gasoline	6,718,000	7,417,000	699,000	10%
Total	***199,115,000***	***164,142,000***	***(33,029,000)***	***-17%***

Energy Consumption by Municipal Service Categories

Table D-3 Consumption (equivalent kilowatt-hours) by Municipal Service Categories 2018 – 2023

Service Category	2018	2023	Change since 2018	% Change
Facility Buildings	67,659,000	63,168,000	(4,244,000)	-6%
Traffic Signals & Streetlights	18,421,000	18,116,000	(305,000)	-2%
Wastewater Treatment Operations	50,823,000	46,640,000	(4,126,000)	-8%
Water Supply Operations	8,764,000	9,108,000	349,000	4%
Fleet Operations	29,083,000	28,627,000	(456,000)	-2%
Total	***174,750,000***	***165,659,000***	***(8,782,000)***	***-5%***

Table D-4 – Consumption (equivalent kilowatt-hours) by Municipal Service Categories 2007 – 2023

Service Category	2007	2023	Change since 2007	% Change
Facility Buildings	73,225,000	63,168,000	(9,800,000)	-13%
Traffic Signals & Streetlights	24,762,000	18,116,000	(6,646,000)	-27%
Wastewater Treatment Operations	65,594,000	46,640,000	(18,785,000)	-29%
Water Supply Operations	8,687,000	9,108,000	421,000	5%
Fleet Operations	26,847,000	28,627,000	1,780,000	7%
Total	***199,115,000***	***165,659,000***	***(33,030,000)***	***-17%***

Energy Consumption per Capita by Municipal Service Categories

Table D-5 Consumption (equivalent kilowatt-hours) Per Capita 2018 – 2023

Service Category			Change since 2018	Change since 2018
	2018	2023	Variance	% Change
Facility Buildings	169	140	(28.4)	-17%
Traffic Signals & Streetlights	46	40	(5.9)	-13%
Wastewater Treatment Operations	127	103	(23.4)	-18%
Water Supply Operations	22	20	(1.7)	-8%
Fleet Operations	73	63	(9.2)	-13%
Total	***436***	***367***	***(68.5)***	***-16%***
London's Population	401,000	452,000	51,000	13%

Table D-6 Consumption (equivalent kilowatt-hours) Per Capita 2007-2023

Service Category			Change since 2007	Change since 2007
	2007	2023	Variance	% Change
Facility Buildings	206	140	(66)	-32%
Traffic Signals & Streetlights	70	40	(30)	-43%
Wastewater Treatment Operations	185	103	(81)	-44%
Water Supply Operations	24	20	(4)	-18%
Fleet Operations	76	63	(12)	-16%
Total	***561***	***367***	***(193)***	***-35%***
London's Population	355,000	452,000	97,000	27%

Energy Costs per Capita by Municipal Service Categories

Table D-7 – Energy Costs Per Capita 2018- 2023

Service Category			Change from 2018	Change from 2018
	2018	2023	Variance	% Change
Facility Buildings	$ 12.90	$13.87	$0.97	8%
Traffic Signals & Streetlights	$ 8.45	$7.07	$(1.38)	-16%
Wastewater Treatment Operations	$ 13.45	$11.31	$(2.13)	-16%
Water Supply Operations	$ 2.66	$2.22	$(0.44)	-16%
Fleet Operations	$ 7.20	$8.00	$0.79	11%
Total	***$ 44.66***	***$42.47***	***$(2.18)***	***-5%***
London's Population	401,000	452,000	51,000	13%

Table D-8 – Energy Cost Per Capita 2007- 2023

Service Category			Change since 2007	Change since 2007
	2007	2023	Variance	% Change
Facility Buildings	$ 14.31	$13.87	$(0.43)	-3%
Traffic Signals & Streetlights	$ 5.29	$7.07	$1.78	34%
Wastewater Treatment Operations	$ 12.59	$11.31	$(1.28)	-10%
Water Supply Operations	$ 2.07	$2.22	$0.15	7%
Fleet Operations	$ 6.15	$8.00	$1.85	30%
Total	***$ 40.41***	***$42.47***	***$2.07***	***5%***
London's Population	355,000	452,000	97,000	27%

Greenhouse Gas Emissions

Table D-9 – Greenhouse Gas Emissions (tonnes/year) by Commodity

Commodity	2007	2023	Change since 2007	% Change
Electricity	26,000	6,490	(19,510)	-75%
Natural Gas	10,650	6,730	(3,920)	-37%
Diesel Fuel	5,290	5,170	(120)	-2%
Gasoline	1,590	1,750	160	10%
Steam	700	390	(310)	-44%
Chilled Water	240	140	(100)	-42%
CNG		290	290	n/a
Total	***44,500***	***21,000***	***(23,500)***	***-53%***

Table D-10 – Greenhouse Gas Emissions (tonnes/year) by Service Category

Service Category	2007	2023	Change since 2007	% Change
Facility Buildings	15,210	8,190	(7,020)	-46%
Traffic Signals & Streetlights	5,940	1,210	(4,730)	-80%
Wastewater Treatment Operations	14,400	3,690	(10,710)	-74%
Water Supply Operations	2,080	650	(1,430)	-69%
Fleet Operations	6,880	7,210	330	5%
Total	***44,500***	***21,000***	***(23,500)***	***-53%***

Climate Emergency Action Plan 2023 Progress Report – Summary Presentation

1. SPPC report
2. 2023 CEAP Progress Report (Appendix A)
3. 2024-2028 Corporate Energy Conservation and Demand Management (CDM) Plan (Appendix B)

#LdnOnt ClimateAction

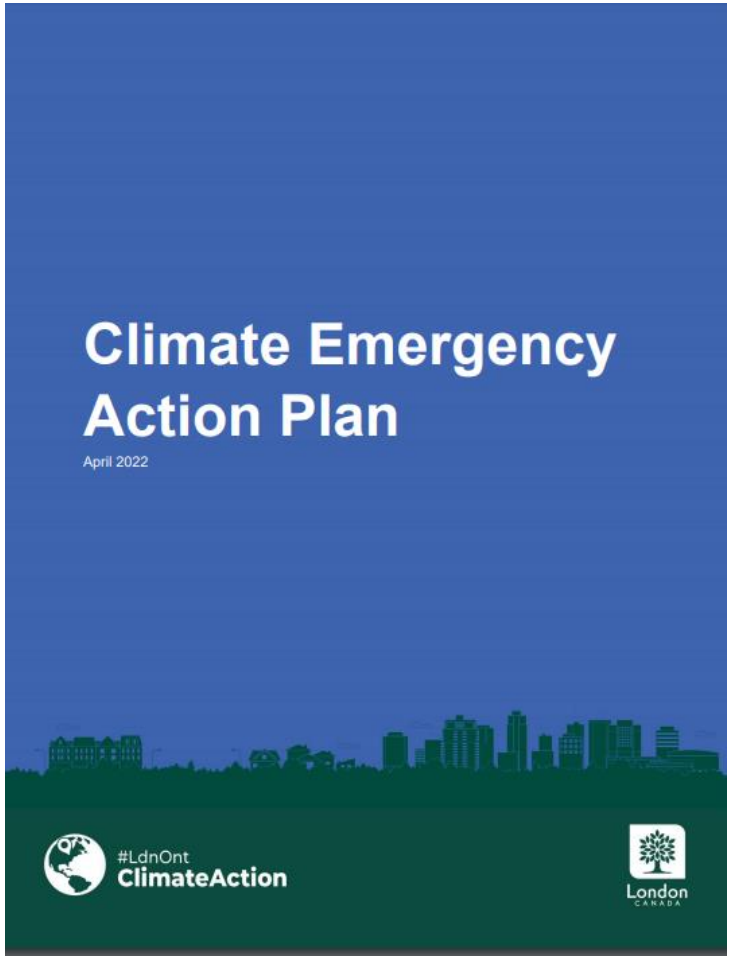
August 15, 2024

London CANADA

Climate Plan's 3 Goals

1.Net Zero Emissions by 2050

Community Target Applied to:	Progress at the End of 2023 (reduction from 2005)	Proposed "Fair Share" Milestone Targets
2005 baseline year	20% (was as high as 29% in 2021 due to pandemic)	55% by 2030 65% by 2035 75% by 2040



2.Improved Resilience

3.Bring Everyone Along

Council's 2023-2027 Strategic Plan

- 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

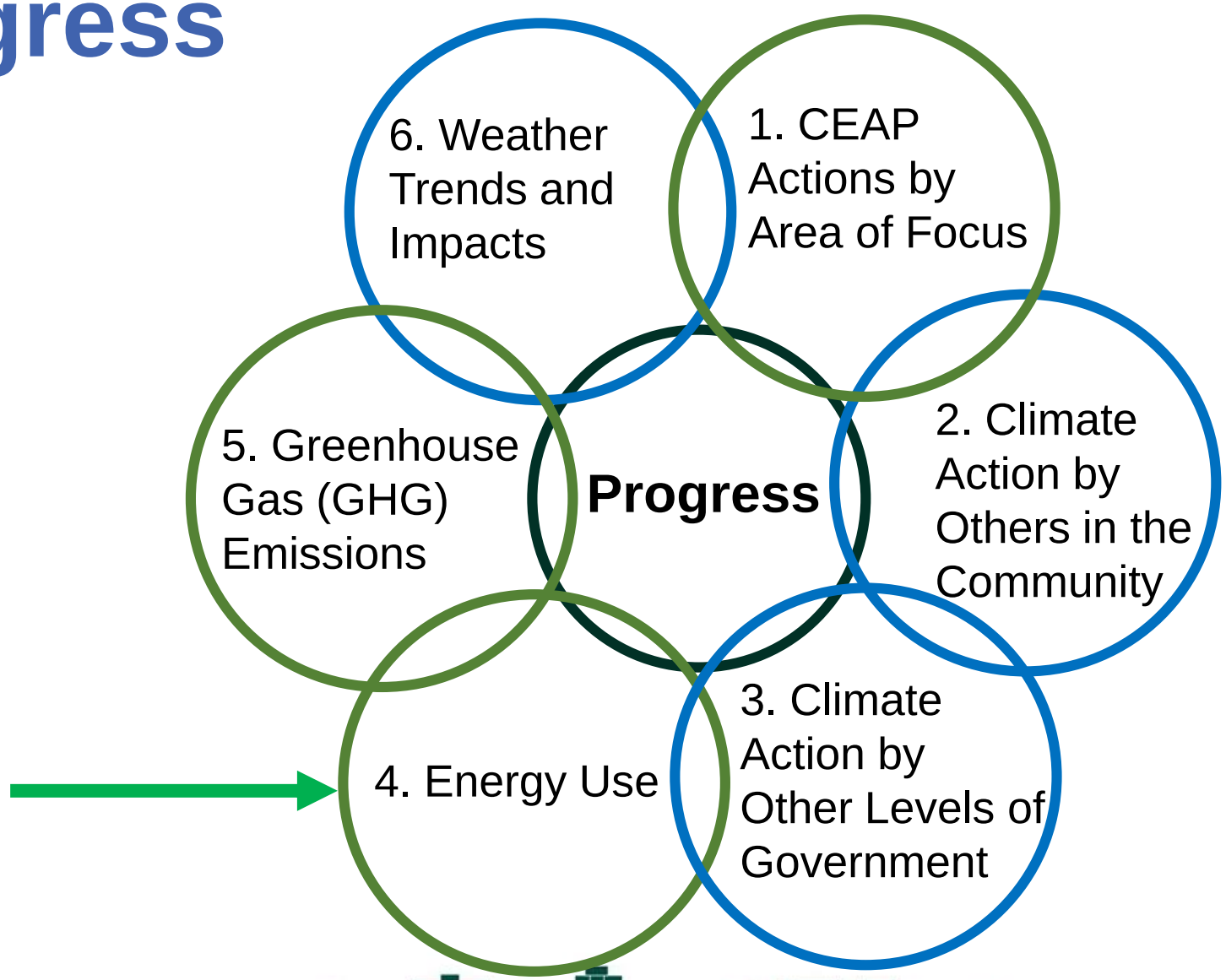


Reporting Progress on CEAP

6 Key Outcome Areas

Traditional reporting/ outcome area

New reporting/ outcome area



CEAP - 2023 Progress Reports

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 Progress Report
Date: August 15, 2024

Recommendation

That, on the recommendation of the Deputy City Manager, Environment and Infrastructure, the following actions **BE TAKEN** with:

a) This staff report dated August 15, 2024, providing a summary of progress and policy implications and opportunities pertaining to the Climate Emergency Action Plan as well as the appended 2023 Climate Emergency Action Plan Progress Report (Appendix "A") **BE RECEIVED** for information;

b) Civic Administration **BE DIRECTED** to report back as part of the Climate Emergency Action Plan Update Report in January 2025 on revised timelines and completion dates for the actions that have been delayed or are under review including the rationale and potential impacts; and

c) The provincially required 2024-2028 Corporate Energy Conservation and Demand Management (CDM) Plan, attached within Appendix "B", **BE APPROVED**.

Executive Summary

Part A – 2023 CEAP Progress Report

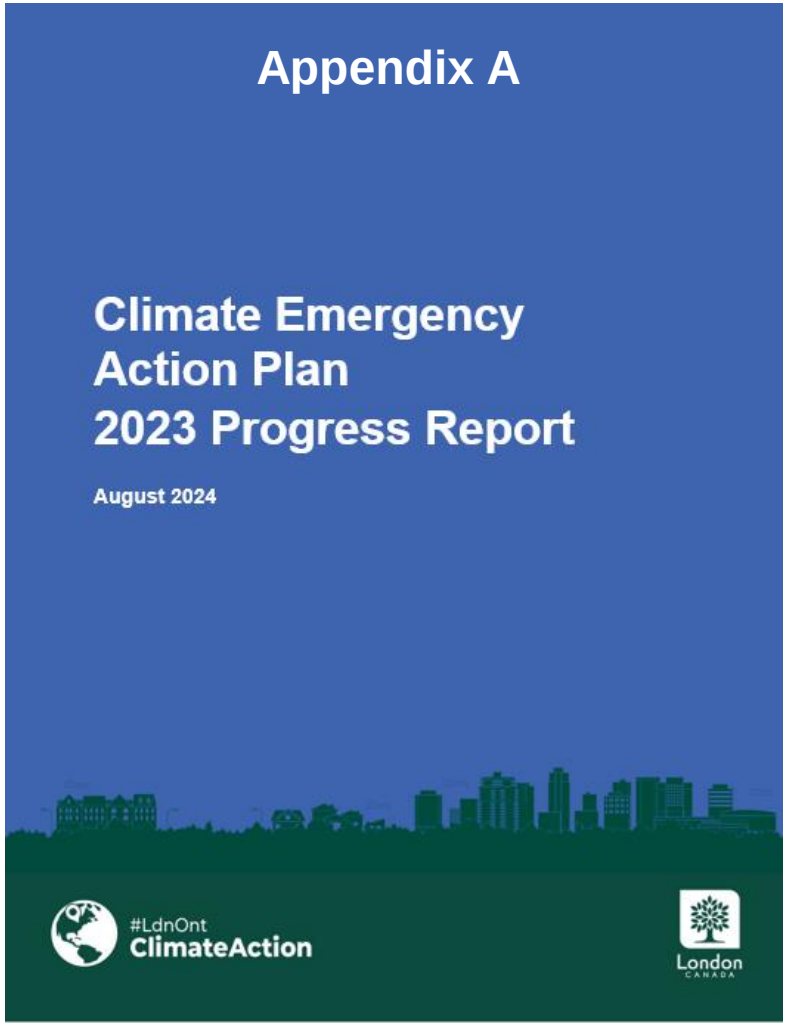
In April 2022, Municipal Council approved the Climate Emergency Action Plan (CEAP) with the goals of reducing community-wide emissions to net-zero by 2050, improving London's resilience to climate change impacts and ensuring that everyone in London is able to participate in working to reduce emissions and adapting to change. This Strategic Priorities and Policy Committee (SPPC) report and the 2023 CEAP Progress Report (Appendix A, also known as the community report) covers the period from January to December 2023 and introduces some highlights and anticipated activities both underway and expected to commence in 2024.

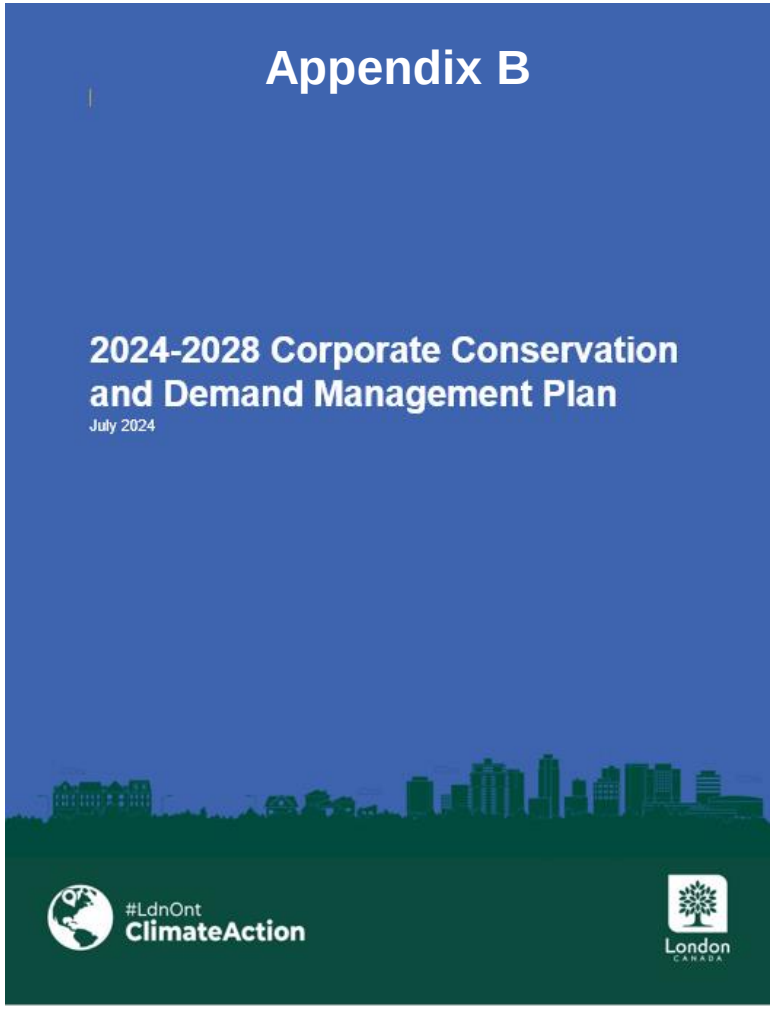
Funding and resources for implementing the CEAP were based on approved budgets for 2022 and 2023, so the progress in 2023 discussed in this report is based on what could be accomplished within existing resources at the time.

The approach to reporting on progress on CEAP used for the first Progress Report is mirrored in this year's report with one addition; Energy Use. CEAP progress is examined in six key outcome areas highlighted below:

1. CEAP Actions by Area of Focus
The CEAP includes 59 Categories of Actions and contains 200 individual actions, ranging from basic to complex, across the ten Areas of Focus. Some actions in the CEAP address specific deliverables or achievements that can be tied to a timeline while other actions require ongoing efforts and do not have a specific targeted end date.

For 2023, an expanded implementation status approach was used and included several internal and external factors. Each City Director responsible for actions in their division was part of the review. The actions were categorized as either on-track (including completed), delayed, or under review.





1. CEAP Actions and Indicators

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

Why does this matter?	CEAP contains actions, collaboration opportunities and inspiration to move towards 2030 community and corporate milestone targets.
How much control or influence do municipalities have?	Control – variable up to high • CEAP is approved by Council including how it is funded, resourced and pace of implementation.
How are we doing?	About 87% of the CEAP's 2022/2023 actions have been initiated. About 78% are on track; 19% delayed; and 3% under review.

2. Community and Interested Parties

Progress Reporting Outcome Area	Subset of Outcome Area
2. Climate Actions by Others in the Community	• Business and institutional sectors • Households, individuals and community groups • Others nearby

Why does this matter?	CEAP is a community driven program, therefore all have responsibilities for its success.
How much control or influence do municipalities have?	Limited control up to high influence • willingness and desire for others to participate, collaborate and take action; and • depends on level of Council investment, actions, policies.
How are we doing?	Actions and activities continue to increase; more measurable evidence of action available; more results being shared; a shared agenda for climate action continues to grow; small and large public events are available.

January to June 2024

LONDON HOME BUILDERS' ASSOCIATION
LIFESTYLE HOMESHOW

EARTH FEST LONDON

TAMARACK INSTITUTE

Climate Transitions (Cohorts)



Green IN THE City



LONDON CARES CURB HUNGER CAMPAIGN



Green Umbrella and Green Brick Awards

URBAN LEAGUE LONDON



London Environmental Network
Annual General Meeting

GO Wild GROW Wild GREEN EXPO

3. Other Levels of Government

Progress Reporting Outcome Area	Subset of Outcome Area
3. Climate Actions by Other Levels of Government	• Provincial • Federal • International

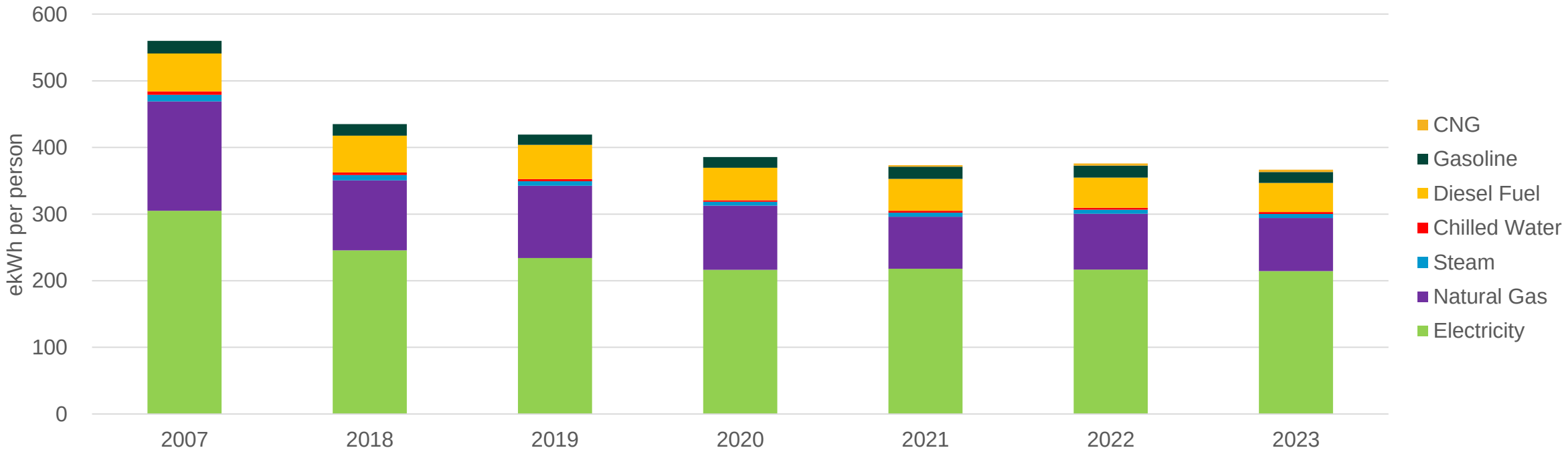
Why does this matter?	CEAP progress will be highly influenced by decisions made by other levels of government.
How much control or influence do municipalities have?	No control / high influence • it will depend on Council's priorities (where it is best positioned to influence; how resources and collaboration is undertaken).
How are we doing?	Being responsive and participating in dialogue. Council and staff are responding through AMO, FCM, other municipal and business associations that provide comments to others; supporting and approving funding opportunities; connecting projects with climate action.

4. Energy use

Progress Reporting Outcome Area	Subset of Outcome Area
4. Energy Use	• Corporate (City of London) • Community-wide (local)

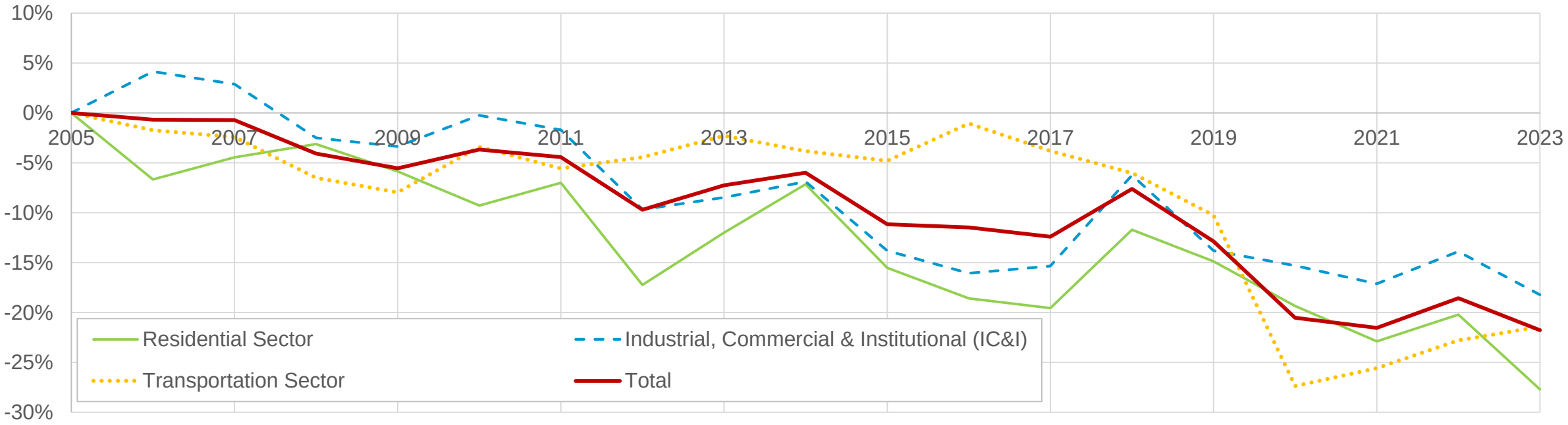
Why does this matter?	Energy use is the primary source of greenhouse gas emissions, especially for fossil fuels such as natural gas and gasoline. Electricity is a major component of corporate energy use, especially for wastewater treatment, water supply, and streetlights.
How much control or influence do municipalities have?	Control – high for Corporate energy use Influence – about half of Community energy use, especially for transportation and new buildings
How are we doing?	Corporate – 5% lower than 2018; 16% lower on per person basis (2.5% lower than 2022) Community – 1% lower than 2019; 10% lower on per person basis (4% lower than 2022)

Corporate Energy Use by Commodity



Positive trends/occurrences	Negative trends/occurrences
Achieved total energy reduction target	Higher gasoline consumption (rental vehicles)
Exceeded energy use per capita reduction target	Higher energy use in water supply
Avoided $6 million in energy costs since 2018	

Change in Community Energy Use per Person



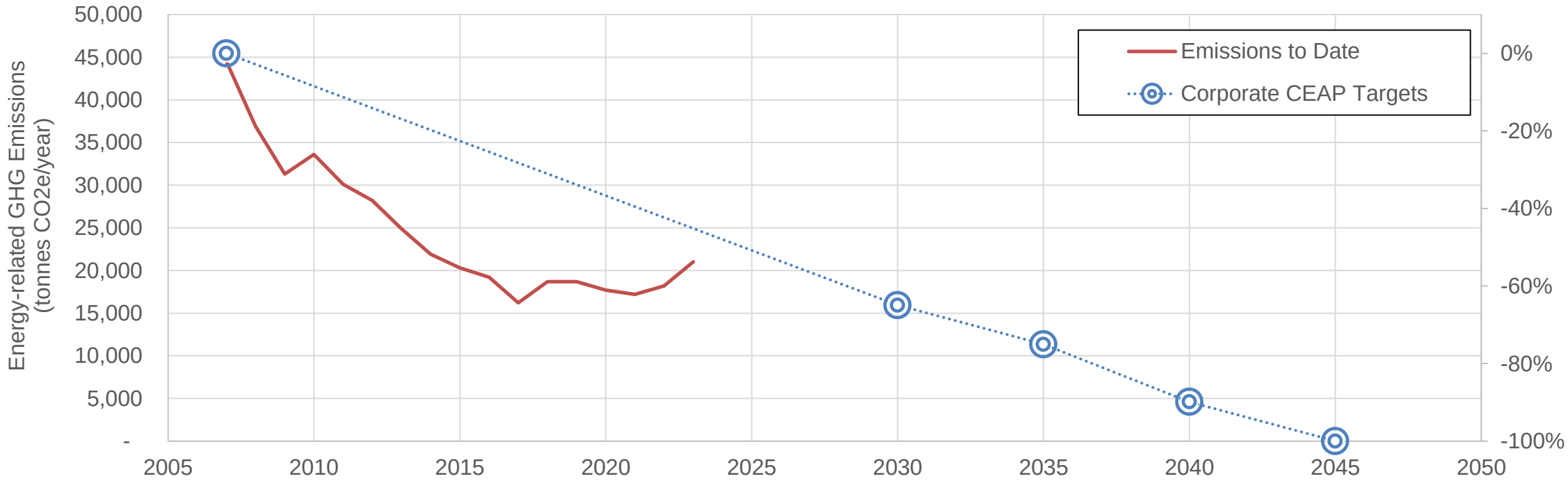
Positive trends/occurrences	Negative trends/occurrences
Retail sales of fuel remain below 2019 levels	Market share of pick-ups and SUVs is higher
Residential energy efficiency improving	EV adoption rate lower than Ontario & Canada
Energy productivity ($ GDP per unit energy) improving	Pace of building energy retrofits not fast enough

5. Greenhouse Gas (GHG) Emissions

Progress Reporting Outcome Area	Subset of Outcome Area
5. GHG Emissions	• Corporate (City of London) • Community-wide (local) • Consumption-related

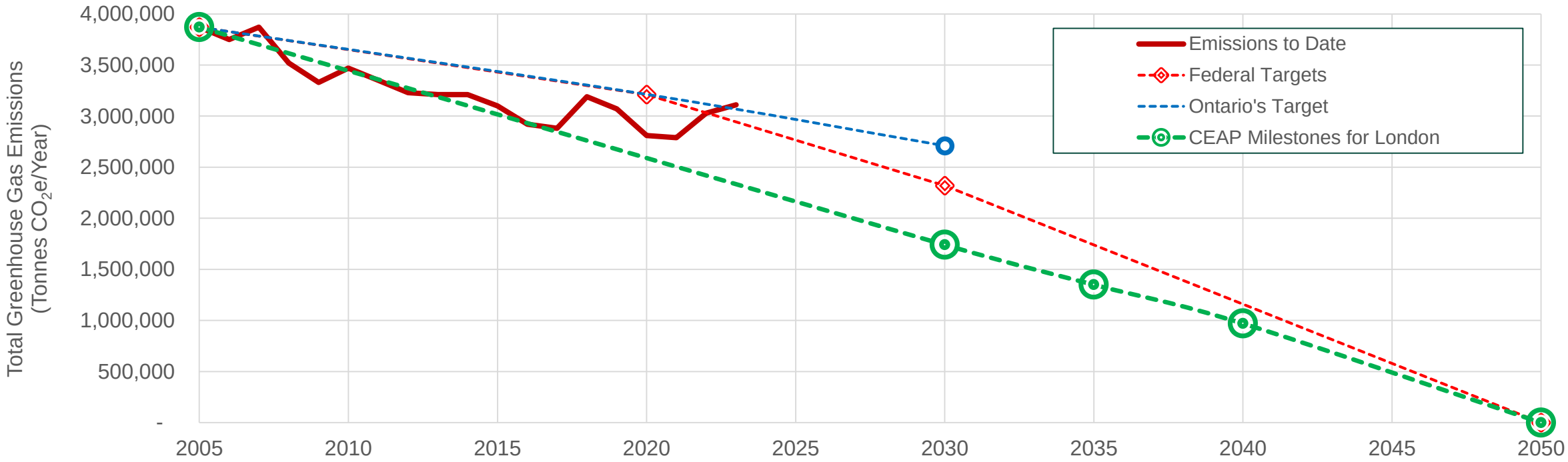
Why does this matter?	GHG emissions is how we measure corporate and community milestones targets for 2030, 2035 and 2040 on the path to net zero emission by 2050
How much control or influence do municipalities have?	Control – high for Corporate GHG emissions Influence – about half of Community GHG emissions
How are we doing?	Corporate – 53% lower than 2007; increase since 2022 (by 8%) Community – 20% lower than 2005; increase since 2022 (by 2.6%)

GHG Emissions - Corporate



Positive trends/occurrences	Negative trends/occurrences
Energy efficiency improvements	Ontario's electricity grid using more natural gas now
CNG replacing diesel fuel (lower emission fuel)	Future electricity grid changes will further impact 2030 milestone target
Ontario's phase out of coal-fired generation by 2014	

GHG Emissions - Community



Positive trends/occurrences	Negative trends/occurrences
Energy efficiency improvements	Ontario's electricity grid using more natural gas now
4% of new vehicles were EVs & 9% were hybrids	Early cancellation of Canada Greener Homes funding
Successful hybrid heating pilot project (665 homes)	Pace of action (electrification, etc.) not fast enough

6. Weather Trends and Impacts

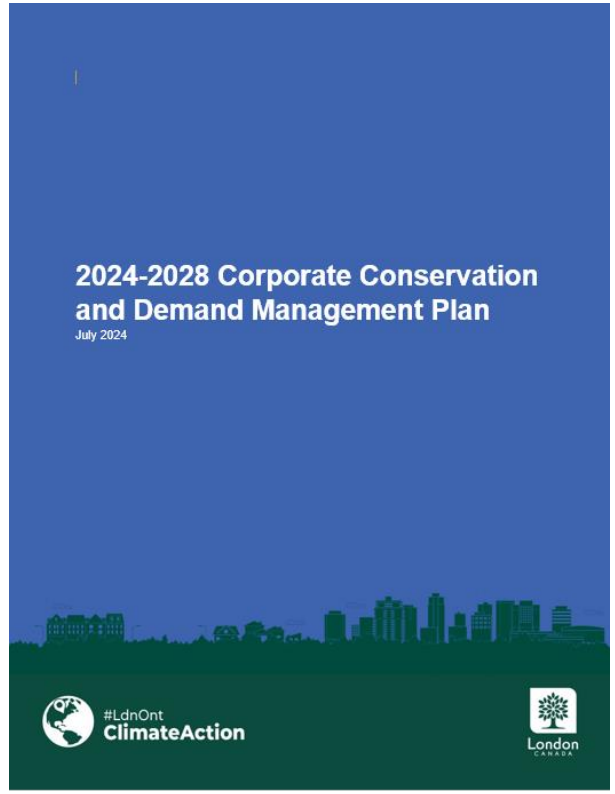
Progress Reporting Outcome Area	Subset of Outcome Area
6. Weather Trends and Impacts	• London and area, Canada, Global

Why does this matter?	Preparing London and Londoners for more severe weather is an investment that reduces risk. The impacts of weather are visual and understandable.
How much control or influence do municipalities have?	No control or influence over the weather Control/Influence to adapt - variable up to high • Many adaptation needs are approved by Council including how it is funded, resourced and pace of implementation.
How are we doing?	Severe weather and impacts have been increasing. Climate Change Adaptation Framework Discussion Primer consultation started. Framework to be approved in early 2025.

2024-2028 Corporate CDM Plan

Planned Goals:

- 7% reduction in corporate energy use from 2023 to 2028
- 56% reduction in energy-related GHG emissions from the 2007 baseline year by 2028
- Fostering a culture of conservation within the Corporation
- Developing a pathway to achieve net-zero corporate energy-related emissions by 2045



Funding:

- All “Planned” initiatives and programs are funded
- Several “Proposed” initiatives will require funding from other sources

Financial Impact/Considerations

Recent Initiatives Approved:

- Providing $1.5 million in capital to support the development of a home energy retrofit program
- Additional annual funding ($60,000) for Smart Commute London
- Creation of a Climate Change Reserve Fund ($1 million per year) to accelerate implementation of climate actions

Projects Underway:

- A project for energy, GHG emissions, land-use, and financial scenario modelling to help map possible futures for reaching Net Zero GHG Emissions by 2050
- Ongoing review of funding opportunities with other levels of government and utilities

Communicating the 2023 CEAP Progress Report

Progress Report

- Friendly Executive Summary
- GetInvolved website allows for “report sections”, videos, Powerpoints, feedback forms

Social Media Campaign and Future Sessions

- Sharing biweekly themes
- Encouraging action . . . What you (your household) can do
- Sessions with interested parties to advance ideas, share knowledge and experiences, encourage collaboration

In Summary – the Top Five Climate Actions to "Focus On" in 2024 and 2025

1. Transportation	How we move around London is crucial
2. Home and building energy efficiency	Any time; especially when making decisions about home/building improvements or renovations; or new purchases of items
3. Adaptation	Protecting Londoners, businesses, institutions, etc.
4. Awareness	Climate action requires everyone – noting some items save money, others can be neutral, and some require an investment
5. Recognition	Positive actions need to be recognized

August 12, 2024

Dear Members of the Strategic Priorities and Policy Committee,

My name is Brendon Samuels and I am the Chair of the City of London's Environmental Stewardship and Action Community Advisory Committee (ESACAC). This submission reflects my personal opinions as an individual resident, not as Chair. However, in terms of the advisory committee, I will remind you that:

1) The mandate for ESACAC includes climate change mitigation and the development and monitoring of London's Climate Emergency Action Plan (CEAP) and a resource for other related policies and strategies.
2) ESACAC has not yet had an opportunity to be consulted about this report.
3) ESACAC reports to Civic Works Committee but CEAP updates are received by SPPC.

If Council wishes to receive more comprehensive feedback on the report from the community, I would recommend that this report be referred to the relevant advisory committee. We would ask for your patience as it may take us a month or two to collect community feedback and report back.

The purpose of this submission is to provide four general comments for your consideration.

1. Do existing governance and administrative procedures work for CEAP implementation?

It seems like CEAP is being iterated to the City's governance (i.e., Council) in a piecemeal way, with reports relating to different aspects of CEAP implementation going to different standing committees. Consideration of CEAP (e.g., the climate lens) appears in certain types of standing committee reports and not others, yet CEAP encompasses nearly every service area of the City. Discussions about parts of CEAP typically follow individual reports being presented by staff, but I am not aware of there being broader, integrative discussions about CEAP ongoing at standing committees in terms of long-term strategy.

As CEAP is still in the early stages of implementation, **Council may consider dedicating a working group of SPPC to focus on CEAP between periodic updates**. This might help to streamline engagements with staff, engage members of Council more directly in action planning, focus discussions in one place, and allow for more open conversation outside of lengthy standing committee agendas. How do other municipal councils approach the governance requirements of their climate emergency plans?

2. Reducing community emissions requires a unified approach across divisions of the City.

Corporate greenhouse gas emissions are on track to meet CEAP targets. However, this is a drop in the bucket compared to community emissions, which are not coming down as London is growing. Consistent and accountable applications of a climate lens to Council decisions, as well as the development and deployment of sustainable financial tools to account for, mitigate and adapt to climate change, are paramount. In both of these respects, London is not yet where it should be. Council has the capacity to make progress – not just by comparing ourselves to other municipalities or the province, or to a 2005 baseline, but to our full potential to become a safe, green, resilient City.

The remainder of this term of Council will present numerous opportunities to pivotally reduce community emissions. The City's divisions will be updating how they design and service systems that the public interacts with, some for decades into the future. Based on the CEAP data, development planning, infrastructure renewal, and transportation should be priority service areas for applying the climate lens.

Many of the difficulties the City is experiencing with implementing CEAP are related to communication. The community, staff, and Council seem to struggle with reaching a common understanding of our collective response to climate change. We are siloed from one another. In terms of internal corporate communication, how do the divisions of the City talk to each other about climate change planning? How is CEAP being reflected in important forthcoming documents like the Mobility Master Plan and the site plan control bylaw update? We know that managers have discussions, but their process for collaboration and specific instrumentalization of CEAP tools remain unclear to the public.

Staff embed references to climate in reports, but these generally lack details about actual or estimated long-term costs of proposals, both in terms of capital and maintenance costs under climate change, and other externalised costs such as embodied carbon and missed opportunities for areas of focus such as urban agriculture and stormwater management. The City must also manage its risk of major cost overruns associated with inflationary pressures, supply chain disruptions, etc. being fuelled by climate change.

Unless Council has access to more comprehensive, realistic information about the long-term costs and risks, it is more difficult to compare hypothetical scenarios with short-term, upfront costs (as in current budgetary impacts). **When will the City invest in the personnel resources required to provide carbon accounting and to estimate long-term budgetary impacts and risks associated with climate change?** Staff flagged this priority in the last Multi-Year Budget cycle (business case P-56, items 3. e) i and ii).

3. Where is the "whole-of-community system response" to climate change?

The City of London established its leadership role in tackling the converging crises of homelessness, addictions and mental health through the Whole of Community System Response – a roadmap to help the most marginalised Londoners move safely inside, become stabilised, supported and connected to the right housing, and to help them stay housed. This approach is rooted in connecting with community partners and stakeholders at each level of decision making and ensuring that solutions are bringing people along – an "all hands on deck" approach.

How can the City and community replicate this in our response to climate change? Existing approaches to engagement with CEAP are falling short, but the reasons why are not clear. Perhaps the City can find new approaches to convincing Londoners to recognize that this is, in fact, an existential crisis for all of us, one that will get worse in the near future, and depends on us coming together around shared commitments. Urgent mitigation and adaptation are not "nice to have" but fundamentally necessary for public health and safety. However, messaging reaching Londoners from Council about their importance is inconsistent.

4. Councillors' positions on the importance of climate change planning are unknown

Recent debates and decisions by this Council suggests support for climate change planning has become a politicised issue. Roughly half of Council gives a clear impression of being progressive on climate action, while others not only vote against proposals that align with CEAP objectives, but seldom make comments to explain their position. Where explanations are given for positions against proposals, misinformation is shared but not corrected – such as about basic mechanisms of reducing vehicular traffic and the actual financial impacts of pollution pricing (i.e., the "carbon tax"). Debates about matters related to reducing emissions devolve into a culture war over climate change planning versus individual freedom, about the City imposing regulatory requirements or waiting for the "free market" private sector to take the lead. Should the City be reducing investments in new infrastructure for cars? Should it incentivize a rapid transition away from carbon-intensive equipment and activities? The answers may depend on which of their elected representatives Londoners ask, yet the science is pretty clear about what we need to do.

I will ask plainly: who on Council denies or minimises that climate change is an emergency?
What do you each think about the City's roles, responsibilities and capabilities to reduce community greenhouse gas emissions? (the first goal of CEAP). Let the people hear from Council collectively and individually on this: where do you stand? I hope that the discussion about this at SPPC is inclusive of everyone's perspective.

CEAP was adopted by a previous Council. We are now at the midpoint of the current Council term, yet numerous members have not affirmed a personal commitment to implementing CEAP within their respective wards and in terms of the governance decisions they contribute to. This is particularly important as we are leading up to the next round of budget discussions. Will Council reverse its trend of funding climate change at levels far below what the City's consulted experts say is necessary to meaningfully implement the CEAP and achieve its goals?

We all want a "Safer City Now" and Council has responded to this with record-breaking investments in policing services rendered on a *reactive* basis. Looking ahead, I encourage you to think broadly about what a Safer City means and what the future looks like for Londoners under unmitigated global warming if we fail to adapt on a *proactive* basis for what's coming.

Future generations are counting on all of us, including Council and the community, to get this right.

Respectfully,

Brendon Samuels
Resident, Ward 4

To: SPPC

August 13, 2024

Re: 2023 CEAP Progress Update Report, item 4 at August 15, 2024 SPPC Meeting

Please include this correspondence in the public agenda for the August 15, 2024 SPPC Meeting.

Dear City Council:

London is a *"city that leads on climate action",* Mayor Josh Morgan, the London Free Press, July 26, 2024.

Londoners so want this to be true. They want to be able to open the report and feel good about London's climate actions. Have you read the 200 page report? Glossed over the 31 page summary? Are you waiting for the slide presentation? Does it matter what the report says? Will it change any decisions you make? Will you "receive" this report and file it away?

If the CEAP is a document for ALL Londoners, I invite you to consider how you could make it more user-friendly. How will Londoners know how to engage in the plan, if they cannot read it?

- Can you start the report with some infographics?
- Can you incorporate hyperlinks, so that when the report refers to an Appendix, you can link straight to it; or to the Mode Share Target report; or the targets for housing in the Built Urban Area. Context matters!
- Highlight your favourite items, like: "we are so excited that we helped to change OEB regulations on clean energy inputs into the grid". What are the most impactful 3-5 items that will engage Londoners to read further? What are you proud of? What are you hoping to improve on next year? *Think of it as an annual performance review.*

I could go through each item in the report and indicate my desire for more action, greater aspirations, and faster progress, but then this submission would be too long to digest. I agree with the submission of Brendon Samuels to NOT RECEIVE this report, but to send it to the "appropriate Advisory Committee(s) for review and comments first", as once it is "received", it cannot be altered. If this report is truly for ALL Londoners, then lean into the purpose of the Advisory Committees to provide feedback from "a Londoner's" perspective.

I urge Council to consider, London declared a Climate Emergency in 2019. Have we acted like it is an emergency? Do the immediate crises of the day (housing, homelessness, affordability) overshadow a greater crisis that simmers in the background? How much more unaffordable will life get when we have to respond to the greater threats to our

homes, our livelihoods and the city's infrastructure due to climate impacts that are already starting to be felt, nevermind the increased threats from an increasingly warm climate?

The CEAP report tells us that LATER IS TOO LATE:

> *"The slow pace of emissions reductions now also puts pressure on the remaining years leading to 2050 if London hopes to maintain the science based "fair share" milestones which consider the total amount of emissions* ***each year*** *from 2022 to 2050." (p.30)*

Just like with any investment, the earlier gains you achieve will lead to better long term results. We cannot leave meaningful action until the finish line.

This is the time!

Yours in Climate Action,

Mary Ann Hodge

Climate Action London

300 Dufferin Avenue
P.O. Box 5035
London, ON
N6A 4L9

August 9, 2024

Dear Colleagues,

As you are aware from the Multi-Yeat Budget deliberations, London Police Services receives a large portion of their funding from the municipality. As Budget Chair, I know colleagues had and continue to have questions surrounding staffing levels and recruitment, 911 call volumes and 911 system enhancements, response times, the severity of crimes, fleet vehicles, and so forth. Prior to entering into the 2025 Annual Budget Update late October, I wanted to ensure colleagues had an opportunity to receive an update on policing from London Police Chief Truong and have the opportunity to ask questions you may have outside of a prescriptive Strong Mayors Budget Process.

Therefore, I am seeking your support for the following motion:

1. that Civic Administration BE DIRECTED to invite London Police Chief T. Truong to appear before the Strategic Priorities and Policy Committee as a delegation at the September 17, 2024 meeting, along with any staff he deems appropriate to accompany him; and
2. that pursuant to section 36.3 of the Council Procedure By-law, the delegate BE PERMITTED to speak an additional 5 minutes with respect to this matter followed by a Q&A session.

Sincerely,

Elizabeth Peloza

Elizabeth Peloza
Councillor Ward 12 & Budget Chair

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