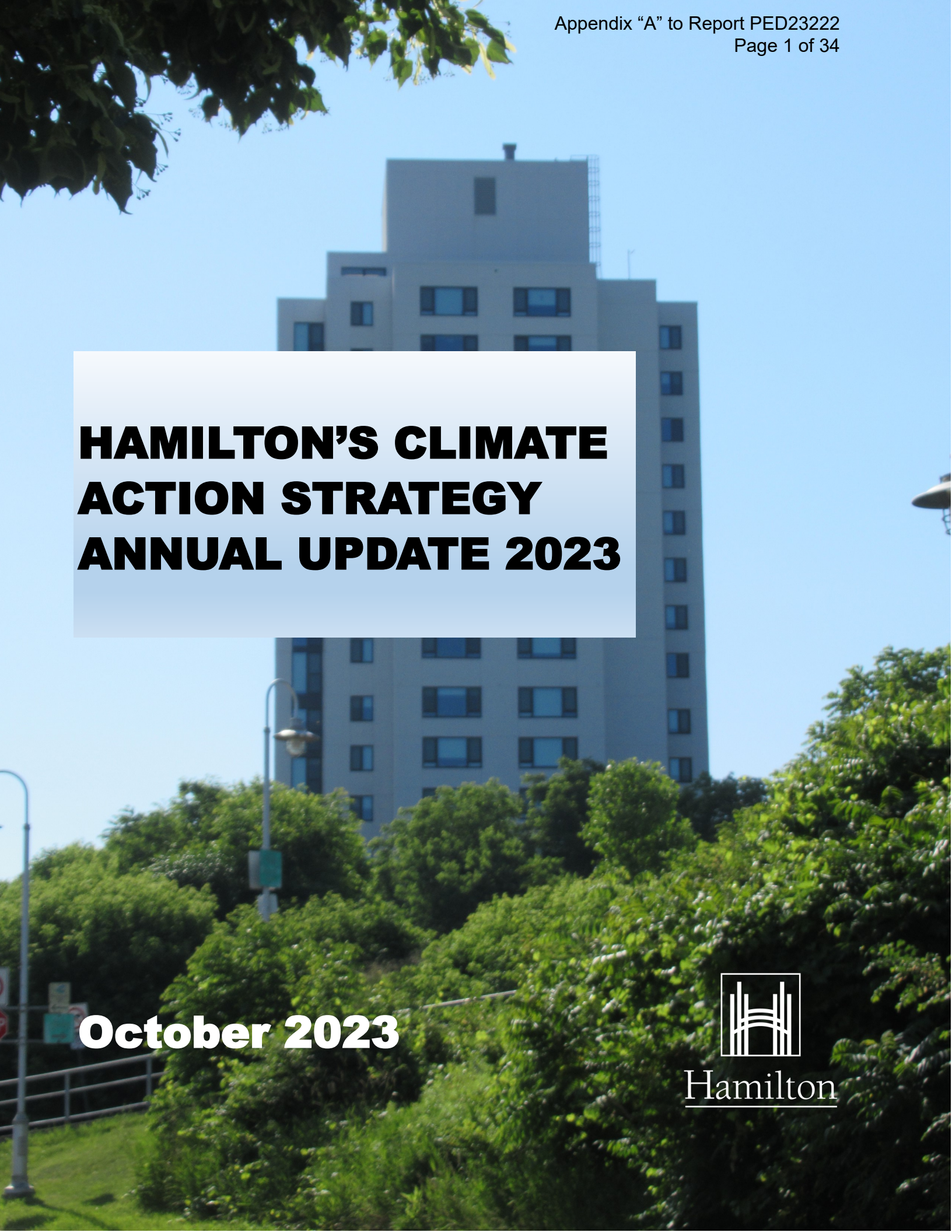

HAMILTON’S CLIMATE ACTION STRATEGY ANNUAL UPDATE 2023

October 2023

Hamilton

LAND ACKNOWLEDGMENT

We acknowledge the City of Hamilton is situated upon the traditional territories of the Erie, Neutral, Huron-Wendat, Haudenosaunee, and Mississaugas. This land is covered by the Dish With One Spoon Wampum Belt Covenant, which was an agreement between the Haudenosaunee and Anishinaabek to share and care for the resources around the Great Lakes. We further acknowledge that this land is covered by the Between the Lakes Purchase, 1792, between the Crown and the Mississaugas for the Credit First Nations.

Today, the City of Hamilton is home to many Indigenous people from across Turtle Island (North America) and we recognize that we must do more to learn about the rich history of this land so that we can better understand our roles as residents, neighbours, partners, and caretakers.

Hamilton

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Introduction

The Intergovernmental Panel on Climate Change (IPCC)’s AR6 Synthesis Report confirms that emissions and atmospheric concentrations of greenhouse gases are now at record highs globally. It says that with every increment of global warming, regional changes in mean climate and extremes become more widespread and pronounced. Risks and projected adverse impacts and related losses and damages from climate change escalate with every increment of global warming (very high confidence). Climatic and non-climatic risks will increasingly interact, creating compound and cascading risks that are more complex and difficult to manage (p. 14)[1].

Across the country, Canadians are personally experiencing loss, pain, and suffering brought on by extreme weather impacts, including unprecedented wildfires, adverse health impacts from wildfire smoke, and drastic increases in flooding from extreme weather events. As warming continues, those least responsible for causing climate change are the ones suffering the most from its impact. But there is still hope. As the IPCC also says in its report, there is still a window of opportunity to prevent the worst-case scenario of over 1.5 degrees Celsius increase in global temperatures (we are at 1.1 degrees Celsius). But we must act immediately, and that action involves financial commitments and commitment to a fair transition to net zero carbon.

In Hamilton, residents are turning to the City for climate leadership including direction on how to work collaboratively to manage climate change. Hamilton’s Climate Action Strategy (HCAS), and the climate mitigation and adaptation plans found within it, is our pathway to drastically cutting our carbon emissions and achieving net zero by 2050, or sooner, as is now being urged. There is much work still to be done, but the update is hopeful with clear signs that Hamilton is on the right path to net zero by 2050.

Purpose of Report

The City of Hamilton is on a mission to reach net zero carbon emissions by 2050 and the Office of Climate Change Initiatives (OCCI) is tracking and supporting its progress. This Annual Report provides an update on the City’s progress in reducing GHG emissions and how the City is supporting the community to reduce GHG emissions through the creation of actions, policies, plans, and incentives. In addition, this report provides an update on how the City is preparing both the corporation and the community for the impacts of a changing climate.

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[1] IPCC, 2023: Summary for Policymakers. In: *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 1-34, doi: 10.59327/IPCC/AR6-9789291691647.00. Retrieved from: https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

About the Office of Climate Change Initiatives

In August 2022, Hamilton City Council’s General Issues Committee approved the creation of a new climate-focused office—the Office of Climate Change Initiatives (OCCI) — to oversee the implementation of Hamilton’s Climate Action Strategy (HCAS). Both the HCAS and the OCCI were approved at the same time to ensure adequate resources were put in place to immediately begin implementation. HCAS’s climate adaptation and mitigation plans are Hamilton’s roadmap to drastically cutting carbon emissions to achieve net zero by 2050, while at the same time reducing, preparing, and recovering from the unavoidable impacts of climate change.

Lynda Lukasik was appointed Director for the OCCI, and long-time city staff member Trevor Imhoff took on the role of Senior Project Manager in this office. Exactly a year later (2023), two additional members have been added to the team: Cathrin Winkelmann, Senior Project Manager, and Beatrice Ekoko, Project Manager.

To get in touch with the OCCI to learn more about Hamilton’s Climate Action Strategy, to request a presentation, or for potential collaborations we encourage you to email climatechange@hamilton.ca or you can get in touch individually with the OCCI Team.

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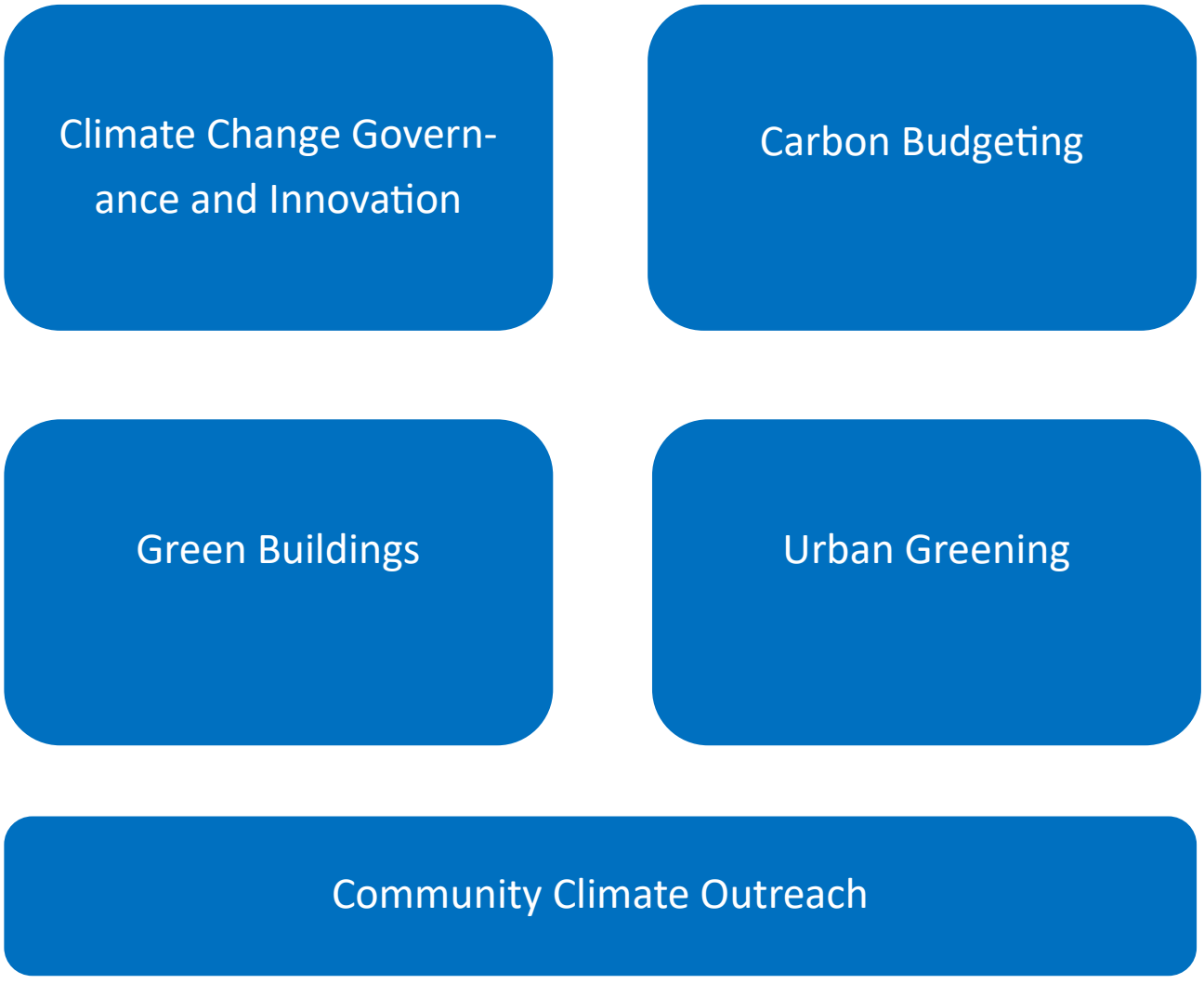
Office of Climate Change Initiatives Priority Focus Areas for 2023

Climate change is known as a ‘wicked’ problem with complicated and multi-disciplinary solutions required. In order to properly address climate change the entire community, businesses, industry, major institutions and residents all need to collectively take action. There are already substantial actions happening through the efforts of the City of Hamilton and across the community.

In order to prioritize the Office of Climate Change Initiatives (OCCI) workload and move forward on establishing the important climate action strategy governance pieces and processes, while also immediately beginning implementation of important actions, the OCCI put forward and received Council approval in April 2023 for these priority focus areas:



OCCI PRIORITY: Climate Governance and Innovation

In order to develop and align processes across the City of Hamilton, establishing the following critical governance pieces was identified as a priority. The table below provides a brief update on the current status of the priority items under climate governance and innovation.

Table 1.0 Climate Governance and Innovation Update

Governance Piece	Status Update
Establishment of the City of Hamilton Climate Change Initiatives Steering Committee	**COMPLETE** - This steering committee comprised of Directors from key departments and divisions was approved by the Senior Leadership Team and recruitment has been completed. This committee’s Terms of Reference have been established and an initial kick-off meeting has been held.
Establishment of the City of Hamilton Climate Change Initiatives Extended Leadership Group	**IN PROGRESS** - This group of managers and other relevant staff is expected to be formed in late 2023 following the direction of the Director-Level Steering Committee.
Recruiting and On-Boarding of New OCCI Staff	**COMPLETE** - The OCCI received approval from Council through the 2023 budget process to hire two additional staff. Hiring has been completed and the office now includes a Director, two (2) Senior Project Managers, and a Project Manager.
Establishment of and Support for the Community Climate Advisory Committee	**IN PROGRESS** – The recruitment for the advisory committee has now closed. Staff in the OCCI conducted a variety of engagement and communications tactics to successfully raise awareness. This Advisory Committee has 20 seats maximum. The Selection Review Committee at the time of writing this report is currently in the process of reviewing all of the applications. It is expected this Advisory Committee will be formed and meeting in early 2024.

OCCI PRIORITY 2023: Carbon Budgeting

The Intergovernmental Panel on Climate Change (IPCC) within the AR6 Chapter 5 - Frequently Asked Questions provides some additional context on what a carbon budget is:

> ***"The term remaining carbon budget is used to describe a total net amount of CO_2 that human activities can still release into the atmosphere while keeping global warming to a specific level, like 1.5 ℃ or 2 ℃ relative to pre-industrial temperatures." – IPCC AR6 Chapter 5 FAQ 5.1.[2]***

Staff in the OCCI have taken the lead on developing the scope of work for what is being called "Hamilton's Carbon Accounting and Budgeting Framework". This is proposed to be a multi-phase and multi-year initiative that includes three (3) main pillars of work including:

PILLAR 1 – Net Zero Calculations and Support Policies	**PILLAR 2** – Protocols and Processes	**PILLAR 3** – Tools and Resources
To calculate Hamilton's community and corporate 'fair-share' finite carbon budget that aligns with the 1.5 ˚C global warming target;	To establish clear and easy to understand, publicly transparent protocols and process that provide the City of Hamilton with the ability to align budget and planning processes with the City's finite carbon budget as outlined in Pillar 1; and	To support City of Hamilton Staff, Council and community efforts to implement the Carbon Accounting and Budgeting Framework. Will include a variety of tools/ resources for quantification, analysis and reporting

This work will begin before 2023 year end starting with a pilot for climate considerations and prioritization exercise in two selected Departments/Divisions for lessons learned while working through a competitive process to hire an expert consultant to begin climate budget calculations in early 2024.

OCCI PRIORITY 2023: Green Buildings

The City of Hamilton is piloting a residential energy efficiency retrofit program called Better Homes Hamilton (BHH). The program will provide property owners low barrier access to upfront capital for them to retrofit their homes, in order to reduce greenhouse gas (GHG) emissions, improve energy efficiency, and live more comfortably.

Up to 50 Hamilton homeowners may be eligible for a zero-interest loan for up to a maximum of $20,000 for energy-efficiency home improvements paid back via a local improvement charge through their property tax bill over a 10- to 15-year repayment term. Eligible property types are single detached houses, semi-detached houses, and town homes.

Based on extensive research and engagement, tenant rights and important equity considerations have been embedded into the BHH program, which is being implemented with applied climate justice principles, including:

- Ensuring that any retrofits that lead to the displacement of tenants will be deemed ineligible.

- Providing low-barrier access to upfront capital for those who may not otherwise qualify for traditional financing.

- Prioritization of Hamilton homes located within neighbourhoods that have been identified as having high rates of energy poverty through the Canadian Urban Sustainability Practitioners (CUSP) Energy Poverty Mapping Tool and/or have above-average utility-calculated heating fuel (natural gas, propane, or oil), including in rural areas.

For more information on the BHH program including a list of eligible retrofit measures and a list of anticipated benefits see Low-Carbon Transformation #2 below in the report on Page 18 or visit the City’s Engage Website Better Homes Hamilton

OCCI PRIORITY 2023: Urban Greening

Through Hamilton’s Climate Action Strategy (HCAS), the City set an **ambitious 50,000 trees per year planting target**.

This is a community-wide target and further supported through the adoption of Hamilton’s Urban Forest Strategy with a **target of growing Hamilton’s urban tree canopy cover to 40%.**

The City of Hamilton, through the Forestry & Horticulture Division and in combination with free tree giveaways, has committed to get 20,000 of those trees planted.

The OCCI has taken on the task of creating a system to track the tree planting undertaken by community stakeholders, in order to evaluate our community’s success in realizing the annual 50,000 tree target.

Discussions with several key community partners are underway to establish plans to amplify efforts to green up heavily urbanized areas through ‘depave’ projects and other innovative approaches to greening urban streetscapes.

OCCI PRIORITY 2023: Climate Communications and Outreach

Engaging the broader community around climate action is key to our mandate. Between November 2022 and September 2023, the OCCI reached audiences from diverse sectors, including youth, faith groups, Indigenous communities, neighbourhood associations, and businesses. Given the recent creation of our office, we are proud of our extensive engagement to date and will be looking to build momentum moving into 2024.

By the Numbers

- 14 events and talks with 1,000 + individuals reached
- Invitations to present from 10 organizations
- 2.8K visitors to the Engage Hamilton Climate Change Advisory Committee (CCAC) page with 1.4K participants made aware of the call out for applications and 358 informed participants
- 1.7K visitors to the Engage Hamilton Better Homes Hamilton (BHH) pilot program page with 1.4K aware participants, and 484 informed participants
- 60+ applications received for the CCAC
- 28,000 impressions and 426 engagements from social media content regarding climate action from both City and external partners.

Community Climate Change Advisory Committee

The creation of a community advisory committee to help guide the implementation of Hamilton’s Climate Action Strategy is underway. Community stakeholders and residents attended four virtual information sessions throughout the first two quarters of 2030 via the Engage Hamilton page.

The response for participation was very strong, with over 60 applications submitted for participation on the Climate Change Advisory Committee (CCAC). These applications are currently in the process of being reviewed by an Interview Subcommittee, and there are a total of 20 seats available on this Advisory Committee.

For more information and to stay informed on the CCAC, check the City’s website here at CLIMATE CHAMPIONS .

A Climate Justice Framework for the City of Hamilton

Climate Justice recognizes the disproportionate impacts of climate change on low-income, under-served, marginalized, racialized communities, and people and places least responsible for causing the climate crisis. Climate Justice addresses the root causes of climate change and in doing so, seeks solutions that simultaneously tackle the broad range of social, racial, and environmental injustices.

The OCCI has begun working with students in the CityLab Fall 2023 Semester in Residence to develop a design for a Hamilton-specific Climate Justice Framework. The Framework is intended to be used as a tool to guide City decision-making and planning and applied where process-oriented issues are concerned, such as engagement methods. It will be used as a tool that will ensure decisions regarding mitigation and adaptation actions are made in a manner that promotes climate justice moving forward. The Framework will also be used for further discussions on broader, intersecting themes, and address the historical context of climate injustice.

Climate Communications and Engagement Strategy

The OCCI will continue to refine its communications and engagement techniques and ongoing tracking methodology. This will be done through a comprehensive Climate Communications and Engagement Strategy (CCEC). Consultation with internal corporate communications, marketing, engagement staff, and diverse community stakeholders is underway.

Community Stakeholders: Collaborations

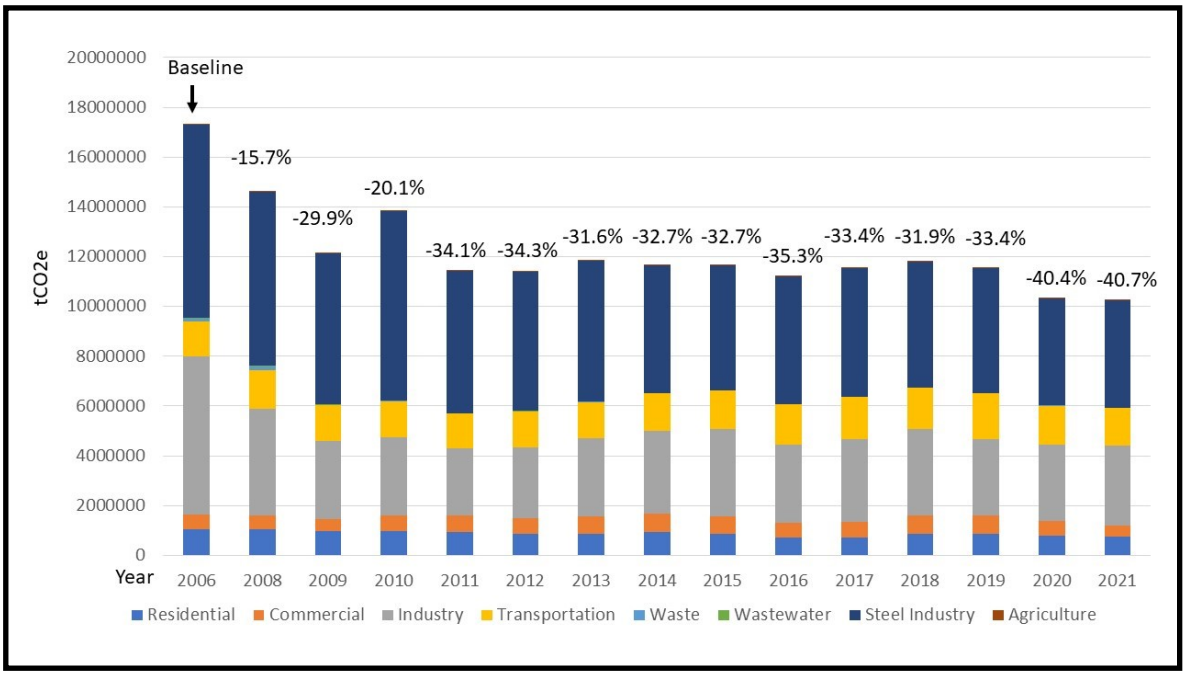
The OCCI is exploring pathways of collaboration with the Bay Area Climate Change Council (BACCC), a multi-stakeholder organization supported by the cities of Hamilton and Burlington to facilitate regional solutions to climate issues. Currently, we are in conversation with BACCC and Mohawk College representatives regarding the City’s climate action priorities, how BACCC can best support municipal efforts, and how, in turn, OCCI can contribute to realizing their regional decarbonization goals.

If you would like Staff from the OCCI to do a presentation or talk at your event, committee, or organization, please do not hesitate to email climatechange@hamilton.ca or call our Project Manager at (905) 546-2424 ext. 6885.

HAMILTON'S COMMUNITY-WIDE GREENHOUSE GAS INVENTORY 2006 – 2021

The City of Hamilton has been tracking and reporting annually community-wide Greenhouse Gas (GHG) emissions from sectors including: Buildings (broken down by Residential, Commercial and Industry), Transportation, Industrial Emissions, Waste, Wastewater, and Agriculture since 2008. Using the year 2006 as a baseline and the most recent GHG inventory year of 2021, it is estimated Hamilton's community-wide emissions have been reduced by approximately 40.7%. This equates to 10,289,987 $tCO2_e$ in 2021 compared to 17,349,813 $tCO2_e$ in 2006.

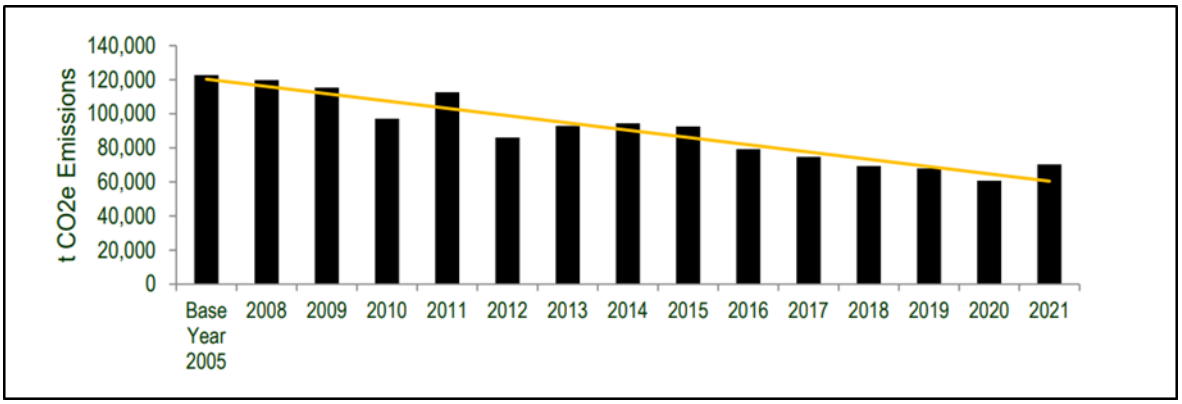
Figure 1.0 Hamilton's Community-Wide Greenhouse Gas Emission 2006-2021



HAMILTON'S CORPORATE GREENHOUSE GAS INVENTORY 2005 – 2021

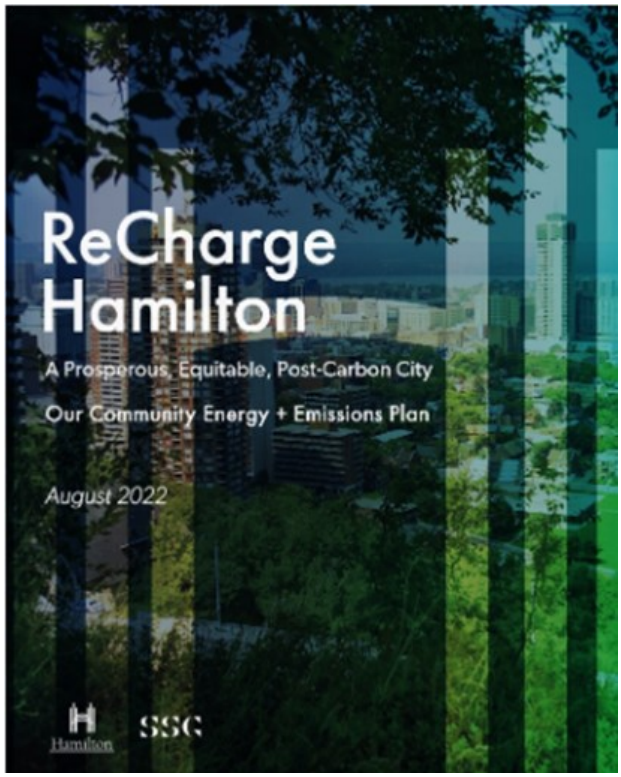
Through the Corporate Facilities and Energy Management Division, City Staff report on Corporate GHG emissions. Figure 2.0 was adapted from Report PW21094(b) and shows a 16% increase in corporate GHG emissions in 2021 vs 2020. This is due to return to post-pandemic levels of activity combined with correction of an emissions calculation error that underestimated previous city fleet emissions. When compared to 2005 levels, 2021 GHG emissions have decreased 43% or by approx. 52,428 tCO_2e.

Figure 2.0 Hamilton's Corporate Greenhouse Gas Emissions 2005-2021



HAMILTON’S CLIMATE ACTION STRATEGY

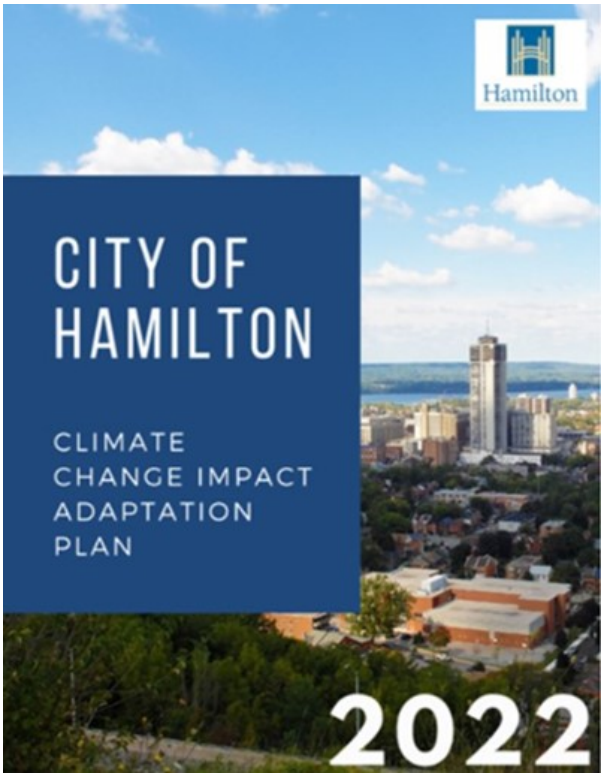
Hamilton’s Climate Action Strategy (HCAS) is the City’s most ambitious and detailed climate plan to date. It was developed between 2018 and 2022 through extensive research, technical modelling, community-wide engagement, and consultation. The HCAS includes both a climate mitigation plan to achieve net zero GHG emissions by 2050, and a climate adaptation plan to help our entire community reduce, prepare, and recover from the unavoidable impacts of climate change.



“ReCharge Hamilton – Our Community Energy and Emissions Plan”

Vision:

“ReCharge Hamilton identifies a pathway to net zero GHG emissions by 2050 that increases the resilience of the energy system and improves economic prosperity for all. Drawing on a history of work, policies, and initiatives in this area, ReCharge Hamilton builds on Hamilton’s historic and current strengths as an industrial leader in the midst of a rich natural environment, and as a caring community.”



“Hamilton’s Climate Change Impact Adaptation”

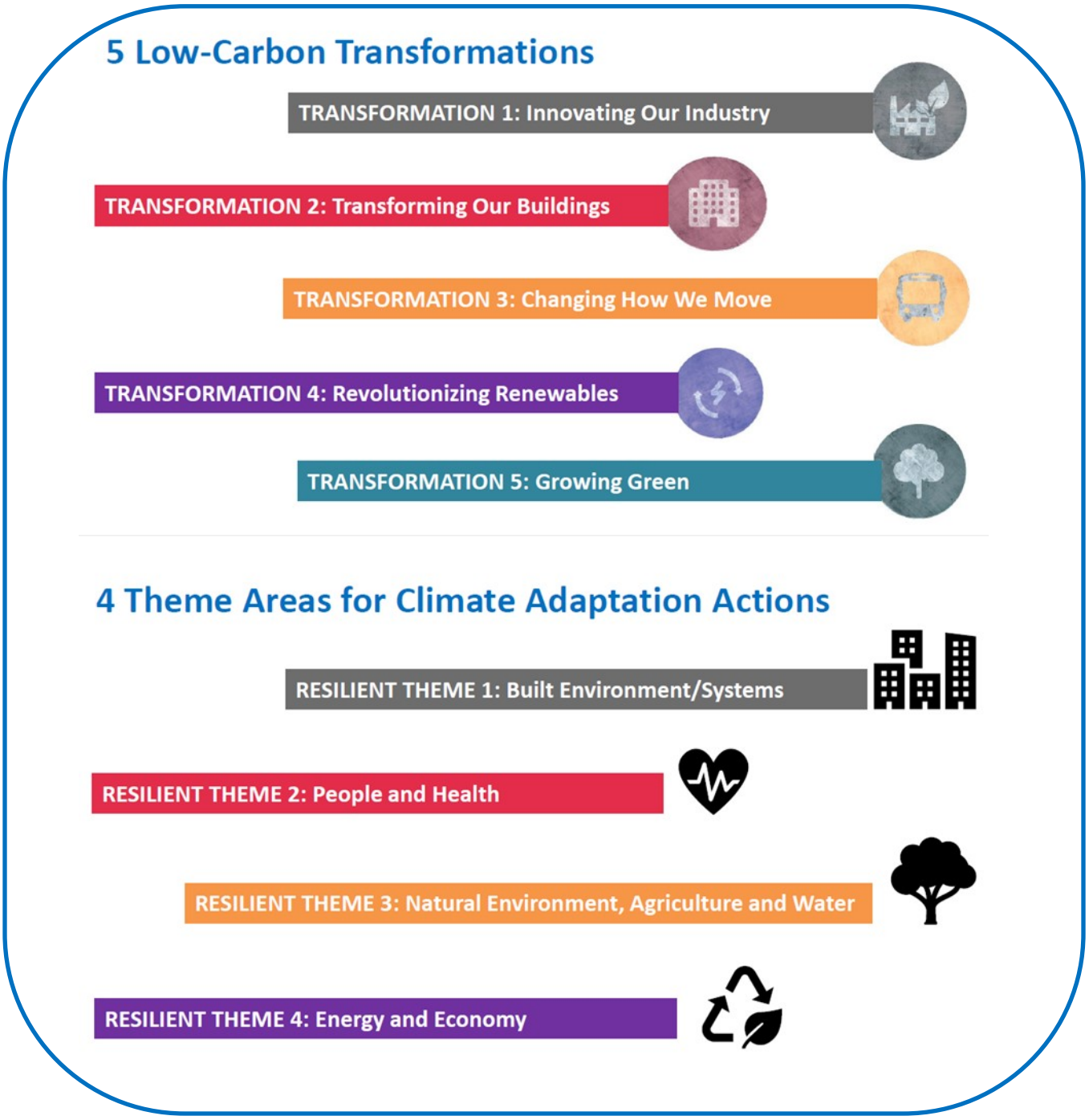
Vision:

“The City of Hamilton will be a national leader on climate adaptation: a healthy, equitable, vibrant, and sustainable community that responds to the needs of residents, businesses and institutions, and is resilient in the face of a changing climate”

The remaining sections of this report are broken out into the Low-Carbon Transformations and Resilient Themes as outlined and approved within ‘ReCharge Hamilton’ and ‘Hamilton’s Climate Change Impact Adaptation Plan’.

The following sections include major and impactful actions within each Low-Carbon Transformation and Resilient Theme. For a complete list and status update for all of HCAS’s specific actions see Appendix “B” to Report PED23222.

The Five (5) Low-Carbon Transformations and Four (4) Resilient Theme Areas are broken out as follows:



Low-Carbon Transformation #1: Innovating Our Industry

ArcelorMittal Dofasco Decarbonization Plans

(Source: Canadian MetalWorking, 2022)

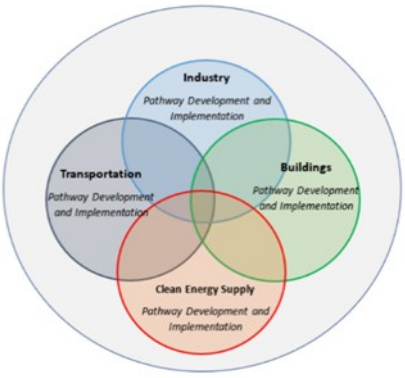
The nearly **$2 billion decarbonization investment** was officially launched on October 13, 2022. With significant investments from both the provincial and federal government, ArcelorMittal Dofasco (AMD) is showing exceptional leadership and is among the first in the world to transition off coal for the ironmaking process. The benefits of this transformative initiative at one of Hamilton’s largest integrated steel mill will include:

- Reducing Carbon Emissions by **3 million tonnes or about 60% by 2028**;
- Equivalent to taking **725,000 internal combustion** engine cars **off the road** or planting **138 million trees**; and
- Significantly **improve local air quality** with the reduction of harmful known carcinogens like benzene and benzo(a)pyrene.

At the peak of project construction, AMD estimates it will see about 900 workers on site. Once complete, the new assets will mean employees will work in state-of-the-art green facilities after undertaking an estimated 160,000 collective hours of training[2]. This decarbonization transition is not only good for the environment and climate action but will provide a globally competitive advantage in a world where more and more customers are demanding climate action and that steel be as clean as possible.

Hamilton Regional Decarbonization Hub

Although the concept of a “Hub” is not new, the proposed **Hamilton Regional Decarbonization Hub (HRDH) is a “first of its kind” in Canada** and presents an evolution of the more limited Hub concept model into a full, regional decarbonization effort, centred on forms of low or zero carbon and their interconnections.



[2]ArcelorMittal Dofasco (2022). ArcelorMittal breaks ground on first transformational low-carbon emissions steelmaking project. Retrieved from: https://corporate.arcelormittal.com/media/press-releases/arcelormittal-breaks-ground-on-first-transformational-low-carbon-emissions-steelmaking-project

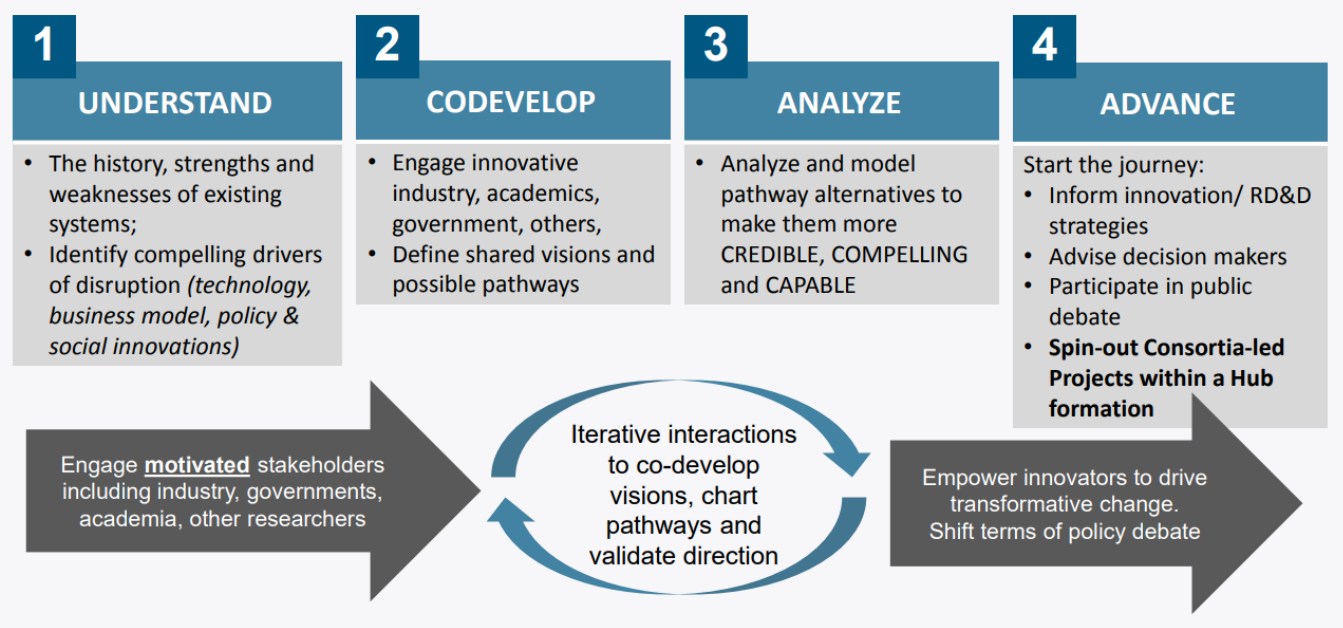
In May 2023 City Council approved a conditional 4-year funding contribution of $240,000 which will be split equally between Economic Development, Office of Climate Change Initiatives, and City Managers Office. This funding represents approximately 7.6% of the total project budget, with major sources of funding anticipated from higher levels of government, along with additional funding from private partners.

The HRDH will include several steering committees and action teams working to deliver on the following targeted outcomes:

* Coordinate and build low/zero carbon energy demand to support sector development;
* Demonstrate leadership (environmental, social, economic) to attract investment and a broad range of economic development;
* Improve relations and knowledge across industries, public organizations, and the community at large;
* Facilitate the industrial sector’s ability to realize net zero carbon emissions by or before 2050.

The City will be partnering with the not-for-profit Transition Accelerator on this important initiative. The Transition Accelerator has a lot of experience developing similar hubs across Canada. Below is an adapted figure from the August 8, 2022 General Issues Committee presentation from The Transition Accelerator:

Figure 1.0 The Transition Accelerator Methodology



(Adapted from Report CM22013/HSC22046/PED22176 – Presentation, General Issues Committee August 8, 2023)

Low-Carbon Transformation #2: Transforming Our Buildings

Better Homes Hamilton's Pilot Program

In May 2023 City Council approved **$1.0 M to provide up to 50 Hamilton home-owners** to access zero-percent interest loans for energy efficiency upgrades. The Better Homes Hamilton (BHH) pilot program is an innovative way to help homeowners access low-barrier loans to make eligible retrofits to their homes.

The following are eligible measures:

a) ***Assessments and Permits:*** Pre and post energy assessments and building permits.

b) ***Building Envelope:*** Air-sealing/draft proofing and insulation (attic, basement and walls).

c) ***Mechanical Systems:*** Air Source Heat Pumps (ASHP), including cold-climate (ccASHP), hybrid ASHP, and mini-splits, as well as supporting smart thermostats/ controllers.

d) ***Supporting Infrastructure:*** Breaker panel upgrades and ductwork only when required to support installation of ASHP.

The BHH pilot program is anticipated to result in numerous benefits both in the City's fight against climate change and to participating homeowners. These benefits include:

⇒ Reducing household GHG emissions on average by 60% or 2.9 tonnes carbon dioxide equivalent (tCO2e) per participating household annually, based on the most common housing archetype in Hamilton.

⇒ **Potential for $1,804 in cumulative savings** based on scenario upgrades occurring in 2023 and savings between 2023 and 2030 from avoided carbon pricing.

⇒ Improvement of indoor air quality and home comfort through reduction of fossil fuel burning and improving building envelope performance.

To learn more about the BHH pilot program see the City's Engage Website: Better Homes Hamilton Program | Engage Hamilton

Sign-up directly for the Pre-Launch List to stay informed here:

BETTER HOMES HAMILTON PRE-LAUNCH LIST

CityHousing Hamilton’s High-Performance Passive House Buildings

As started with 500 MacNab St. N., CityHousing Hamilton (CHH) has established Passive House certification as the goal for all new buildings. Passive House is a certification program that requires buildings to be built to very high energy efficiency through additional insulation, a high degree of air tightness, and efficient mechanical systems. What this means is that CHH projects are future-ready for Hamilton’s 2050 Climate Goals. CHH has four projects currently under construction that will be certified under passive house upon completion:

- 106 Bay St N – 55 units
- 257 King William St – 24 units
- 55 Queenston Rd – 40 units
- 1620 Main St E – 42 units

These projects will be some of the most energy-efficient buildings in all of Hamilton and are entirely electric in terms of heating, cooling, and hot water. This means that they will emit no greenhouse gases at all during typical operation. In addition, many of these **projects will also include solar** generation on site which is expected to **reduce the annual electricity consumption on site by 25-50%.**

CHH’s existing housing stock continues to integrate energy efficiency into all the capital projects where possible. As of the beginning of 2023, the impact of integrating energy efficiency into CHH capital projects has led to a 13.3% reduction in energy use and a **13.9% reduction in GHG emissions** compared to 2017 levels across CHH’s portfolio of over 7000 units.

In 2023, CHH partnered with the Independent Electricity System Operator (IESO) and Enbridge Gas Inc. to implement a portfolio-wide in-suite energy retrofit initiative. This initiative will reduce energy use and greenhouse gas emissions at CityHousing Hamilton’s properties through a combination of smaller measures (e.g., fridge replacements, smart thermostats, LED lighting, insulation, etc.) and will also be providing education and awareness to promote energy-efficient behaviour.

(Render of 55 Queenston Rd., Courtesy of CityHousing Hamilton)

(Render of 106 Bay St. N., Courtesy of CityHousing Hamilton)

Low-Carbon Transformation #3: Changing How We Move

Active and Sustainable Mobility

The City of Hamilton’s Transportation Planning and Parking Division, Planning and Economic Development is supporting Hamilton’s shift to more sustainable travel options.

SMART COMMUTE HAMILTON is a GTHA program that helps individuals and organizations travel efficiently and sustainably. Hamilton’s shared Micro-mobility Program comprises two complementary programs:

Hamilton Bike Share System	**Shared Commercial E-Scooter Pilot Program**
	
2023 STATS: • 854 Bike Share Units • 324,939 km of total travel* • 35 km of bike lanes planned (total 765 km as of 2022) *As of August 2023	**2023 STATS:** • 275 Commercial E-Scooters • 232,414 km of total travel*

With easing of public health pandemic restrictions, the Smart Commute Program has been re-establishing relationships with workplaces across Hamilton. Important programming and events have been completed such as:

- Re-launching in 2022 the Emergency Ride Home allowing members to claim up to $75 to cover expenses;
- Bike Day at City Hall Event and Trip Planning Tutorials;
- Active and Sustainable School Travel Program, including 3 school street events and additional 20 schools engaged in the active travel planning process.

To learn more and participate see the City’s SMART COMMUTE WEBSITE

Hamilton Street Rail (HSR) Decarbonizing Transit

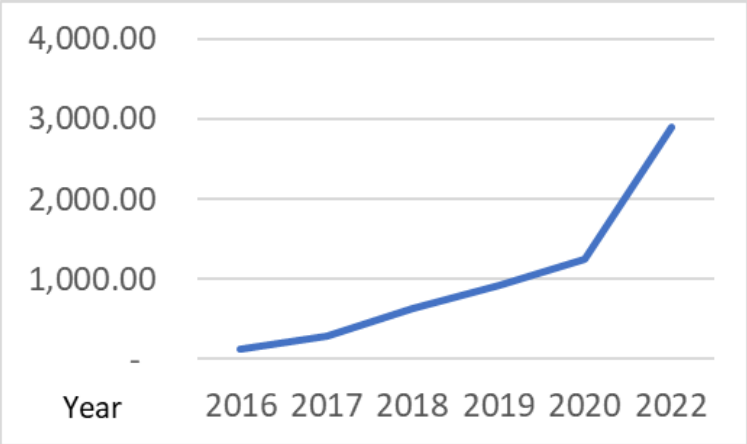
The City of Hamilton has committed to reducing corporate GHG emissions and achieving net zero emissions by 2050.

As of 2022 **64% of HSR buses were powered by Compressed Natural Gas (CNG).** CNG when compared to diesel, generates far less carbon and other harmful emissions. This not only reduces GHG emissions but helps improve local air quality.

The HSR plans to have **100% of its diesel buses phased out by 2026**.

Electric Vehicles on the Rise in Hamilton

*Figure 3.0 Community Electric Vehicles Numbers in Hamilton 2016-2022**



Electric Vehicles (EVs) are on the rise in Hamilton. This is great news as the Transportation Sector in Hamilton represents the second largest source of GHG emissions after Industry.

EVs continue to grow in popularity due their increased range, fuel cost savings, low maintenance schedule and better performance.

To learn more about the benefits of EVs see Plug ‘N Drive’s **ELECTRIC VEHICLE ADVANTAGE**.

City of Hamilton Supporting the EV Revolution

To help support the growing shift from internal combustion engines (ICE) to Battery Electric Vehicles (BEV) the City of Hamilton is undertaking a City-Wide Electric Vehicle Strategy. This important study will help ensure Hamilton is a ‘Electric Ready’ City and will be completed throughout 2024.

The City is also planning to train its own Public Works mechanics as the City works to implement its Green Fleet Strategy by converting to BEV light-duty vehicles.

*Prior to 2021 EV data based on odometer data purchased from Ministry of Transportation. 2022 data can be found directly on MTO website here: https://data.ontario.ca/dataset/electric-vehicles-in-ontario-by-forward-sortation-area

Low-Carbon Transformation #4: Revolutionizing Renewables

System-Based Approach to Decarbonization

The global energy transition away from fossil fuels is the most important thing we can do for our planet and future generations. In order to avoid the most catastrophic impacts of climate change, the world needs to decarbonize (reduce GHG emissions) by 50% by 2030 and achieve net zero by 2050 or sooner.

The City of Hamilton is well-positioned to be a national and global leader in decarbonization. **Hamilton is already one of the fastest, decarbonizing cities in Canada**. From the transition away from the use of coal in steel-making, to deep energy retrofits in our buildings, to shifting to more sustainable forms of transportation, Hamilton has a lot to be proud of. However, in order to accelerate the transition away from fossil fuels and to capitalize on the economic benefits this transition brings, we need a systems-based approach to decarbonization.

That is why the City of Hamilton is looking to partner with the Transition Accelerator, federal and provincial governments, and private partners to develop a Hamilton Regional Decarbonization Hub. This important coalition will work to advance viable pathways, accelerate pilot and cutting-edge technology, and create a prosperous and net zero future.

Low Carbon Building Heating Solutions

Our municipality greatly benefits from the contributions of Hamilton Community Enterprises (HCE), a city-owned entity that provides smart energy and telecommunication solutions to residents, businesses and institutions. HCE is helping accelerate Hamilton’s transition to low carbon building heating through energy conservation, connections to energy sharing networks, and the conversion to fossil free energy sources.

HCE’s Energy Harvesting Initiative is an example what can be accomplished through teamwork to drive deep decarbonization in the buildings sector. A group of leading public, private and non-profit organizations -- including the City of Hamilton and the Hamilton Chamber of Commerce -- is collaborating on a one-of-a-kind study to determine the technical feasibility and commercial viability of a proposed network that would deliver residual thermal energy from local manufacturers to heat all types of buildings in the lower City of Hamilton and beyond.

The **vision is to build Canada’s Thermal Corridor**, a green infrastructure investment that would significantly reduce local GHG emissions associated with space heating while supporting the ongoing modernization of local industry.

Recognizing Gaps - Renewable Energy

Although there is substantial work happening in looking to the future to revolutionize renewables, we must be mindful of the proven existing technology already available that significantly reduces our reliance on fossil fuels, increase good, local-paying jobs, and helps to build more resilient distributed energy systems.

Within Hamilton’s Climate Action Strategy (HCAS), and the technical low-carbon scenario modelled to achieve net zero, there are ambitious targets for both solar and wind, with knowledge that heat pumps (both ground via geothermal and air source) also need to be scaled up signifcantly. The targets for solar and wind renewable energy within the HCAS include:

HCAS Solar PhotoVoltaic Targets

- By 2050 280 MW of ground mount solar PV installed;
- By 2050 installation of rooftop solar PV to power 50% of building electric load;
- By 2050 50% of municipal buildings will add rooftop solar PV
- Starting in 2031, all new homes have 30% annual load coverage by solar PV.

HCAS Wind Targets

- Install 250 MW by 2050 inside or outside the City.

Currently there are limited options or incentives to encourage renewable energy and no requirements to support private development in installing renewable energy onsite. It is also recognized that, although the City’s operations have long-standing co-generation facilities providing renewable natural gas, there is minimal solar power and no current corporate policies to require onsite renewables to power city facilities. It is expected the forthcoming work on a Corporate Net Zero Policy will help to move the corporate renewable energy generation piece forward.

Hamilton’s Academic Advantage

Hamilton is home to world renowned academic institutions and leading research in a variety of sectors. In future reporting years City Staff will endeavour to work more closely with our academic partners to better highlight the important cirriculum, training and re-training programs of what all our insitutions are offering. This will be essential to power the work-force of today and of tomorrow to achieve an economically prosperous and climate resilient future.

Below are brief snap-shots of McMaster University’s and Mohawk College’s current research and programs that City Staff have been a partner in or have recently been made aware of.

McMaster University's Thermal Energy Mapping for the Decarbonization of Building Heating Systems— Will provide data and mapping on local carbon-free sources, providing important implementation tools for advancing recommendations from both HCE's *Energy Harvesting Initiative* and Hamilton's Climate Action Strategy.

The City of Hamilton is a partner, providing in-kind resources and expertise on this important research project that includes the following objectives:

- ◊ Design a mapping framework to categorize and store total distributed energy resources;
- ◊ Develop and standardize data collection measurement methodologies for sources and heating loads;
- ◊ Create spatial and temporal decarbonized heat resource mapping techniques and visualization approaches;
- ◊ Demonstrate data collection and utilization of local thermal energy resource mapping tool capabilities through pilot progams in Hamilton, Halton Hills and Burlington;
- ◊ Identify policy-based programs, and building requirements for thermal distribution technologies to inform and support stakeholders on actionable policies.

To learn more about this initiative and to apply for PhD and MASc graduate student positions, see McMaster University's website here: https://www.eng.mcmaster.ca/phd-masc-graduate-student-positions-available/

Mohawk College's Centre for Climate Change Management and Canadian Colleges for a Resilient Recovery (C2R2) - Supporting the transition to a thriving low-carbon economy the Centre for Climate Change Management (CCCM) is an applied research institute focused on decarbonization solutions.

Mohawk College has a variety of courses and programs in the sectors that will be required to take accelerated climate action. These include but are not limited to:

- Green Building Technologies
- Air Conditioning and Heat Pumps Inspection
- Energy Efficiency in Large Buildings
- Climate Change and Business Adaptation
- Sustainability and Business

Mohawk's CCCM provided the coordinating secretariat functions for the Canadian Colleges for a Resilient Recovery (C2R2) - a group of climate-action leading colleges, cégeps, institutions, and polytechnics from across Canada who have joined forces to educate a post-pandemic workforce to support a new climate-focused economic recovery.

The C2R2 was part of a federal **$45 M fund awarded to generate over 100 micro-credentials and reach 10,000 learners** by March 2024. There are over 25 micro-credentials available for a variety of sectors. Microcredentials are accelerated training programs offered by post-secondary education institutes to help people, at no cost, retrain or upgrade their skills.

To learn more and search for microcredentials available visit QUICKTRAIN CANADA

Low-Carbon Transformation #5: Growing Green

Getting to Our 50,000 Tree Planting Target

Hamilton’s Climate Action Strategy sets an ambitious **50,000 per year community-wide tree planting target.**

Throughout 2023 the City’s Forestry and Horticulture Section in Public Works has ramped up their efforts to get trees into the ground through a variety of activities, such as:

- **Increasing annual planting goal from 12,000 to 20,000 trees per year;**
- Surpassing 2023 Free Tree Giveaway goal of 3,000 to 3,536 trees; and
- Community Tree Planting Events increasing plantings to 1,970 trees in 2022 (compared to previous 3-year average of 941 trees).

As mentioned in the OCCI Priority Area ‘Urban Greening’, the 50,000 tree planting target is a community-wide target and Staff are currently investigating processes and partnerships to scale up community-wide tree planting and improve tracking going into 2024. Tree planting as climate action is something every resident of Hamilton can get involved with. Below are just two examples of great community action!

Community Member Highlight - When it comes to doing our part for the climate and for nature, we have more power than we think. Take Kirkendall neighbourhood resident, Rose Janson, who transformed her 600-square-foot backyard from a lawn into a mini forest. In 2018, drawing on the expertise of local botanist and landscape designer, Paul O’Hara, Rose ripped out the grass in favour of two dozen native tree and shrub species, as well as a variety of pollinator-friendly flowers.

Rose’s urban forest is now serving as a vibrant, life-supporting haven for a wide diversity of birds, pollinators, and other little critters who are seeking shelter and food in what too often is a sea of asphalt. It’s also a peaceful and beautiful space for humans to enjoy. Bravo Rose for helping our local biodiversity to thrive!

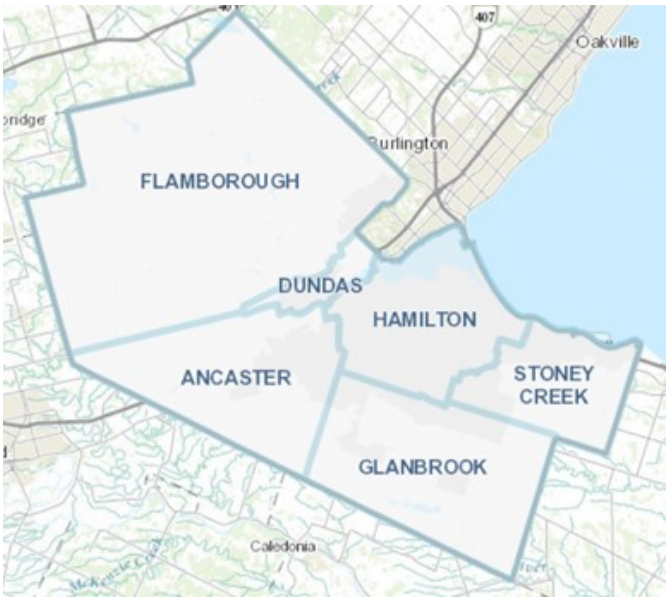
Action 13: Community Climate Action - Connecting the dots between climate change and many pressing, intersecting issues like hunger is what Action 13 (Ward 13--Dundas, Centre Flamborough) is good at. Since 2021, this community-led climate action group has taken the United Nations’ #13 sustainability goal—action on climate change-seriously. Everything is affected by the changing climate, and everyone can be part of the solution. For example, group members encourage food security efforts such as community gardening, setting up seed libraries, and for those with minimal space, container gardening. There are also efforts to grow native plant species which help increase the resiliency of our habitats and ecosystems.

In 2024, we will be reporting regularly on more stories from our climate-conscious community that we hope will inspire even more residents to take action.

Climate Considerations into Planning Policies

Through the hectic and ongoing changes in planning across Ontario, the City of Hamilton has remained committed to incorporating climate considerations into key planning tools and policies. These include elements such as:

- March 2022 – Waterdown Community Node Secondary Plan approved with climate action policy directions.
- Development of a Terms of Reference for an Energy and Environmental Assessment Report underway as part of the City’s response to Bill 109.
- Climate action and community energy considerations will be integrated into future Secondary Planning processes for Urban Boundary Expansion Areas. These processes are being initiated and expected to continue over the next several years.



- As part of Phase 2 of the City’s Municipal Comprehensive Review (MCR) Workplan – Local Context, there is intent to update Urban Hamilton Official Plan to incorporate the policy directions detailed in the Community Energy and Emissions Plan (CEEP). However, the MCR update has no completion date due to staff capacity and competing priorities to review other policy changes.

CLIMATE ACTION HIGHLIGHT – Hamilton's Conservation Authority Saltfleet Wetland Restoration

Hamilton Conservation Authority (HCA), located at the western end of Lake Ontario, is the area's largest environmental management agency, and is dedicated to the conservation and enjoyment of watershed lands and water resources.

HCA Vision: A healthy watershed for everyone.

HCA Mission: To lead the conservation of our watershed and connect people to nature[3].

Saltfleet Conservation Area – is HCA's newest area to explore and boasts nearly **316 acres of unique natural features.**

This amazing initiative is a perfect example of the naturalization and restoration of Hamilton's lands that are being called for in Low-Carbon Transformation #5: Growing Green and in Resilient Theme #3: Natural Environment, Agriculture and Water. This restoration project not only provides natural habitat for highly significant species, it also provides essential downstream flood risk reduction and erosion risk mitigation.

Once fully completed, the four proposed wetlands combined with woodlots and marshy fields, will provide the following benefits:

- Provide a **home to 50 species of breeding birds**, including a breeding ground for the Sedge Wren, a highly significant species of wren;
- Provide the ability to **hold the equivalent of 236 Olympic-size swimming pools** to prevent peak stormwater flows that can cause flooding and erosion downstream in lower Stoney Creek;

To learn more about this amazing restoration project, visit Hamilton Conservation Authorities' **SALTFLEET CONSERVATION AREA**

[3]Hamilton Conservation Authority (2023). About Us. Retrieved from: https://conservationhamilton.ca/about-us/

Resilient Theme #1: Built Environment

Green Development Standards for Low-Impact Development

Green Development Standards (GDS) are measures that can guide, incentivize or mandate developers to build in more sustainable, climate resilient ways. Depending on the measures required, these standards can serve to reduce a property’s carbon footprint through enhanced energy efficiency measures and, to facilitate a location’s ability to better weather the extreme storms that climate change is bringing. This is through enhanced on-site stormwater management capacity provided by ‘low impact development’ (LID) measures.

Hamilton’s Climate Change Impact Adaptation Plan (CCIAP) calls for the incorporation of low impact development features and green infrastructure into new development and redevelopment projects. Work is now well underway to create Low Impact Development Guidelines for private developments in the City of Hamilton. These guidelines will serve an important role in helping to facilitate better management of stormwater on individual properties through features like bioswales, and by planting trees and other ‘green infrastructure’ to slow down storm flows. **Hamilton’s ‘Draft Green Standards and Guidelines for Low Impact Development’** have now been drafted to specifically guide private development applications. The final version of these guidelines is **expected in Q4 of 2023.**

Stormwater Funding Fee Review


(Simple downspout disconnect with flow to lawn/garden)

Many Ontario municipalities are updating their stormwater funding frameworks in order to more fairly address who pays for stormwater infrastructure and how much. These efforts also include ensuring that climate resilience is considered in program design, in acknowledgement of the fact that the climate crisis is imposing heavier burdens on municipalities where stormwater management is concerned. This approach supports the CCIAP recommendation that the city develop guidelines and incentives to homeowners and landlords to improve the resilience of residential buildings to climate-related risks through retrofits and upgrades.

The City of Hamilton initiated a stormwater funding review in late 2022 when draft guiding principles for the review were presented to General Issues Committee (Report FCS22043(a)). Part of the motivator for this review is the requirement for municipal compliance with Ontario Regulation 588/17—Asset Management Planning for municipal infrastructure.

This requires municipalities to establish sustainable funding mechanisms for key assets like stormwater management infrastructure. Final review guidelines were presented to GIC on June 23, 2023 (Report FCS22043(b)).

The City is currently working on a timeline that will see a new stormwater fee in place by January 1, 2025. Between now and then, public consultation will be undertaken to share more details about the new fee system. This includes sharing proposed approaches to offering incentives and/or credits to support on-property stormwater management measures as an integral part of the fee framework

Improved Winter Side-Walk Clearing

Efficient and extensive sidewalk snow clearing is a mobility justice issue. With the increased possibility of more extreme weather events, including during the winter months, sidewalk clearing is becoming even more important to facilitate peoples’ ability to move on foot or via public transit.

The CCIAP recognizes this need with an action calling for improvements to be made to winter travel conditions through further expansion to sidewalk clearing. Progress continues on this front at the City of Hamilton, as winter sidewalk clearing efforts expand:

- In November 2022, the Public Works Transportation Operations Division, Public Works **increased the kilometers of sidewalks** maintained during the winter by more than **2x from 397km to 866km.**
- All sidewalks are now routinely cleared along Priority 1 & 2A roadways where transit operates.
- A Recommendation Report is going to Public Works Committee in October 2023 to propose **additional enhancements to sidewalk snow clearing**, including sidewalk snow clearing around schools and MLE enforcement of sidewalk snow clearing requirements.

Resilient Theme #2: People and Health

Hamilton Public Health Services – Extreme Heat and Climate Action

The Healthy Environments Division of the City of Hamilton’s Public Health Services is actively addressing a number of key adaptation actions found under Resilient Theme #2: People & Health – through the development of a Heat Response Strategy. That Strategy will be going forward to the Public Health Committee in Q1 of 2024.

The City also has in place a **Heat Response Plan** that was recently approved in 2023 and will be updated annually. This Plan sets out what actions the City will take during Heat Warnings and Extended Heat Warning events, including when the Emergency Operations Centre will be activated.

Future updates of the Heat Response Plan will be designed to support the following Climate Change Impact Adaptation Plan (CCIAP) actions:

ACTION 3.1: The development and implementation of a response program for vulnerable populations to protect residents from climate related risks.

ACTION 3.3: Exploring opportunities to expand current cooling & warming centre programming and interventions.

ACTION 4.3: Establishment of buddy systems/help-your-neighbour programs to implement during extreme weather events.

Staff from this team also administer Hamilton’s Extreme Heat Working Group, a group made up of city staff from across a number of relevant divisions, including the Office of Climate Change Initiatives (OCCI), as well as a growing number of community stakeholders from social service agencies and environmental and social advocacy organizations. This collective is actively engaged in important conversations about what more needs to be done and how, collectively, our community can step up and ensure that all possible measures are in place to ensure that people are supported when extreme conditions occur.

The group has lots of work still to do, but this collaborative and collective approach to a challenging issue is a positive pathway forward. Some amazing brainstorming happens around this stakeholder table. One wonderful example of progress in the right direction is the recent commitment from Hamilton Public Library to open the Central Library as a cooling centre when a heat alert coincides with a statutory holiday. This was done this past Labour Day – and library staff have confirmed that community members made use of the opportunity to cool down in this space.

Beat the Heat: ACORN’s campaign for a maximum heat by-law - Summer is now considered the “danger season,” due to life-threatening heat caused by an increasingly warming climate. Association of Community Organizations for Reform Now (ACORN), a tenant advocacy group with chapters in the Hamilton area, is working to prevent heat-related illnesses and death by mobilizing around the right to cooling in private and public spaces. As part of its Beat the Heat campaign, ACORN is pressing the City of Hamilton to implement a maximum heat bylaw for rental housing; support retrofits at older rental buildings; expand measures for people to cool off when in public; and track heat-related illness and death.

The City of Hamilton is listening to these community concerns and currently working on several of these including the development of a heat by-law.

Resilient Theme #3: Natural Environment, Agriculture and Water

Expanding the Urban Forest Canopy

Enhancing and expanding natural areas and taking action to expand the urban forest canopy cover, especially in neighbourhoods with low tree canopy cover is key to facilitating equitable climate adaptation through greening. Hamilton’s Climate Action Strategy speaks to the need for more greening both in the climate mitigation and the climate adaptation plans. The Climate Change Impact Adaptation Plan calls for the City to work with community partners and Hamilton residents to tackle urban heat islands and create thriving natural spaces by planting more trees.

Tree planting efforts are already accelerating in 2023:

- The 2023 **Free Tree Giveaway resulted in over 3,500 trees being** distributed to residents for planting on private property – an important effort as 60% of the urban forest canopy cover is provided by trees growing on private property. Plans are already underway to give away at least 5,000 trees in 2024.
- The 2023 goal to see 1800 trees planted in public spaces through community tree planting events was more than doubled with over 3,600 trees planted using volunteer power. The goal is 5,000 for 2024.

Want to see more trees planted in your neighbourhood’s public spaces?

Request a community tree planting event

Recognizing Gaps – Protecting Agricultural Lands & Growing More Food Locally

While progress is being made on many fronts, it must be acknowledged that some adaptation efforts have not yet been initiated to any significant degree.. Within the Natural Environment, Agriculture and Water Theme, there is a need to focus attention on agriculture and climate resilience, as well as provide more education and associated supports to facilitate the broader community’s ability to grow food locally.

Finally, and closely related, is the need to focus attention on food waste and ramped up efforts to divert organic waste from landfill. On this latter opportunity, some important work was undertaken this year by students enrolled in a CityLab winter term course, who helped the City’s Office of Climate Change Initiatives by undertaking research around the potential for realizing a more circular food economy. It also must be noted that delaying efforts to gather more organic waste also means delaying the opportunity to tap into more resources for the local generation of renewable natural gas.

Agriculture in southern Ontario is facing growing and unprecedented risks from climate impacts. The provincial Ministry of Environment, Conservation and Parks in its recent report entitled ‘Ontario Provincial Climate Change Impact Assessment’ makes it clear that southern Ontario field crops, and fruit and vegetable farming are already facing high risks that are projected to become very high risks by the 2080s with increasing climate impacts. Farmers need to be prepared.

Resilient Theme #4: Energy and Economy

Planning for Energy Resilience

Hamilton’s Climate Change Impact Adaptation Plan (CCIAP) recognizes the critical need to consider the resilience of local energy generation as we move into a more climate uncertain future. The CCIAP calls for vulnerability and risk assessments to be undertaken, and for opportunities to be identified to increase local energy generation, in order to increase reliability – something that dovetails with the mitigation plan’s call for the identification of suitable sites for renewable energy generation across the city.

Conversations have begun in 2023 around existing energy systems and pathways to decarbonization. Staff from several city departments (Planning and Economic Development (PED) – Planning,

Office of Climate Change Initiatives, Public Works (PW) – Corporate Facilities and Energy Management), along with representatives from Hydro One and Alectra, are currently participating in consultations being hosted/facilitated by the Independent Energy Service Operator (IESO) regarding infrastructure resilience and planning in the southwestern regional area that includes the City of Hamilton.

However, more needs to be done locally to facilitate the transition to a decarbonized, more climate resilient energy system for Hamilton. Efforts must include energy conservation, along with more local renewable energy generation, to name two key elements. Staff from the Office of Climate Change Initiatives also participate in organizations, including the Clean Air Partnership, Bay Area Climate Change Council, and The Atmospheric Fund, that advocate to the IESO and other provincial agencies on these matters. Leaders from the City’s Energy Management Section also participate in various industry working groups that discuss provincial energy demand and supply and explore best practices and partnerships around this topic.

Corporate Facilities Low-Carbon Review

Adapting to a climate uncertain future requires decarbonization of energy sources as mitigation, but it also requires these shifts to build resilience – especially in extreme, emergency contexts. The CCIAP calls for the City to establish low-carbon back-up power systems in all City-owned facilities so these locations can serve as community hubs during emergencies. The CCIAP calls for the City to encourage others in the community to make similar shifts for emergency energy supplies.

The City’s Corporate Facilities & Energy Management (CFEM) has initiated a review of multiple generators within its portfolio and is conducting a study to assess opportunities to switch to low carbon fuel, including appropriate sizing of generators for enhanced resiliency.

Conclusion

Hamilton’s Climate Action Strategy (HCAS) provides an ambitious and comprehensive approach for the City, and broader community, to collectively work together to address the Climate Crisis. Significant climate mitigation and adaptation actions need to be thought of and worked on concurrently to maximize synergies and reduce unintended consequences.

This 2023 Annual Update Report provided progress within each major Low-Carbon Transformations detailed in ‘ReCharge Hamilton – Our Community Energy and Emissions Plan’ and within each major Resilient Theme detailed in ‘Hamilton’s Climate Change Impact Adaptation Plan. This shows that substantial progress has been made on several of the major transformations and themes, key actions, as well as additional supporting actions.

This update also highlights the areas where there has been little progress or continues to be a struggle to move those actions forward. Those included actions to help support our local agricultural partners, and working to improve food insecurity and local urban farming. It also included the limited incentives/policies the City of Hamilton has in terms of accelerating the much-needed renewable energy generation to reduce our reliance on fossil fuels and improve electrical grid resiliency.

Moving into 2024 the Office of Climate Change Initiatives (OCCI) will continue the momentum on launching and completing existing approved programs like the Better Homes Hamilton pilot program, as well as forming the Community Climate Change Advisory Committee, and its associated workplan for 2024 and beyond. The OCCI will also focus on developing the needed policies, procedures and education to coordinate and accelerate climate action. These important initiatives will emerge throughout 2024 include, but not be limited to:

- The development of a Carbon Budgeting Framework for the City of Hamilton.
- Creation of a more refined framework to guide the funding of both city- and community-led initiatives through Hamilton’s Climate Change Reserve.
- Finalization and implementation of the OCCI’s Enhanced Climate Change Communications/Engagement Strategy including both internal and external dashboards for better and more transparent climate change action tracking and reporting.
- A Preliminary Report Back on the progress of the Better Homes Hamilton pilot program.

Hamilton’s Climate Action Strategy is a community-wide plan; everyone needs to take action to the best of their ability. In the climate emergency, every source of GHG emissions matter as we all continue to work collectively to realize community change that will facilitate a transformation to a climate resilient, inclusive future for every Hamiltonian.