

Learning from Other Municipalities and Municipal Organizations



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Note to Reader

This supporting document (Learning from Other Municipalities) was developed to summarize learnings from other Canadian municipalities' efforts to address climate change. Municipalities routinely work together on shared objectives through direct consultation among staff as well as participation in associations and working groups. Information and expertise gained from these forums as well as publicly available plans, reports and other documents form the basis for this supporting document.

The work contained in this supporting document covers developments and actions in other municipalities up to November 30, 2021. The November 30, 2021 cut-off date was required to support CEAP production, but City staff are continuously monitoring progress and developments on climate action in other municipalities as well as sharing advances and learnings realized in London. as part of efforts to cooperate with and learn from the efforts of others. Significant changes in the municipal climate action space are occurring regularly and City staff will continue to engage and participate in joint learning opportunities to advance and improve climate action in London.

This supporting document was a key piece of work that informed the creation of the CEAP and assisted with support and consensus building at various levels within the City and with external stakeholders and partners. It can be daunting and often hard to garner support for being at the leading edge of efforts in any field, so understanding how far other municipalities that operate in similar or identical regulatory environments have advanced their climate action commitments is very helpful.



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1. Introduction and Background

The City of London is not unique in its desire to address climate change and there is much to be learned from the efforts of other Canadian municipalities. City of London staff have been active members of numerous associations, partnerships, and groups with staff and representatives from other municipalities interested in pursuing shared climate change action objectives for at least the last decade. Drawing on the experience gained from participation in these forums and the information and technical details in published climate change action efforts of other peer municipalities used to assist with creating London's Climate Emergency Action Plan (CEAP) is expected to increase the strength and likelihood of the plan's success.

Just as the type and focus of actions and action areas required to tackle climate change are expansive, so too are the approaches used in municipalities to plan and implement actions. This report summarizes some commonalities and differences among approaches used in peer municipalities with an eye for any perceived strengths or weaknesses that should be reflected in London's CEAP. It should be noted that the pace of change in municipal commitments and actions addressing climate change was quick at the time of this report's drafting and, although significant effort was made to obtain current information, some details were likely missed.

2. Municipalities Working Together

The City of London participates in several programs involving municipal governments in Ontario, Canada, and globally, working together to share information and resources on climate change mitigation and adaptation:

- **Partners for Climate Protection** – Administered by ICLEI—Local Governments for Sustainability (ICLEI Canada) and the Federation of Canadian Municipalities, this is a national network of over 400 municipalities with the shared goal of taking action against climate change and reducing local greenhouse gas emissions. The City of London has participated since 1994 and achieved the final milestone (Milestone 5 – Monitor progress and reporting results) for both corporate and community level actions. The Clean Air Partnership is the Ontario regional climate advisor for the FCM-ICLEI Partners for Climate Protection program.
- **Clean Air Council** – Administered by the Clean Air Partnership, the Clean Air Council is a network of 30+ municipalities and health units from across Ontario. Since 2000, Clean Air Council members have been working collaboratively on the development and implementation of clean air, climate change, sustainability, and resilience actions. Clean Air Council members work collaboratively on agreed upon priorities and bring together experts and practitioners to share experiences and lessons learned.
- **QUEST Ontario Community Energy and Climate Working Group** – Administered by QUEST Canada, this working group is a network of Ontario municipalities, electricity utilities, and natural gas utilities working together to encourage the development and implementation of community energy plans to use energy more efficiently to keep dollars circulating longer in its economy, generate opportunities for local energy projects and jobs, and help manage risks from increasing energy prices and a changing climate. Many municipal members are also members of the Clean Air Council and there is collaboration between the Clean Air Partnership and QUEST Canada on these activities.
- **Regional Public Works Committee of Ontario (RPWCO) Climate Change Subcommittee** - RPWCO, representing the public works commissioners (or the equivalent name) in Ontario's largest regional and single tier municipalities, collectively plan, design, build, operate and maintain over 75% of the province's public works and environmental services, including waste management services, roads and bridges, and water and wastewater services. The Climate Change Subcommittee is currently focused on producing, distributing, and promote training webinars guiding municipalities through implementation of A Climate Resilience Roadmap for Ontario Municipal Infrastructure and Systems. These training resources will support member municipalities through the process of

climate vulnerability assessment, from scoping and stakeholder engagement, to monitoring and evaluation.

- **Global Covenant of Mayors Canada** – The Global Covenant of Mayors Canada is a collaboration between the FCM, ICLEI Canada, the Global Covenant of Mayors Secretariat and the International Urban Cooperation Project supported by funding from the European Union. The initiative combines two leading domestic climate programs, the Partners for Climate Protection and Building Adaptive and Resilient Communities, with the leading global climate program. The City of London has been a participant in the Global Covenant of Mayors since Canadian program was created. The City of London has achieved all three program badges related to climate change mitigation (inventory, target, and plan badges) and has achieved one of three badges related to climate change adaptation (goal badge).
- **CDP Cities** – The Climate Disclosure Project (CDP) is a not-for-profit charity that runs the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts. CDP provides a global platform for cities to measure, manage and disclose their environmental data. Over 810 cities use the CDP Cities portal for disclosing environmental data each year to manage emissions, build resilience, protect themselves from climate impacts and create better places for people to live and work. CDP Cities is also a portal for providing data for the Global Covenant of Mayors program. In 2020, CDP Cities provided the City of London with an “A-” score for climate change mitigation and a “C” score for climate change adaptation.
- **Cities Race to Zero** – The Cities Race to Zero is a collaboration between C40 Cities, ICLEI, CDP Cities, Global Covenant of Mayors and others to recruit the world’s urban centres to take urgent action to confront the climate crisis and create a future where everyone can thrive. Cities Race to Zero is first and foremost a political commitment on the importance of aligning climate action with the science (and 1.5°C ambition). To date, supported by the FCM and ICLEI Canada, over 20 Canadian cities have joined the international Cities Race to Zero framework including ten Ontario municipalities: Ajax, Brampton, Burlington, Guelph, Halton Hills, Hamilton, Ottawa, St. Catharines, Thunder Bay, and Toronto.
- **ICLEI Canada – Building Sustainable Climate Ready Communities** – The City of London has partnered with this non-profit organization on two recent initiatives related to climate change:
 - **Showcasing Cities** (2019 - 2020) provided the opportunity for 20 Canadian small and medium sized municipalities to work together in addressing the goals for both mitigation and adaptation identified through the use of industry standard tools (e.g., Building Adaptive and Resilient

Communities – BARC, Global Covenant of Mayors, CDP Cities).

- **Advancing Adaptation** (Sept / 2021 - ongoing) provided the opportunity for 25 Ontario municipalities (including several of London's peer municipalities) to work together to advance their efforts in all aspects of climate change adaptation including risk and vulnerability assessments, planning and implementation. This work is currently underway and is the topic of a separate workplan.

City of London staff also seek advice, obtain knowledge, and share details with FCM and the Association of Municipalities of Ontario (AMO). Both these association offer information, workshops, seminars, conference and in the case of FCM, funding opportunities through Green Municipal Fund.

Participation in these groups has informed staff research and activities around climate action and been the forum for significant collaboration across Canadian municipalities.

3. Peer Municipalities

The range of action and commitments, as of November 30, 2021 made by municipalities on climate change is wide. While many municipalities across Canada have declared a climate emergency and are working to reduce community GHG emissions and improve resilience, many have also not declared a climate emergency, do not measure or report on community-wide GHG emissions, or have integrated or stand-alone plans to adapt to the impacts of climate change. A variety of factors likely to contribute to the level of action and commitment on climate change in any municipality includes:

- Size and availability of staff resources (most large municipalities have staff dedicated to working on climate action, while many smaller municipalities do not)
- Perceived risk of climate change impacts (e.g., municipalities with coastal regions tend to be more active on adaptation)
- Occurrence of severe impacts related to climate change (e.g., major storms or floods exacerbated by climate change tend to accelerate action to improve resilience to extreme weather)
- Political drivers within the population and/or municipal government

A scan of all Canadian municipalities' climate change commitments and actions would provide a wealth of information on the spectrum of commitments, actions, and approaches, but would be very time-consuming. To focus efforts and increase the applicability of the results of such a scan, a sub-set of Canadian municipalities has been identified as a "peer group" for London based on the following criteria:

- **Geographic Location** – Ontario municipalities were the focus (the closer to London, the better), considering the likely similarity of future climate impacts and the relevance of actions taken under the same Provincial governance.
- **Level of Government** – London is a single tier municipality, which is responsible for all local services to residents. Review of climate commitments and actions of other single tier municipalities were prioritized, however upper tier and lower tier municipalities were still considered where other selection criteria strongly suggested inclusion.
- **Existing Actions and Commitments** – Review of material from municipalities that have taken significant action on climate change adaptation and mitigation was prioritized.

Based on these criteria, a peer group was established with the following municipalities:

Municipality	Tier	Status	Population Estimate (2020)
Guelph	Single	City	145,000
Hamilton	Single	City	582,000
Kingston	Single	City	137,000
Ottawa	Single	City	1,050,000
Greater Sudbury	Single	City	169,000
Windsor	Single	City	235,000
Durham Region	Upper Tier	Region	715,000
Waterloo Region	Upper Tier	Region	624,000
Burlington	Lower Tier (Halton Region)	City	206,000
Mississauga	Lower Tier (Peel Region)	City	774,000
Oakville	Lower Tier (Halton Region)	Town	218,000

Activities and actions in the City of Toronto are followed closely as well. Outside of Ontario, the City staff track and review updates and direction in the following communities; Halifax, Nova Scotia; Winnipeg, Manitoba; Calgary, Alberta; Edmonton, Alberta; and Vancouver, British Columbia.

The following publicly available documents related to climate change mitigation (GHG reduction, energy use, etc.) and/or adaptation published by peer municipalities within the last 10 years were reviewed:

Municipality	Document	Date	Mitigation	Adaptation
Burlington	Climate Action Plan (Report)	2020	✓	
Durham Region	Seizing the Opportunity: The Clean Energy Economy in Durham, Community Energy Plan (Report)	2018	✓	
Durham Region	Community Climate Adaptation Plan - Towards Resilience (Report)	2016		✓

Municipality	Document	Date	Mitigation	Adaptation
Greater Sudbury	Community Energy and Emissions Plan & Municipal Action Plan (Report)	2021	✓	
Guelph	Community Energy Initiative Update (Report)	2020	✓	
Guelph	Our Energy Guelph – Pathway to Net Zero (Report)	2019	✓	
Hamilton	Updated Timelines and SMART Corporate Goals and Areas of Focus for Climate Mitigation and Adaptation (Staff Report)	2020	✓	✓
Hamilton	Corporate Goals and Areas of Focus for Climate Change Mitigation and Adaptation (Report)	2019	✓	✓
Kingston	Working Group on Climate Action Report (Report)	2019	✓	✓
Kingston	Climate Action Plan (Report)	2014	✓	✓
Mississauga	Climate Change Action Plan (Report)	2019	✓	✓
Oakville	Oakville Climate Emergency 2021 Progress Report (Staff report)	2021	✓	✓
Oakville	Community Energy Strategy	2020	✓	
Oakville	Climate Change Strategy – Technical Report	2014	✓	✓
Ottawa	Energy Evolution – Community Energy Transition Strategy (Report)	2020	✓	
Ottawa	Climate Change Master Plan (Report)	2019	✓	✓
Waterloo Region	Transform WR: Waterloo Region's Transition to an Equitable, Prosperous, Resilient, Low-Carbon Community (Report)	2021	✓	
Waterloo Region	Community Climate Adaptation Plan (Report)	2019		✓

Municipality	Document	Date	Mitigation	Adaptation
Windsor	Degrees of Change Climate Change Adaptation Plan (Report)	2020		✓
Windsor	Acceleration of Climate Change Actions in response to the Climate Change Emergency Declaration - City Wide (Staff report)	2020	✓	✓

A significant amount of variation was observed among municipalities in terms of the prioritization and combination (or not) of addressing mitigation and adaptation. Many peer municipalities opted to address mitigation and adaptation separately, at different times, with some of those municipalities later combining efforts to address both comprehensively. Independent approaches were taken as opposed to combined efforts by many municipalities due to the availability of targeted external funding, like the funding that was once available for community energy planning through the FCM and the Provincial government. This particular funding stream drove climate change mitigation planning independently in many municipalities.

With just one exception, each of the peer municipalities declared a climate emergency at some point between March 2019 and January 2020, which in most cases instigated the development of new plans and/or the updating of existing plans addressing climate change. Guelph was the one peer municipality with a Council that chose not to declare a climate emergency, but instead voted to “acknowledge the climate crisis” in May 2019. Considering the interrelated nature of many climate change mitigation and adaptation efforts (e.g., protecting and enhancing wetlands can increase carbon sequestration (mitigation) and help reduce flooding and biodiversity loss (adaptation)), there is the potential for plans to be stronger when the synergies and co-benefits of addressing mitigation and adaptation together are captured.

4. Approaches to Action Planning

Review of available documents highlighted that each peer municipality's approach to developing commitments and an action plan to address climate change was slightly different. With some overlap and combination in certain peer municipalities, the following approaches were utilized:

- Some municipalities' climate action were and are being substantially driven and even led by community, non-profit or other government organizations, such as:
 - ClimateActionWR led by Sustainable Waterloo Region, an environmental non-profit organization, and REEP Green Solutions, an environmental charity;
 - OakvilleReady, created in partnership with the Halton Environmental Network with generous funding from the Oakville Community Foundation;
 - Our Energy Guelph, a municipally-funded non-profit created to administer Guelph's Community Energy Initiative efforts; and
 - Greater Sudbury Climate Change Consortium, led by the Nickel District Conservation Authority (EarthCare Sudbury).
- Some municipalities established joint efforts between municipal staff and community steering committees, roundtables, and/or working groups (e.g., Durham Region Roundtable on Climate Change; Kingston Climate Action Plan Roundtable);
- Some municipalities worked together and combined plan creation or background data analysis efforts to bring consistency to regional planning (e.g., Hamilton and Burlington through Mohawk College's Bay Area Climate Change Office);
- Some municipalities had staff driving the process with assistance from private consultants to conduct data analysis, assist with community engagement efforts and/or co-lead the climate action plan development process. A select few consulting firms were popular, including SSG and WhatIf? Technologies, who were contracted to assist in at least some capacity by Greater Sudbury, Hamilton, Ottawa, Burlington, Guelph and Durham Region (typically providing modeling and analysis of low carbon scenarios and climate action costing at a minimum).

The reason for any municipality's chosen approach to address climate change is inferred to be a product of numerous factors defining the capabilities and capacities of local stakeholders and partners in the jurisdiction at the time of plan creation. This includes:

- Political direction and ambition of municipal council;

- existence of climate change expertise within municipal staff, community groups and/or industry;
- availability of municipal staff resources;
- existence and characteristics of community-led non-government organization(s);
- availability of and interest from local academic organizations;
- level of citizen engagement and mobilization via community groups;
- existence of strong collaborative relationships with other municipalities; and,
- availability and source(s) of funding to support climate action planning.

In each peer municipality, the resulting plan documents were endorsed by the respective council and provide a clear indication of the direction for efforts to address climate change. Any perceived strength in one or more approach over another will likely be noticeable in the years to come once the plans have been implemented and metrics of success can be evaluated, since most plans were created between 2019 and 2021 and are early in implementation stages.

5. Targets & Commitments

Common across all municipal climate action plans is a set of targets that actions are designed to strive towards. Climate change mitigation objectives are typically to reduce GHG emissions by some amount, or percentage of existing GHG emissions (measured by some baseline year), by a set date. Quantitative adaptation targets, on the other hand, are less easily defined and often not explicitly stated in favour of qualitative commitments. In each peer municipality where adaptation planning has been completed, adaptation commitments are typically characterized by the adaptation challenges identified in each municipality. The following table summarizes targets and/or commitments contained within existing plans produced by peer municipalities.

Municipality	Mitigation (GHG Emissions)	Adaptation
Burlington	Net carbon neutral by 2050 (community target) 21% below 2018 levels by 2024 and net carbon neutral by 2040 (corporate target)	<i>(adaptation plan under development)</i>
Durham Region	5% below 2007 levels by 2015; 20% below by 2020; 80% below by 2050 (community target) 20% below 2019 levels by 2025; 40% below by 2030; 100% below by 2045 (corporate target)	19 detailed objectives with corresponding actions to improve safety and resiliency across sectors: building, electrical, flooding, human health, roads, natural environment, food security and cross-sector
Greater Sudbury	Net zero emissions target by 2050 (community and corporate target)	<i>(Significant work completed and underway; adaptation plan in development)</i>
Guelph	Net zero carbon by 2050 (community target) City facilities and operations to use 100% renewable energy by 2050 (corporate target)	<i>(adaptation plan in development)</i>
Hamilton	50% below 2006 levels by 2030 and carbon neutral before 2050 (community target) 50% below 2005 levels by 2030 and 80% below by 2050 (corporate target)	"To improve Hamilton's climate resiliency by decreasing our vulnerability to extreme weather, minimizing future damages, take advantage of opportunities, and better recover from future damages."

Municipality	Mitigation (GHG Emissions)	Adaptation
Kingston	30% below 2011 levels by 2030 and carbon neutral by 2040 (community target) 15% below 2018 levels by 2022; 30% below by 2030 and carbon neutral by 2040 (corporate target)	“To understand the potential changes to our climate and the resultant risks and opportunities; To minimize the impact of the risks and to benefit from the opportunities of a changing climate; To weather-proof our public infrastructure and public systems”
Mississauga	40% below 1990 levels by 2030; 80% below by 2050 (community target) 1% below 2018 levels per year from 2019-2023 (corporate target)	“Increase resilience and the capacity of the Corporation and the community to withstand and respond to current and future climate events by taking action on the highest climate-related risks.”
Oakville	Enable transition to a goal of carbon neutrality by reducing greenhouse gas emissions by at least 50% by 2041 (community target) 30% below 2014 levels by 2024; 80% below by 2050 (corporate target)	Three strategy objectives: “To increase the town’s capacity to protect against and respond to projected climate change impacts; To educate through effective and efficient means of communication; To monitor the implementation of adaptation actions and goals in order to make continuous operational improvements.”
Ottawa	43% below 2012 levels by 2025; 68% below by 2030; 96% below by 2040; Net zero carbon by 2050 (community target) 30% below 2012 levels by 2025; 50% below by 2030; Net zero carbon by 2040 (corporate target)	Priority action in the Climate Change Master Plan for implementation in 2020-2025: “Undertake a climate vulnerability assessment and develop a climate resiliency strategy”
Waterloo Region	30% below 2010 levels by 2030; 80% below by 2050 (community target) 80% below 2010 levels by 2050 (corporate target)	15 detailed objectives in four impacts areas (health and community, built environment, natural environment and water, and energy and economy)

Municipality	Mitigation (GHG Emissions)	Adaptation
Windsor	40% below 2014 per capita levels by 2041 (community target) 20% below 2014 levels by 2030; 40% below by 2041 (corporate target)	Seven key objectives are highlighted with corresponding actions: Integrate Climate Change Thinking and Response; Protect Public Health and Safety; Reduce Risk to Buildings and Property; Strengthen Infrastructure Resilience; Protect Biodiversity and Enhance Ecosystem Functions; Reduce Community Service Disruptions; Build Community Resilience

A summary of GHG mitigation targets (corporate and community) for the additional Canadian municipalities that staff are tracking (City of Toronto; Halifax, Nova Scotia; Winnipeg, Manitoba; Calgary, Alberta; Edmonton, Alberta; and Vancouver, British Columbia) is provided in Appendix A.

6. Priorities for Early Action

Some action plans indicated priority actions and themes that should be advanced as soon as possible, whereas others identified a suite of actions and areas that required attention without highlighting priorities or opportunities that should be pursued immediately. It is assumed that where a subset of immediate priorities was not identified, the selection of such a subset occurred (or will occur) as part of early implementation efforts. It is inferred that the approach of identifying immediate or early priorities as part of initial action plans is a stronger approach than providing a large list of requirements to be addressed. More specifically, providing clear and manageable intentions to pursue some actions immediately following the approval of a plan with identified schedules and resources should instill confidence in partners and stakeholders that leaders have considered not only what needs to be accomplished, but how to accomplish it and what resources are required.

Some common focus areas that were identified by peer municipalities as “near term”, “first priority” or “most pressing” included:

- Retrofitting residential buildings for increased energy efficiency
- Building net-zero buildings
- Implementing municipal green development standards
- Transitioning to zero emission vehicles
- Increasing renewable energy generation
- Diverting organics from landfills and creating renewable natural gas
- Undertaking a climate vulnerability assessment (where one had not previously been completed)

Approaches to justifying early priorities in peer municipalities included the characterization of “transformative changes” (e.g., Waterloo Region), “strategic directions” (e.g., Oakville) or “Key concepts” (e.g., Greater Sudbury) to establish a vision for the future. These vision-like characterizations typically included pathways with early actions in the focus areas identified. In many cases, specific early actions included the creation of roundtables, task forces or committees of stakeholders and partners to ensure alignment on visions for the future with respect to the focus areas and to establish the division of responsibilities and cooperative implementation plans.

7. Actions by Key Area

The key areas for emissions reduction (mitigation) and increasing resilience (adaptation) were relatively consistent across all peer municipalities. The number and detail of actions listed to address each key area differed significantly, but there were many common approaches identified. This should come as no surprise, since staff from different municipalities routinely connect to work together and learn from one another to address common problems in forums like those identified in section 2 of this report and community GHG emission profiles are similar for Ontario municipalities. Listed below are the common key areas and some noteworthy and impactful actions included by peer municipalities to address them.

7.1. Corporate Commitments

Relevant commitments relating to corporate responsibilities are not all identified separately in peer municipality climate action plans, since many municipalities have separate corporate energy conservation demand management plans, or similar. Despite this common separation of some municipal aspects, many plans addressed corporate commitments regarding buildings, fleet, municipal services, finance, natural heritage, and the creation and use of a climate lens for decision-making.

7.1.1 Buildings

Common commitments and actions regarding municipally-owned and controlled buildings included:

- Prioritizing the need to undertake deep energy efficiency retrofits and fuel switching to reduce building emissions;
- Increasing the use and supply of renewable energy (including commitments to use 100% renewable energy at municipal facilities by some date).

7.1.2 Fleet

Many municipalities included commitments to transition all or some percentage of existing light duty fleet vehicles to zero emissions vehicles or hybrids in the near term (2022-2025) and adopt a policy to purchase only zero emissions vehicles after some date thereafter. Additional measures also included training to promote more sustainable driving practices.

7.1.3 Municipal Services

Some plans included specific actions to be pursued to improve municipal service delivery climate performance. These actions addressed water, wastewater treatment, solid waste management, and parks and forestry services centered on increasing the generation and utilization of renewable energy (including the generation and capture of biogas from wastewater treatment and landfills for use as a renewable natural gas), diverting more wastes and/or generally incorporating other climate change considerations where feasible.

While not considered a direct municipal service in every peer municipality due to differing corporate ownership structures, some municipalities committed to reviewing the capacity and stability of their local electricity distribution system to understand potential limits or restrictions that might affect the ability to increase electricity use for transportation and heating purposes.

7.1.4 Finance

The significance of addressing climate change considerations in finance processes, particularly the cost of carbon, was recognized by some peer municipalities. The most common approach identified was the establishment of a corporate carbon accounting system or framework to transparently identify how financial budgets would affect corporate and community GHG emissions. Only limited information was available on the implementation of initiatives addressing carbon finance and many actions used wording like “explore the feasibility of setting corporate carbon budgets” as opposed to more concrete commitment language.

More commonly identified among peer municipalities was a commitment to incorporate climate change into procurement activities, so that municipalities could use their buying power to increase the uptake of materials and service providers with lower-carbon and more resilient materials and/or services.

7.1.5 Natural Heritage

Many peer municipalities identified the need to measure and account for natural heritage assets as part of corporate asset management plans and some municipalities committed to creating management programs specifically for municipal green infrastructure (primarily as part of stormwater management services). The importance of active management of urban forests was also mentioned, particularly with the commitment to produce (where one didn't already exist) an urban forest management strategy. Some municipalities also identified the need to study and implement methods to catalogue the amount of carbon sequestration from natural areas for inclusion in city-wide GHG emission inventories.

7.1.6 Decision-making Support

The majority of peer municipality plans referenced the need to incorporate some sort of tool or process to support more climate-wise municipal decision-making. Commitments included the creation and use of a climate lens into municipal planning tools and processes, master planning, asset management and capital projects, or some combination or subset thereof. The intention of the integration of these decision-making support tools or processes was to ensure municipal measures and processes are aligned with municipal climate action goals.

7.2. Transportation

Municipalities have significant influence on emissions from transportation within their jurisdictions, but not complete control. Peer municipalities' climate action reports typically addressed transportation emissions in the categories of active transportation, public transit, parking, support for zero emissions vehicles, and behavioural changes. In most cases, it was stated that municipal actions were intended to reduce the reliance of residents on personal automobiles as their primary mode of transportation and increase the share of trips made using active and public transit modes.

Some attention was paid by peer municipalities to the role of autonomous vehicles in future societies. Generally, however, many aspects of the impact of autonomous vehicles are speculative and the development of policies addressing autonomous vehicles therefore requires careful consideration to limit GHG emissions, increased energy consumption and unanticipated social impacts.

7.2.1. Active Transportation

Redesigning, rebuilding, enhancing, and prioritizing active transportation infrastructure was a consistently identified focus across peer municipalities. This included the development of standards for road redevelopment that prioritize active transportation infrastructure, the piloting of micro-mobility programs (e.g., bike shares, e-scooters), expanding the amount and quality of bicycle parking, and creating more attractive and connected active transportation networks.

7.2.2. Public Transit

Generally, most plans identified the need for expanded public transit services, increased or improved infrastructure, and reducing emissions from the transit fleets. Electrification of buses was mentioned by most peer municipalities and some municipalities emphasized the importance of constructing or expanding light rail transit infrastructure.

Programs for increased transit ridership, including on-demand services to provide more access to some areas at key times, were also mentioned.

7.2.3. Parking

Municipalities can control the amount of parking that is constructed as part of a zoning by-law and some municipalities identified the need to review these standards as part of efforts to disincentivize driving. Also mentioned was the potential for using parking rates to change behaviours around driving and raise revenues for climate actions in need of funding, mandating that any new parking spots be either equipped with or ready to be equipped with electric vehicle chargers, and the improvement of parking areas with regards to stormwater management (e.g., increased permeability through changes in surface materials or requiring more planted, natural areas to accept stormwater in and around parking lots).

7.2.4. Zero Emission Vehicles Support

Municipal actions and/or strategies to promote the adoption of zero emission vehicles were present in all peer municipality climate action plans. Notable actions and strategies included municipal support for the construction of expanded electric vehicle charging networks, the implementation of congestion charges (or car-free areas, affecting all vehicles or just internal combustion vehicles) and parking availability for zero emission vehicles only. A common acknowledgement was that the wide adoption of zero emission vehicles requires efforts from more than just the municipal level of government. As such, a few peer municipalities identified the need to create joint ventures or technical working groups to promote education and awareness on the benefits and advantages of adopting zero emission vehicles.

7.2.5. Behavioural Changes

Transportation demand management programs like ride matching, corporate transit passes, and reimbursement for emergency rides home for those who chose to take transit or use active transportation were referenced as potential behavioural change actions that could be supported by some peer municipalities. In addition, promotion of work from home arrangements to reduce commute requirements were included in some peer municipality plans.

7.3. Waste, Consumption, and a Circular Economy

Emissions from waste and consumption were only partially addressed by most municipalities, as is the convention and state of knowledge and management of emissions created in other parts of the world because of the manufacture and transport

of products (i.e., scope 3 emissions). Emissions from landfills is a common category in community emissions inventories and many peer municipalities identified this source of emissions as an opportunity to generate renewable natural gas (RNG) either directly from landfills (from landfill gas created by decomposing organic waste) or from organic materials collected and processed in an anaerobic digester as part of “green bin” program.

Food systems were a focus for some peer municipalities, with commitments to protect agricultural systems, diversify and strengthen local agricultural sectors, increase the amount of locally grown products consumed, and creating strategies for increasing urban agriculture and/or food security. Some municipalities specifically identified the need to promote and support increased consumption of local products and the reduced consumption of meat and dairy as significant climate mitigation actions.

A key focus identified by some municipalities was the support and transition towards a circular economy. A circular economy is a closed (or nearly closed) loop system where items are continuously reused which results in lower GHG emissions largely due to the significant reduction in energy required when an existing item is used in place of something new. Specific actions to move towards a circular economy were mostly focused on exploring opportunities with partners and stakeholders and raising awareness of the concept, but there were also some actions identified to support equipment sharing initiatives and host community repair workshops which would have a direct impact.

7.4. Buildings and Development

Municipal influence and control on emissions and resilience of buildings and development was widely acknowledged to be significant by peer municipalities. Aspirational and vision statements relating to the need for existing buildings to be drastically more energy efficient, for communities to be more walkable and complete and new development to be more sustainable were common. Specific programs, actions and strategies relating to buildings and development were generally delineated by their impacts on existing buildings or new development.

7.4.1. Existing Buildings

The most common initiative to address the significant GHG emissions from the operation of existing buildings in peer municipalities was the research and/or development and implementation of a home energy retrofit program targeting improved energy efficiency measures and switching heating equipment from fossil fuels to renewable sources in single-family homes. Different mechanisms, proposed funding sources and supports for such a program were referenced, including the establishment of a company to deliver energy retrofits in the jurisdiction, the use of Property Assessed Clean Energy (PACE) programs, Local Improvement Charges (LIC) for financing and

the creation of support programs like energy concierge services to assist homeowners with the renovation and financing processes.

Other programs to support reduced emissions in existing buildings included the creation of energy performance labelling programs for buildings that could inform real estate transactions and the creation of accelerator programs to support existing retrofit programs available in the private sector.

7.4.2. New Developments

Many peer municipalities identified the need to direct new development towards compact, energy efficient, complete communities through the implementation of a green development standard or similar initiatives targeting reduced GHG emissions and improved climate resilience. Some peer municipalities had similar objectives embedded in their zoning by-laws and development requirements prior to publication of their climate action plans and some did not go so far as to commit to establishing a formal standard. In each case, addressing environmental performance of new development and buildings was identified as a priority. Although building construction is largely driven by the Provincial Building Code, some municipalities identified incentive programs (e.g., development fee rebates, accelerated approvals) as a means to influence developers and builders.

As part of green development and buildings standards, some municipalities identified the need for programs to advance the adoption of renewable energy and low carbon energy systems and/or district energy systems, and the exploration of requirements for new developments to have transportation demand management and/or energy master plans.

7.5. Focus on People

Most peer municipality plans acknowledged the importance of residents, businesses, and the community in general to support action on climate change. Many peer municipalities identified specific actions including to support GHG emissions reduction transition planning in all organizations and households, to raise awareness about climate change in the community through education campaigns, and generally to encourage private action through education, direct and indirect incentives. Some peer municipalities also highlighted the need for advocacy for support of individuals and private organizations by senior levels of government. Actions to inspire and showcase climate action, engage youth and commercial and institutional subsectors with ambassador programs and support community organizations working to advance climate action were also common.

The focus on people demonstrated in many peer municipal plans also included commitments to work with partners to enhance existing programs and services to

address health impacts from climate change, increase awareness and responsiveness, and identify effective interventions and partnerships. Throughout many plans there was also emphasis placed on the fact that equity-deserving groups were often disproportionately affected by climate change impacts and are some of the least well-equipped to deal with the challenges presented. As such, there was strong acknowledgement that GHG emissions reduction and adaptation planning processes needed to prioritize increasing equity in the community.

7.6. Natural Heritage

The significance of natural processes that capture and sequester carbon in organic matter was acknowledged in many peer municipalities plans with commitments to protect natural areas and plant more trees. Plans focusing on only mitigation, however, tended to only acknowledge the potential for the natural heritage system to sequester carbon, but not the importance of natural systems in hosting and preserving plant and animal biodiversity, providing water storage to reduce flood risks or the ability of natural areas to purify stormwater.

Plans that addressed adaptation typically highlighted the threats that natural ecosystems are facing from a changing climate (e.g., invasive species spread, potential loss of species at risk, environmental damages from extreme weather) and included substantial actions to address these threats.

Adaptation actions relating specifically to natural heritage protection and enhancement included:

- Evaluating and prioritizing potential natural area restoration opportunities
- Developing natural areas management plans (where they didn't already exist)
- Studying the potential for natural areas to enhance flood attenuation
- Prioritizing linkages of natural areas in development approvals, municipal land acquisitions and exploring the feasibility of tunnels and/or bridges to connect existing natural areas for wildlife and residents
- Collaborating with experts to develop invasive species management programs
- Completing tree canopy studies to inform expanded tree planting initiatives

7.7. Adaptation

The approach to addressing adaptation by peer municipalities was generally observed to follow one of three paths:

1. Preparation of a stand-alone adaptation plan
2. Inclusion of adaptation actions within a larger climate action plan

3. Brief or no mention of adaptation actions and/or committing to produce a climate change adaptation plan in the future

Of those peer municipalities that produced dedicated adaptation plans or addressed adaptation actions within larger climate action plans, common characteristics were observed. Each of these municipalities conducted a vulnerability and risk assessment to identify and prioritize areas for action and tailored their adaptation plans to their specific needs. External expertise was often sought to assist with the risk and vulnerability assessment and subsequent adaptation planning, with many municipalities working with staff from the Canadian office of ICLEI – Local Governments for Sustainability (a global network of more than 2500 local and regional governments committed to sustainable urban development) to utilize their Building Adaptive and Resilient Communities (BARC) program.

Actions to improve resilience and adapt to climate change in peer municipalities were organized differently and addressed only those areas relevant to each municipality, but generally included actions in the following key areas (as listed in Waterloo Region's Community Climate Adaptation Plan):

Health and Community

- Help vulnerable populations avoid or reduce the health-related risks of extreme weather and temperatures
- Improve the personal preparedness of community members to respond to emergencies
- Encourage community-based initiatives to improve community members' resilience to extreme weather events
- Monitor and plan for the potential introduction of new vectors and vector-borne illnesses to the community

Built Environment

- Incorporate climate change into future land use, development and construction, and improve resilience of existing buildings to climate-related risks
- Improve the longevity and resilience of infrastructure to extreme weather and temperatures
- Reduce transportation disruptions due to extreme weather events and improve safety of travel of roads, sidewalks, and trails

Natural Environment and Water

- Expand the use of natural features and green infrastructure that mimics natural features to better manage storm water runoff and decrease flood risk
- Conserve and protect surface water and groundwater resources from urban runoff and pollution
- Monitor, coordinate, plan for and mitigate the spread of invasive species in the natural environment

- Monitor, maintain and improve the diversity and resiliency of urban trees and forests
- Maximize effective nutrient management and retention to reduce runoff from agricultural practices

Energy and Economy

- Improve the resilience of energy infrastructure to weather-related disruptions
- Enable local organizations, businesses, and community members to be more resilient to power interruptions
- Encourage local businesses and other organizations to identify and plan for climate-related risks and opportunities that may affect their business activities and/or quality of service

7.8. Industry and Economy

Most peer municipalities plans addressed the need to ensure prosperity for residents is achievable alongside strong climate action. Some specific initiatives and actions addressing industry and the economy included the encouragement of growth and uptake of low carbon and resilient technologies, the monitoring and promotion of innovation in low carbon and resilient technologies (including exploring pilot projects), and support for the development of electricity resource strategies to develop local or regional renewable electricity supplies.

Addressing industrial emissions was identified as important in some peer municipalities and the establishment of a community of practice to share industrial management expertise was an example action that addressed this area.

8. Implementation

Approaches to implementation vary across peer municipality plans from the inclusion of a statement that an implementation plan is forthcoming, to a detailed implementation plan for each proposed action that includes responsible parties, timelines, and approximate budget requirements. Some plans speak specifically to the limit of the municipality's ability to direct or influence actions that are required to reduce emissions or improve resiliency and some plans do not address the specific actors required to make progress on actions. With one notable exception, most peer municipality climate action plans are so new that detailed reporting on the effectiveness of implementation of the plans is not available.

The oldest of the published peer municipality plans, Kingston's Climate Action Report (2014), was recently expanded upon by a Council-convened Working Group on Climate Action (2019). The October 2019 report from the Working Group indicated that "beginning in late 2019, the City will begin the process to update and combine the corporate climate action plan (2015), the Community Climate Action Plan (2014) and the Municipal Energy Study (2018) into a Climate Change Management Strategy that will serve as a modern roadmap for local action toward climate mitigation and adaptation during the 2020 to 2040 period". The Working Group was also provided a mandate by Kingston's Council "to promote, engage, inform, and challenge community organizations, institutions, and businesses to reduce Greenhouse Gas (GHG) emissions in the IC&I Sector as soon as possible at no to little cost".

An analysis of community engagement during implementation of climate change plans in the peer municipalities has provided the following initial insights:

- Few municipalities have published details regarding the success of their "engagement" efforts partly due to the long timelines involved.
- Early municipal work on climate change (pre-pandemic, such as Kingston), benefitted by allowing in-person, face-to-face engagement.
- Post-pandemic municipal work has relied almost entirely on virtual tools (e.g., Project Neutral, eDemocracy) and webinars to inform and engage
- Community environmental groups (where they exist) were utilized for collaborative engagement to increase municipal engagement success

The purpose of the engagement actions varied by municipality however seven themes were predominant:

- Understanding and prioritizing communities that are underrepresented, underserved, and made vulnerable to climate change
- Educating the public and assist the public in understanding why they need a climate emergency plan or climate change plan, and what roles the municipality and the public can play in helping to achieve the goals set out in the plans
- Building and deepening local relationships and partnerships
- Engaging community members and other partner networks
- Training and educating community members to increase community resilience and leadership
- Providing information and context for informed community feedback
- Collecting feedback on draft or final actions and strategies for the climate action plan

Engagement took many forms in the peer municipalities however common considerations for engagement focused on these ideas:

- Youth are at the forefront of demanding action on the climate emergency. Involving them proactively was viewed as very positive
- Identify potential challenges and barriers related to the proposed actions that may influence participation
- Equity considerations need to be included to consider how the proposed actions could impact different segments of people while living, working, and moving through the municipality
- Decisions are better when more voices are included
- Opportunity for collaboration (e.g., working with networks of organizations, advocates, other departments within the municipality, and even other local municipalities who have declared a climate emergency)
- Deepen the public's understanding of the need for an ambitious climate plan with details of what that entails, including informing residents what climate change risks they will face if nothing is done, and how bold and coordinated action are needed from all sectors.

9. Summary of Learnings

There is no universal best approach to planning for and advancing climate action, even in jurisdictions geographically and demographically similar to one another. Political ambition, previous action, community involvement, prominent economic sectors and many other factors create the need for any approach to be customized to the specifics of the jurisdiction.

What is common among peer municipality climate action commitments and action plans is the understanding of where GHG emissions are coming from, acknowledgement of the sectors most urgently in need of being addressed and the establishment of goals (or at least aspirations) to reduce those emissions. Awareness and action planning regarding adaptation to climate impacts was not quite as widespread in peer municipalities, however most municipalities that did not have a published climate change adaptation plan at the time of this report's drafting were in the process of developing one.

Clear identification of the delineation of responsibilities of local, provincial, and federal governments needs to be properly framed and reflected in action planning. Critical efforts to improve resilience and reduce emissions need to be led and supported by private and community organizations in partnership with the municipality (though in some cases the municipality needs only to enable private and community organizations to take action). This requires a consistent understanding and clearly communicated ownership of the challenges of taking climate action which is most likely to be achieved only through continued and thorough education and engagement of community groups, businesses, institutions, and residents.

The rigour to which peer municipalities addressed implementation was highly variable, which is inferred to be due at least in part to the governance structure of some municipalities and the approach to climate action planning utilized. In almost every case, only limited reporting on the effectiveness of implementation strategies was available. Progress reporting from this peer group will be monitored to identify learnings from the various action implementation approaches to inform London's CEAP updates in the years ahead.

The implementation engagement review in peer municipalities continues and is being extended to Toronto and other Canadian cities. At this stage, what the City of London has done recently and during the development of London's Climate Emergency Action Plan is consistent with other municipalities. It is worth noting that being consistent with other municipalities in this case means that all municipalities and their local partners are struggling to gain greater understanding in the community on climate change matters and the need for substantially more actions now. Increasing community engagement will be a high priority in London.

Appendix A – GHG Targets in Other Canadian Municipalities

Municipality	Corporate Target (date set)	Community Target (date set)
Toronto	New buildings - Near-zero emission starting in 2026 Existing buildings – 40% below 2017 energy use by 2040 Fleet – 45% low carbon vehicles by 2030 Renewable energy – 1.5 million GJ/year of biogas by 2030 <i>*More aggressive targets are pending approval of TransformTO Net Zero Strategy by City Council Dec 15/16, 2021</i>	65% below 1990 level by 2030; Net Zero by 2050, or sooner <i>*More aggressive targets are pending approval of TransformTO Net Zero Strategy by City Council Dec 15/16, 2021: 45% below 1990 levels by 2025; Net zero by 2040</i>
Vancouver	Fleet - 60% below 2007 level by 2030, and transitioning to 100% renewable energy usage by 2050	50% below 2007 level by 2030; Net zero before 2050 (November 2020)
Edmonton	50% below 2005 level by 2030 (May 2018) Net zero by 2050 (April 2021)	35% below 2005 level by 2025; 50% below 2005 level by 2030; Net zero by 2050 (April 2021)
Calgary	Net zero by 2050 (November 2021)	Net zero by 2050 (November 2021)
Winnipeg	20% below 2011 level by 2030; 80% below 2011 level by 2050 (September 2018)	20% below 2011 level by 2030; 80% below 2011 level by 2050 (September 2018)
Halifax	Net zero by 2050 (June 2020)	30% below 2010 level by 2030; Net zero by 2050 (June 2020)