

Municipal Scan of Canadian Climate Change Plans

A review of nine Canadian municipalities was undertaken to assess how municipalities across the country are developing climate change master plans. These municipalities were selected because they represent a mix of mid to large Canadian cities. Plans from the following municipalities were reviewed:

Vancouver	Edmonton	Calgary
Toronto	Montreal	Halifax
Hamilton	Guelph	Kitchener/Waterloo Region

Plans were reviewed for:

- Vision/goals/principles
- Targets
- Scope (overarching plan, mitigation, adaptation)
- How the plan is organized (buildings, transportation, etc.)
- Implementation (priorities, policies, projects, cost, staff resourcing)
- Monitoring and evaluation (indicators)
- Stakeholder engagement/inter-organizational coordination
- Public participation

An overview of key findings related to climate emergency declarations, climate change mitigation and adaptation plans, emissions targets, and public consultation is provided below.

1. Climate Declarations

Seven of nine municipalities have recently declared a climate emergency while Guelph acknowledged a climate crisis. Calgary has not declared. All municipalities with climate declarations have directed staff to put in place actions that support the declaration; many have directed staff to review and update climate change plans and targets. Vancouver, Edmonton, Toronto, Hamilton, and Halifax are currently updating their actions and targets to align/incorporate with the 1.5°C global warming target set by the IPCC. Guelph is planning an upcoming report in reference to the 1.5°C target. Kitchener's council recognized the IPCC target and directed staff to improve targets where possible. Montreal's targets are not currently based on the 1.5°C scenario, however Montreal has signed the Edmonton Declaration that calls for immediate action in recognition of the IPCC target.

Notable climate emergency declaration responses include:

- Vancouver released a plan in response to the climate emergency in April, 2019. It has 6 big moves and 53 actions.
- Toronto endorsed revising their GHG reduction target from 80% to 100% in response to the climate emergency.
- Guelph plans to incorporate a section titled Climate Change Implications in all future municipal reports. This will identify how the recommendations will contribute to meeting the objectives of the Community Energy Initiative and/or Corporate Energy Plan.
- Halifax will be coming forward in early 2020 with *HalifACT 2050: Acting on Climate Together* which addresses both climate mitigation and adaptation.

Notable municipal climate change plans include:

- Calgary, Hamilton, and Halifax have integrated climate change plans which include both mitigation and adaptation efforts.
- The other six municipalities have separate mitigation and adaptation or resilience plans.
- In general, the mitigation plans started earlier (in the early 2000s) and adaptation plans are newer or under development.
- An integral component of all the plans is working with multi-sectoral partners to embed climate mitigation, adaptation, and resilience into core corporate planning processes such as land use and asset management plans.
- Several municipalities worked with broader regional partners (i.e. greater metro areas and/or neighbouring municipalities) to align regional efforts in relation to community plans and climate projection work.
- All plans leverage, consider, build upon, or are integrated into other municipal plans. This includes overall land use and asset management plans as well as sector-based plans such as green development, green fleet, stormwater management, flood risk, urban forestry, agriculture, and heat mitigation plans.
- All cities acknowledge the need for additional support from other levels of government and the community in order to reach their climate goals.
- All cities except Calgary are signatories to the Global Covenant of Mayors on Climate Change.
- Several cities include an equity lens to examine how climate action impacts vulnerable populations and identifies ways to best support affected communities (considering both mitigation and adaptation).

2. Targets

Table 1 compares the proposed targets with other jurisdictions in Canada. This table references officially published targets. Many municipalities have directed to staff to update or review plans to align with the IPCC 1.5°C recommendation. Direct comparison between municipalities is challenging as baseline years vary. It is also worth noting regional groups may have different targets than the individual municipalities that make up these regions.

Table 1: GHG Reduction Targets in Other Jurisdictions

Jurisdiction	Community Targets	Corporate Targets
Canada	<ul style="list-style-type: none"> • 30% below 2005 by 2030¹ 	
Ontario	<ul style="list-style-type: none"> • 30% below 2005 by 2030² 	
Vancouver	<ul style="list-style-type: none"> • 33% below 2007 levels by 2020 • 80% by 2050, now stated as carbon neutral by 2050 in the latest budget 	<ul style="list-style-type: none"> • 50% below 2007 levels by 2020
Calgary	<ul style="list-style-type: none"> • 20% below 2005 levels by 2020 • 50% by 2036 • 80% by 2050 	<ul style="list-style-type: none"> • 20% below 2005 levels by 2020 • 80% by 2050
Edmonton	<ul style="list-style-type: none"> • 35% below 2005 levels by 2035 • Reduce per capita energy consumption 25% by 2035 	<ul style="list-style-type: none"> • 50% below 2005 levels by 2030
Montreal	<ul style="list-style-type: none"> • 30% below 1990 levels by 2030 • carbon neutral by 2050 	<ul style="list-style-type: none"> • 30% below 2002 levels by 2020 • 80% by 2015
Toronto	<ul style="list-style-type: none"> • 30% below 1990 levels by 2020 • 65% by 2030 • 80% by 2050 	<ul style="list-style-type: none"> • All new City-owned buildings near-zero GHG emissions by 2026 • All existing City-owned buildings 40% more energy efficient by 2040

¹ This is Canada's Commitment to the Paris Agreement aligning with 2°C scenario

² This aligns Ontario with Canada's 2030 target under the Paris Agreement

		<ul style="list-style-type: none"> • 24 MW of renewable energy on City-owned facilities and lands by 2020 • 45% of City-owned vehicles low carbon by 2030 • 100% of City-owned facilities zero waste status by 2030 • 1.5 million GJ of energy generated from biogas by 2030
Kitchener/ Waterloo Region	<ul style="list-style-type: none"> • 6% below 2010 by 2020, • 80% by 2050 	<ul style="list-style-type: none"> • 8% below 2016 by 2026 (equivalent. to 30% below 2010)
Guelph	<ul style="list-style-type: none"> • Net zero carbon by 2050 	
Hamilton	<ul style="list-style-type: none"> • 50% below 2005 by 2030 • 80% by 2050 	
Halifax	<ul style="list-style-type: none"> • Plan goes to Council March 2020. 	<ul style="list-style-type: none"> • 30% below 2008 by 2020

3. Mitigation Planning

All municipalities reviewed have some form of a mitigation plan. These mitigation plans have been informed by baseline GHG emission analysis. Five municipalities, Calgary, Edmonton, Toronto, Guelph, and Halifax have or are in the process of completing GHG emission projection modeling. Of these, all but Calgary have used CityInSight modeling software and the Global GHG Protocol for Cities. The source of GHG emissions in all large Canadian cities are similar, with the bulk coming from transportation and buildings.

Some differences between municipalities' climate mitigation plans include:

- There are key differences with respect to energy systems that inform each municipality's approach to mitigation measures, which include primary energy sources (hydro, coal, natural gas), availability (abundance vs. shortage), and ownership of utilities (provincial municipal or private). For example, Quebec's provincially-owned, amply-supplied, and clean electrical grid provides a different context than Alberta's privatized, high-emission electrical grid. This is important context to consider when comparing plans and targets.
- Legislative context varies substantially across municipalities. Vancouver and Toronto have their own acts providing different legislative authority than the

municipal acts. This, for example, has enabled Vancouver to have its own building code. Calgary and Edmonton have municipal charters that can enable modifications to the Alberta Municipal Act.

- Most mitigation plans based on modeling call for similar scales of actions such as decarbonizing all transportation and retrofitting nearly all existing building to more stringent efficiency standards.

Some actions stemming from mitigation plans include:

- Toronto has developed several programs around improving the efficiency of buildings. The Toronto Green Standard guides new development and advances in both mitigation and adaptation. The Home Energy Loan Program provides homeowners with low interest loans of up to \$75,000 to cover home energy improvements.
- Halifax has developed a Solar City program to support property owners in installing solar energy technologies through a property improvement charge mechanism.
- In 2010, Vancouver set out to reduce landfilled solid waste by 50%. By 2017, they had achieved a 28% reduction.
- Edmonton has developed a website to engage with the public with a tag line of “Listen up, Edmonton, let’s change something before climate changes everything.”
- A community-wide carbon budget has been adopted by Edmonton as an efficient way to guide financial and regulatory decisions for emissions reductions.
- Carbon sequestration has generally been excluded from the scope of mitigation plans to date. Toronto and Vancouver are assessing the impact of carbon-negative building materials.

4. Resiliency and Adaptation Planning

While climate risks vary across the country, most cities have developed plans to build the resilience of their communities. They are preparing their infrastructure, economies, and natural environments for wetter futures with more heat waves and severe weather event risks. For some cities, rising sea level is an additional concern. Although many municipalities across Canada have only recently focused on climate adaptation, several leading municipalities have been working for years to understand the impacts of a changing climate and developing resiliency plans to reduce risks.

Notable municipal climate adaptation and resiliency plans include:

- Vancouver, Calgary, Toronto and Montreal have developed overarching Resilience Strategies as part of the global 100 Resilient City project to address a

comprehensive range of social, economic, technological, and environmental shocks and stressors. Climate change figures prominently in these strategies and is supported by separate climate adaptation action plans as well as sector-specific plans that address climate change (i.e. stormwater, forests, flooding, health etc.).

- Vancouver released its first Climate Adaptation Plan in 2012 and recently updated it in 2018.
- Toronto's first adaptation strategy was developed in 2008, and they introduced a Climate Risk Assessment Tool in 2012 and a Climate Risk Management Policy in 2014.
- Halifax recognizes that, as a coastal community, adaptation and resiliency needs significant investment to protect residents from rising sea levels and increased storms. Halifax has had a Climate Change Risk Management Strategy since 2007 and has developed sector specific adaptation tools and plans for hazards such as sea level rise, wildfire, forests and stormwater. This plan will be updated as part of HalifACT 2050.

5. Unprecedented action and investment

All municipalities reviewed highlight the need for public and private action and investment for both mitigation and adaption. All municipalities are examining financing mechanisms to adequately fund the actions needed to meet climate targets. In terms of investment in adaptation, a 2019 report by the Federation of Canadian Municipalities states that, on average, an annual investment of 0.26% of GDP is needed to invest in measures at a municipal level to help communities adapt to the changing climate and to reduce risks from extreme weather³.

Notable municipal investments in climate initiatives include:

- The City of Vancouver estimated a municipal investment of \$50 to \$100 million annually from 2016 to 2020 for their Greenest City Plan, focused primarily on mitigation. The plan identifies the need for support from the region for a climate fund and from the province for mass transit and other infrastructure projects. The founding document of the current action plan recognizes the fiscal imbalance between higher levels of government and municipalities.

³ Evaluating the quality of municipal climate change plans in Canada, Climatic Change, January 1, 2019. Accessed November 29, 2019. <https://doi.org/10.1007/s10584-018-2312-1>

- Toronto estimates \$10 to \$12 billion in annual investment over the next 30 years. Toronto's new Green Will initiative, championed by the Mayor, seeks to accelerate greenhouse gas emissions reductions by improving the energy efficiency of public and private buildings across Toronto.
- Toronto also recognizes that investment in climate action presents opportunities for job growth and economic development.
- Guelph has launched a community social enterprise and an Energy Managers Group of the largest employers to implement their mitigation plan. Guelph has found that, by taking a long-term outlook, the zero carbon "pathway can be accomplished without imposing any net cost to taxpayers. The pathway is a significant opportunity for energy consumers, taxpayers, and investors."
- Montreal recognizes that their efforts to date have been insufficient and that additional resources as well as supportive policy from other levels of government are needed to achieve their targets.

6. Support from other levels of Government

No one entity will be able to achieve climate goals on their own. The problems and solutions straddle all levels of jurisdictional control and influence. There continue to be gaps particularly in relation to funding opportunities, and legislative update.

Some examples of provincial and federal programs available include:

- The Federal government has put in place a \$2 billion Low Carbon Economy Fund to support provinces, territories, municipalities, businesses, not-for-profit organizations, and indigenous communities by funding projects that reduce carbon pollution, create jobs, reduce energy usage, and further climate initiatives.
- The Federal government enforces carbon pollution pricing system.
- The Federation of Canadian Municipalities provides funding support for nearly any type of climate mitigation or adaptation plan or project.
- Quebec updated the *Hydro-Québec Act* to allow the government to set the rates for a public, fast-charging service for electric vehicles. This bill aims to help offset the high cost and the lack of profitability of fast-charging stations for electric vehicles while ensuring the rapid deployment and durability of such a public service.
- The building code is the best tool available to improve the energy performance of future buildings. The BC Step Code has led the way in this area, developing a code which clearly defined path and enables municipalities to encourage, incentivize,

and require increasing levels of energy performance. This has informed the next model National Energy Code for Buildings.

7. Carbon budgeting and pricing

There is widespread recognition that a price on carbon is key for strengthening the economic case for achieving a low carbon scenario. As such, many cities are supporting carbon pricing as an enabling factor to achieving the City's climate goals. A social cost of carbon is another tool that is applied to evaluate the benefit to society as a whole for emissions reduction investments.

Municipalities budgeting and pricing carbon include:

- Vancouver currently uses a \$150 t/CO₂e value as the social cost of carbon, which has pushed a significant number of additional projects to actualization.
- Edmonton has implemented a community-wide carbon budget as a tool to guide financial and regulatory decision making and standardized measurement and reporting.
- Vancouver, Toronto, and Kitchener have publicly committed to reviewing corporate carbon budgets in response to the climate emergency declaration.

8. Approach to Developing the Plans

All municipalities have engaged with staff, the public, community organizations, industry, businesses, service providers, and subject matter experts to develop their respective plans. Each approach and engagement process was unique to the municipality.

Engagement activities of municipalities in climate planning include:

- Vancouver's action plan framework in 2009 was led by a team co-chaired by the mayor and an environmental lawyer. It produced two successive action plans led by 24 advisory committees and organized around the plan's 10 goals.
- Edmonton's work is led by an Energy Transition Advisory Committee. In 2012, 60 residents met and reviewed the initial energy transition report. Edmonton's Climate Resiliency Strategy was based on 9 discussion papers and a series of technical and public sessions.
- Toronto developed their energy transition strategy in partnership with 32 public representatives. Over the years, numerous in-person and online engagement strategies have been implemented as part of the program development and implementation. A randomly-selected, 30-person reference panel has been formed to make recommendations on climate actions and priorities.

- Toronto's Resilience Strategy was also developed with extensive public and stakeholder consultation including an initial workshop with indigenous communities. More than 8,000 people participated in the consultations over two years. Recognizing that building a resilient city requires investments by all residents, businesses, and organizations, the action plan lists key partnerships for each action. For example, the Flood Resilient Toronto Charter is a collaboration with 17 internal and external groups.
- Guelph incorporated a not-for-profit enterprise (Our Energy Guelph) as the governance structure for the climate mitigation efforts. The City of Guelph is the primary partner of Our Energy Guelph. Guelph utilized a smart phone app to encourage private action.
- Kitchener references their regional climate change action plan for community goals and targets. The plan was developed through a broad engagement including a community volunteer stakeholder group.
- Montreal used public consultations as well as a mobile app data to inform their transportation actions.
- Public consultation for HalifACT 2050 includes online mapping of hazards through the webpage, Shape Your City.