Schedule A to Staff Report 2021-0121

Proposed

RESILIENT CALEDON

Community Climate Change Action Plan

TOWN OF CALEDON

SSG

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music & dance
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Dental
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HISTORICAL TOWN OF BOLTON
THE Glitter PARLOUR
CLOTHING BOUTIQUE & COSTUME DESIGN
25
SEBASTIAN
ir salon
857-8077

ACKNOWLEDGEMENTS

LAND ACKNOWLEDGEMENT

We acknowledge that we are on the traditional and ancestral territory of many Nations and Indigenous peoples including the A-nish-in-abek (Ojibway), Huron-Wendat, Haud-en-osa-nee (Iroquois), Métis, and most recently, the territory of the Mississauga's of the New Credit First Nation. These lands, which form the Town of Caledon, are part of the Treaty Lands and Territory of the Mississauga's of the New Credit.

We recognize and respect the historic connection of First Peoples to this place, and their ancestors' stewardship of it for thousands of years before us. We recognize the contributions of Métis, Inuit, and other Indigenous peoples in shaping and strengthening our communities, as well as our province and country as a whole.

We are grateful for the opportunity to live and work on this land, and give our respect to its first inhabitants. We would like to express our commitment to making the promise and challenge of Truth and Reconciliation real, and to undertaking meaningful collaboration to do so.

CONTRIBUTORS TO THE PLAN

Many people and organizations contributed to the development of the Resilient Caledon Community Climate Change Action Plan including Town of Caledon staff, Council, and Senior Leadership Team. Without their support, this plan would not have been possible.

A number of stakeholders lent their expertise to the plan, including the Region of Peel, our conservation authority partners at Credit Valley Conservation and the Toronto and Region Conservation Authority, local school boards, utilities, agriculture and community organizations, and developers. We also want to thank all of the residents who spoke with Town staff at community centres, completed the online survey, and hosted a do-it-yourself climate change workshop.

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A NOTE ON COVID-19

The COVID-19 pandemic has radically changed the way that we currently live our lives. Humans have been burning fewer fossil fuels from, for example, driving and flying less, as they take fewer trips locally and internationally. The decline in emissions resulting from the current COVID-19 pandemic, however, is estimated to lie between just 4% (low estimate) to 7% (high estimate) in 2020 over 2019 levels.[1] Much work remains to be done to transition to a zero-carbon society, as emissions reductions need to be sustained at about 7.6% per year over the next 10 years to meet 2030 interim targets, according to estimates in a 2020 study published in Nature and Climate Change. The pandemic has also had a number of negative environmental consequences, including an increase in the use of single-use plastics and disposable materials, which poses challenges for waste management. Many governments (including the Canadian government), are strategizing how economic recovery packages can be used to "build back better" and support an equitable transition to a zero-carbon society. Municipalities are also looking at a green recovery and supporting initiatives such as increasing active transportation opportunities and access to public green space.

[1] Le Quéré, C., Jackson, R.B., Jones, M.W. et al. Temporary reduction in daily global CO2 GHG emissions during the COVID-19 forced confinement. Nat. Clim. Chang. (2020). https://doi.org/10.1038/s41558-020-0797-x

Abbreviations

A	Adaptation
AMP	Asset Management Plan
BAP	Business-as-Planned
CA	Conservation Authority
CCCAP	Community Climate Change Action Plan
CIP	Community Improvement Plans
CVC	Credit Valley Conservation
EV	Electric vehicle
GCOM	Global Covenant of Mayors for Climate and Energy
GDS	Green Development Standards
GHG	Greenhouse gas
GTA	Greater Toronto Area
ha	Hectares
IPCC	Intergovernmental Panel on Climate Change
ktCO2e	Kilotonnes of carbon dioxide equivalent
kW	Kilowatt
kWh	Kilowatt hour
LC	Low-Carbon
LIC	Local Improvement Charge
LID	Low-impact development
M	Mitigation
m^3	Cubic metre
MtCO2e	Megatonnes of carbon dioxide equivalent
MURB	Multi-unit residential building
MW	Megawatt
PACE	Property Assessed Clean Energy
PCCP	Peel Climate Change Partnership
PV	Photovoltaics
RVA	Risk and Vulnerability Assessment
SABE	Settlement Area Boundary Expansion
tCO2e	Metric tonnes of carbon dioxide equivalent
TMP	Transportation Master Plan
TRCA	Toronto and Region Conservation Authority

List of Figures + Tables

Mayor's Message

Mayor
Allan Thompson

There is no doubt that Caledon is feeling the impacts of climate change first-hand. In March 2019, the Bolton ice jam saw more than 200 people being forced to evacuate their homes due to flooding. Every year we're seeing more storms, higher temperatures and changes to the flora and fauna around us.

The Town acknowledges the challenge of climate change and we recognize the threat that it poses to our residents, businesses, farmers and the Town's own operations. That's why earlier this year Council unanimously declared a climate change emergency and committed to taking serious action on climate change, including adopting a target to reduce greenhouse gas emissions to net zero by 2050.

On behalf of the Town of Caledon I'm very pleased to present the Resilient Caledon Community Climate Change Action Plan, which provides a roadmap for the entire community to significantly reduce our energy use and emissions, and better prepare for the impacts of climate change.

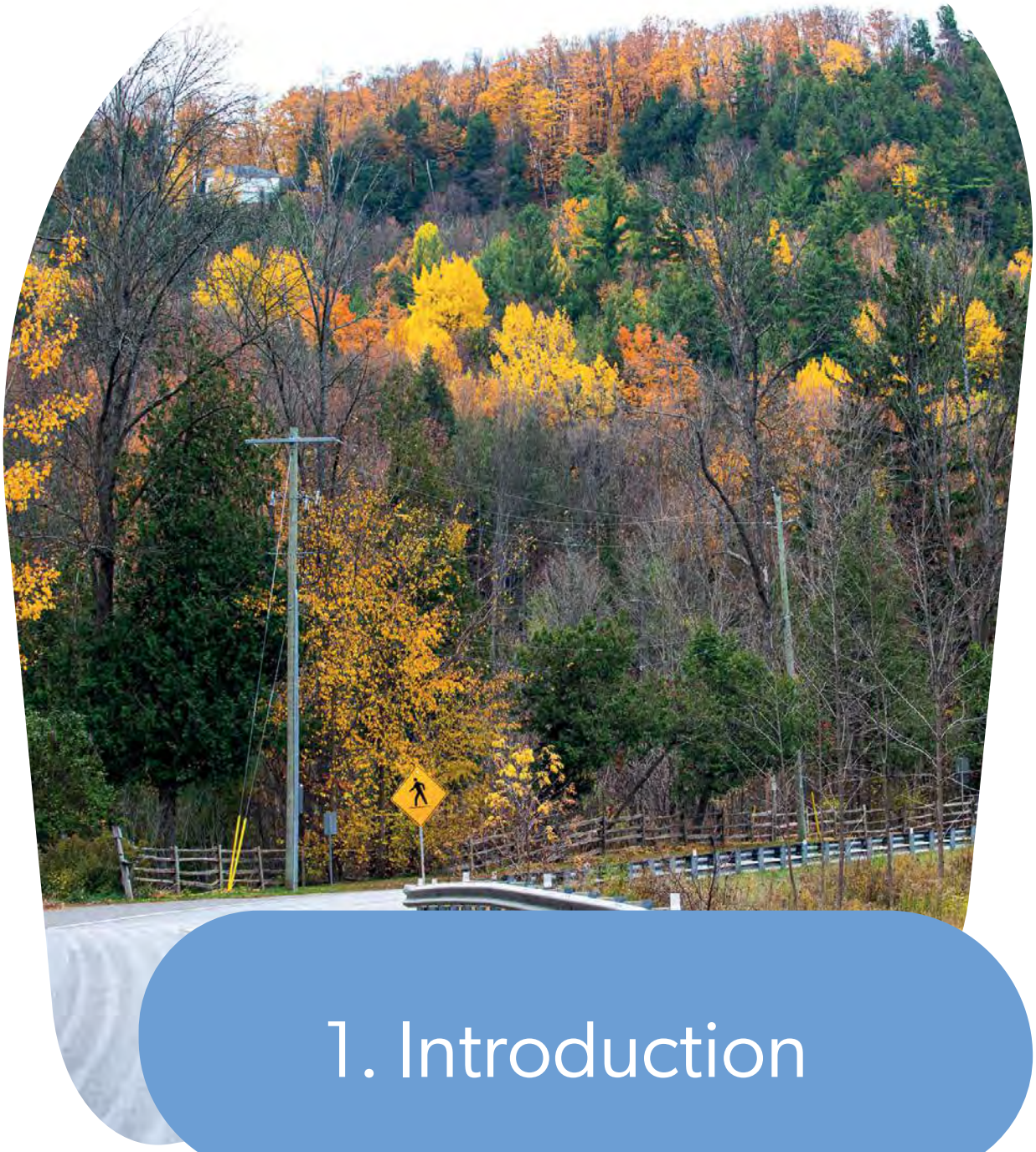
This Plan builds on Caledon's achievements as an environmental leader, including being one of only 30 municipalities across Canada to complete all five milestones of the Partners for Climate Protection Program, pioneering a Green Development Program to encourage commercial developers to construct energy efficient buildings, installing 22 publicly available electric vehicle charging stations, running the Green Fund and Tree Seedling programs to help the community take environmental action in their own neighbourhoods, and leading by example with energy and emissions reductions in our own Town facilities and operations.

But the challenges are becoming greater. Warming around the world and especially in Canada is increasing every year, leading to more frequent and severe impacts. These impacts are most often felt locally – as a municipality, we can't afford to sit back and wait for others to act. We also know that Caledon is a growing community, with the population expected to double over the next 20 years. How we accommodate that growth will be critical to not only meet our climate change targets, but also to ensure that all Caledon residents live in safe, sustainable, and accessible communities now and into the future. In this way, the Resilient Caledon Plan places a strong emphasis on maximizing the many co-benefits of climate action, including for local economic development, public health and air quality, preservation and enhancement of our natural and agricultural areas, and the well-being of all our diverse residents.

It's clear that many Caledon residents are already taking action on climate change, from improving the efficiency of their homes or switching to electric vehicles, to farmers using innovative measures to improve soil health, to businesses installing solar panels, to young people getting involved in local climate advocacy and solutions. The Resilient Caledon Plan aims to raise the ambition of what the Town and broader community can do to embrace a more resilient, low carbon, and livable future.

I want to thank all the staff, stakeholders and residents who contributed to the development of this plan, and I look forward to working together with the entire community to achieve a Resilient Caledon.

Allan Thompson



1. Introduction

INTRODUCTION

RESPONDING TO THE CLIMATE EMERGENCY

Climate change is an urgent crisis that impacts all corners of the globe. It is a particularly complex problem because it occurs over a long time-scale and requires rapid and radical changes to our society and economic systems. The Resilient Caledon Community Climate Change Action Plan (the Resilient Caledon Plan) identifies how the Town of Caledon intends to respond to this global challenge through local action to build a more resilient future for our community.

The Intergovernmental Panel on Climate Change (IPCC), the world's leading scientific body on climate change, estimates that **human activities have already caused the world to warm by 1.0°C since the industrial revolution.** The IPCC indicates that we must limit warming to no more than 1.5°C above pre-industrial times to reduce the risk of catastrophic climate impacts. Limiting warming to 1.5°C requires reaching net-zero carbon dioxide (CO_2) emissions globally by around 2050.[2] Even if we meet the 1.5°C warming threshold, climate impacts will be significant, including increases in severe storms, sea level rise, extreme heat, flooding, drought, species and habitat loss, loss of crop yields, and spread of disease.

International organizations, federal governments, regions, and municipalities worldwide are taking action to reverse the course of climate change and reduce global emissions. Canada is a signatory to the Paris Agreement and has committed to reducing GHG emissions to net zero by 2050. Many local jurisdictions across the country are also stepping up their efforts and implementing ambitious climate plans and targets for **100% emissions reductions by 2050 or sooner.** Municipal governments, such as Caledon, are responsible for decisions around land-use planning, new development, transportation and transit that are crucial to achieving zero emissions. Municipalities can also act as a convenor of different sectors and community members to foster collaboration on climate change action.[3]

WHAT IS CLIMATE CHANGE?

Climate scientists have agreed that concentrations of greenhouse gases (GHGs) in the atmosphere have been steadily increasing over the past century as a result of human activity, primarily the burning of fossil fuels. When fossil fuels, such as oil and gas, are burned to power our buildings, vehicles, and industrial activities, they release greenhouse gas (GHG) emissions into the atmosphere. These GHGs warm the atmosphere by absorbing and emitting solar radiation, causing a greenhouse effect that traps heat close to the surface of the Earth. The most common GHGs, by volume, are water vapour, carbon dioxide, methane, nitrous oxide, and ozone. While some of these GHGs exist naturally, their concentrations in the atmosphere have increased dramatically over a relatively short time frame, causing Earth's average temperatures to increase, weather systems to become more extreme, and ecological systems to degrade at increasing and alarming rates.

[2] 2018: Technical Summary. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. https://www.ipcc.ch/sr15/technical-summary

[3] Federation of Canadian Municipalities, 2009. Act Locally: The Municipal Role in Fighting Climate Change. https://fcm.ca/sites/default/files/documents/resources/report/act-locally-municipal-role-fighting-climate-change.pdf

Did you know?

Municipalities have direct or indirect influence over half of Canada's emissions

CLIMATE CHANGE: A THREAT AND AN OPPORTUNITY

Climate change poses threats to the economy, human health and livelihoods, public safety, and natural systems. Its impacts have already been felt in Caledon, which has seen damage from flooding, ice storms, wind storms, and extreme heat. **Caledon's future climate is projected to be warmer, wetter, and more unpredictable**, all of which will have implications for residents, businesses, and the Town's own operations.

Caledon's per capita greenhouse gas emissions are relatively high, largely due to the reliance on personal vehicles to get around. Caledon has an opportunity to not only contribute its share of global emissions reductions, but to do so in a way that benefits residents and the local economy.

On January 28, 2020, Town Council unanimously passed a motion declaring a climate emergency in Caledon. The motion acknowledges climate change as an immediate threat to residents, the economy, and the environment, and seeks to mobilize action on climate change. The motion builds on the Town's track record of leadership on climate action and identifies the opportunities that the Town stands to gain by taking bold action.

A PIONEER OF MUNICIPAL CLIMATE ACTION

The Town of Caledon has prided itself for its proactive and pioneering approach to climate change and environmental initiatives, having been awarded the "Greenest Town in Ontario" as far back as 2003. Caledon's accomplishments include the integration of climate considerations into land-use by-laws and the Official Plan; early adoption of a Green Development Program to encourage new commercial and industrial buildings to be more energy efficient; and being among one of the first Canadian municipalities to complete all five milestones of the Partners for Climate Protection program. A timeline of some of the Town's key accomplishments is shown in Figure 1 on the following page.

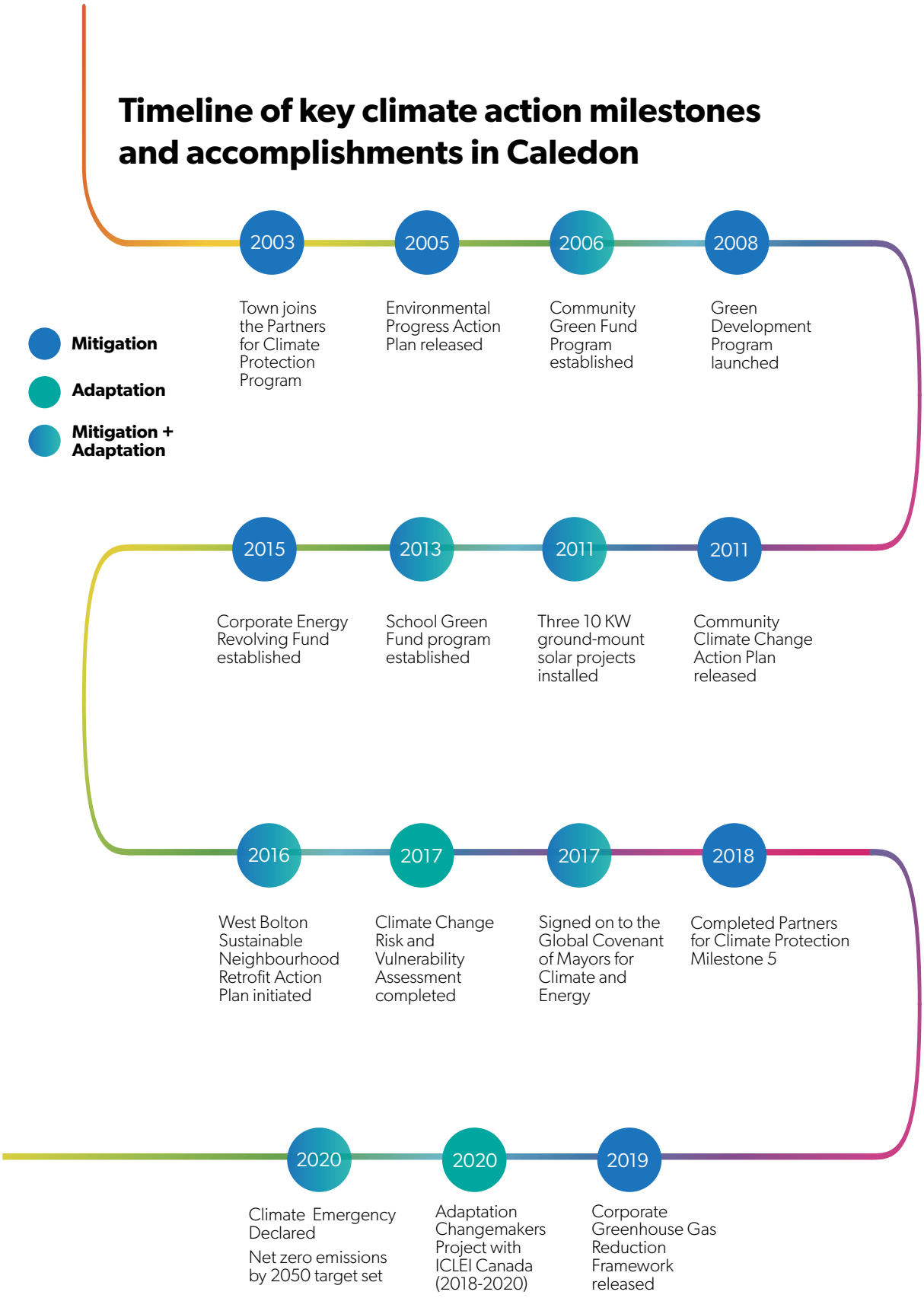


Figure 1. Timeline of climate action milestones and accomplishments in Caledon.

In 2010, the Town created its first Community Climate Change Action Plan (CCCAP), which included a GHG emissions inventory and a GHG reduction target of 17% below 2006 levels by 2021. Caledon reduced its emissions by approximately 8% in 2016, according to GHG inventory estimates.[4] These reductions were largely attributable to the phase-out of coal-fired electricity generation across Ontario and coincided with a 4% increase in population. In 2017, the Town furthered its efforts by signing on to the Global Covenant of Mayors for Climate and Energy (GCOM), which has become the global standard in municipal climate action. GCOM focuses not just on greenhouse gas emissions reductions, but also on adapting to climate impacts.

A COMMUNITY PLAN

Recognizing the speed at which climate change has accelerated since the first plan and the need to increase its ambition, the Town began the process of updating its CCCAP in 2019. The result—the Resilient Caledon Plan—is a community-wide action plan to address mitigation (actions to reduce greenhouse gas emissions and improve energy efficiency) and adaptation (actions to prepare and respond to climate change impacts like flooding), illustrated in Figure 2.

The Resilient Caledon Plan includes actions to reduce GHG emissions and help the community prepare for increasing climate impacts. Combining mitigation and adaptation in one plan allows for a more comprehensive approach to addressing climate change, while leveraging synergies between mitigation and adaptation actions (for example, expanding tree canopy can sequester CO_2 from the atmosphere and reduce the impacts of extreme heat in urban areas).

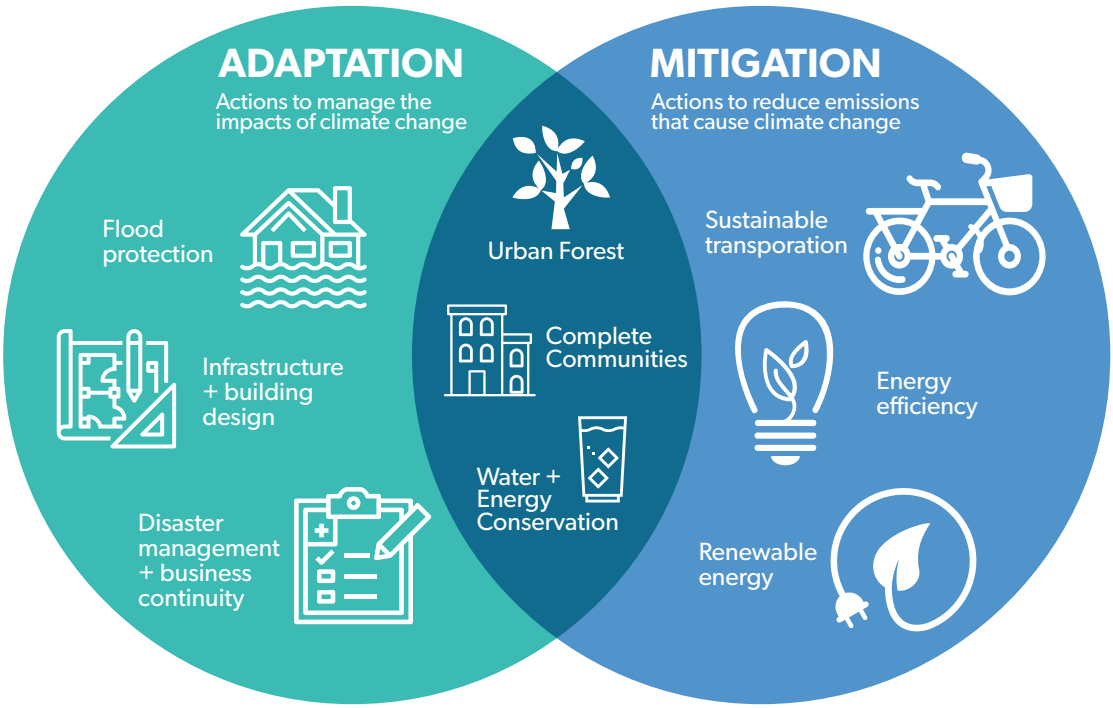


Figure 2. Adaptation versus mitigation actions for communities.

[4] Note: Due to differences in emissions accounting methodologies, this is an approximation.

This plan requires leadership, broad community support, and partnerships with other levels of government and stakeholders for successful implementation, as shown in the figure below. Table 1 outlines the key community partners and how each can contribute to Plan implementation.

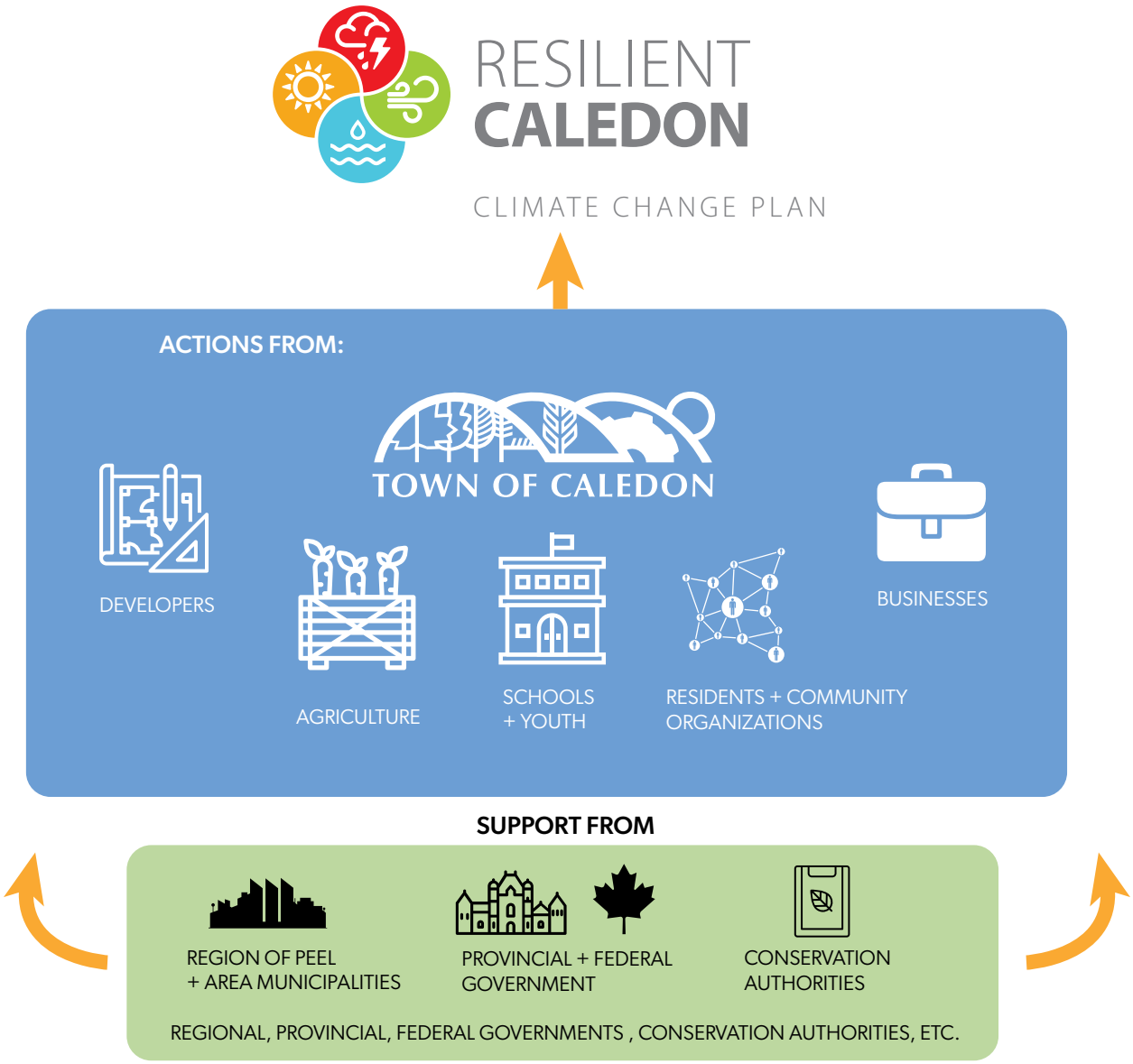


Figure 3. Overall framework for the Resilient Caledon Plan.

Table 1. Roles and contributions of key players to the Resilient Caledon Plan.

COMMUNITY SECTOR	ROLE
Town	• Lead, fund, oversee, and facilitate many actions of the plan. • Undertake monitoring and reporting. • Foster collaboration with key stakeholders, including diverse groups across ethnicities, income levels, ages, and cultural backgrounds.
Residents	• Take action to reduce their personal carbon footprint. • Get involved with community action on climate change.
Businesses	• Reduce emissions and enhance resiliency within their own operations. • Participate and collaborate in Town programs that can support action implementation.
Developers	• Lead the way in advancing low-carbon and resilient buildings.
Community Organizations	• Support engagement activities and coordinate climate action in the broader community.
Schools/Youth	• Support climate action through education, advocacy, and communications, as well as develop and participate in programs at schools.
Conservation Authorities	• Protect and restore natural areas, manage flood risk, educate and engage residents, and provide resources and expertise for Town conservation efforts.
Region of Peel and Area Municipalities	• Coordinate climate action through the Peel Climate Change Partnership and implement programs and policies consistently across the Region.
Provincial and Federal Government	• Enact policies and legislation, and deliver funding programs that enable a low-carbon transition.

Photo: ecoCaledon is a local non-profit organizations that works throughout the community on environmental initiatives

VISION

The **VISION** for a Resilient Caledon is a thriving, low carbon community that uses energy and resources sustainably, protects the natural environment, and is prepared to face climate disruptions.

GOALS

The **GOALS** for the Resilient Caledon Plan are to:

1) Mitigate: Reduce community-wide GHG emissions to reach net zero by 2050 and follow a carbon budget that aligns with 1.5°C warming, which would entail a 36% reduction of emissions by 2030.

2) Adapt: Increase resiliency of the Town, its residents, economy and the natural environment to current and future climate impacts.

"We need the whole world to change, so why not start in the place we live."

—Town of Caledon resident[5]

We will reach net zero emissions when the production of GHG emissions by humans does not exceed the earth's capacity to absorb them through carbon sinks like forests, wetlands, and the ocean. The Resilient Caledon Plan contains over 60 actions and supporting tasks, developed to achieve the Plan's vision and goals, that are organized into five action areas. These are described in more detail in Section 5: Actions. These are described in more details in the Actions section.

1. **Smart Growth:** Design new communities to maximize active transportation and transit, green infrastructure, and health, and ensure new buildings are low carbon and climate resilient.
2. **Sustainable Communities:** Support residents and businesses to retrofit their homes and buildings, reduce waste, green their operations, and prepare for climate emergencies. Build community capacity to address climate change through education, engagement, and funding.
3. **Agriculture and Natural Systems:** Support a resilient food and agriculture sector that contributes to GHG emissions reduction. Protect and restore the Town's natural and agricultural lands.
4. **Low-Carbon Transportation:** Increase access to walking, cycling, and transit, and expand the use of zero-emissions vehicles.
5. **Resilient Infrastructure and Energy:** Ensure the Town's roads, bridges, and stormwater infrastructure can withstand anticipated climate impacts. Develop local renewable energy systems that are low carbon and improve resilience to weather disruptions.

[5] Town of Caledon 2019 Community Climate Change Survey respondent.

GROWING SUSTAINABLY

Caledon's population is growing rapidly and expected to reach 200,000 people by 2050[6]—more than double its 2016 population.[7] Growth poses a challenge for reducing Caledon's GHG emissions, due to an increase of transportation requirements and energy demand for buildings. The Town has a unique opportunity to progress from old approaches to land-use planning and get it right from the start by building new zero-emissions, safe, and affordable communities, and avoiding the need for costly retrofits in the future. These objectives can be accomplished by prioritizing compact community design over land-intensive sprawl; expanding access to walking, cycling, and transit opportunities; promoting energy-efficient housing types; and making space for trees, parks, and green infrastructure. To that end, staff are working closely together to ensure that climate change is embedded within Caledon's Official Plan update, Future Caledon. A Land Use Planning and Climate Change Discussion Paper was developed to help apply recommendations from the Resilient Caledon Plan to the Official Plan.

Although population projections are determined by the Province, the Town can determine where this growth goes and what it looks like, and ensure that this growth happens in the most sustainable and efficient way possible.

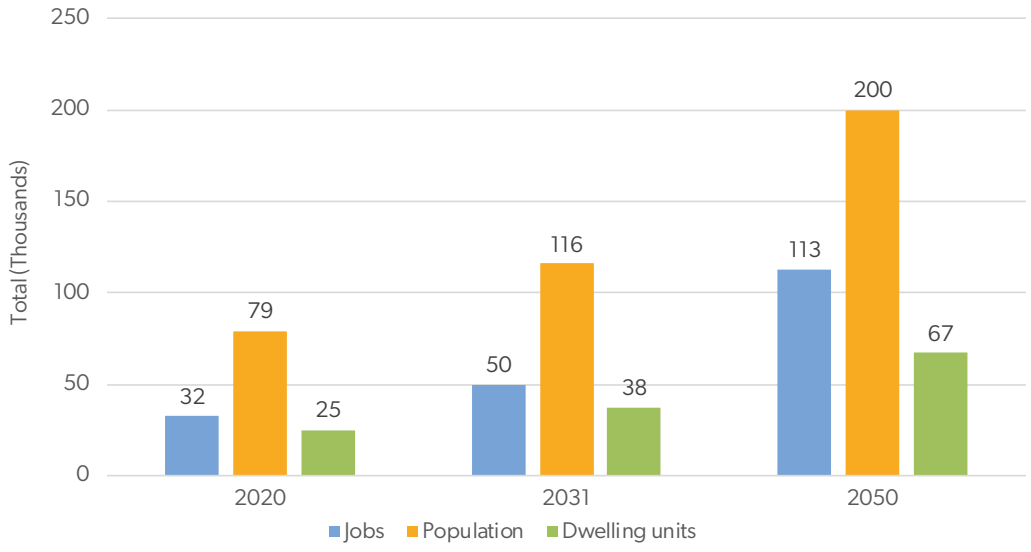


Figure 4. Projected population, employment, and households in Caledon, 2016-2050.

[6] Note: This is an extrapolation of the Council approved growth projection of 160,000 people by 2041. The 2041 projection is mandated by the Ontario Growth Plan.

[7] Hemson Consulting Ltd. (2017). Peel 2041: Planning for Growth and Managing Risk.

IMPROVING QUALITY OF LIFE

In addition to reducing GHG emissions and making the community more resilient, climate action will improve the well-being of the Caledon community. The Resilient Caledon Plan advances community priorities like improved health, new employment and business opportunities, safety, and protection of biodiversity. Aligning with other local goals maximizes the positive impacts of the Plan and supports implementation, as actions can be carried out or supported by staff and community members that are working on related priorities. Co-benefits from the Resilient Caledon Plan are discussed further in Section 4.

DEVELOPING A PLAN FOR ACTION

The Resilient Caledon Plan followed a robust process of best practice research, public engagement, and technical modelling of future scenarios. The project has been guided by the following principles:

GUIDING PRINCIPLES

Grounded in Local Priorities: Alignment of climate change actions with existing community priorities around public health, fiscal responsibility, self-reliance, economic prosperity, resilience, inclusiveness, and a healthy rural environment.

Community Involvement: Active engagement of citizens, households, businesses, and community groups to ensure the development of a successful climate change plan and implementation of energy, emissions, and adaptation actions.

Integrated: Collaboration across jurisdictions, age groups, stakeholder groups, sectors, and departments to remove silos and identify cross-cutting solutions to climate change.

Equity: Ensure that climate actions equitably address the risks of climate change and share the costs and benefits of action across the municipality, considering differing access to services, household incomes, economic opportunities, infrastructure investment, etc.

Robust Research and Evidence: Climate change targets and actions are established using evidence-based modelling and assumptions, are measurable, independently verifiable, and subject to regular monitoring and reporting.

RESILIENT CALEDON PLAN PROCESS

Risk and Vulnerability Assessment (2017-2018):

Projected what Caledon's future climate will likely be by the end of the century, and what impacts that climate is likely to have on Caledon's infrastructure, economy, natural and agriculture systems, and the health and well-being of residents.

Research and data collection (summer 2019):

Collected locally relevant data on building size and type, natural gas and electricity use, transportation patterns, land use and agriculture to understand Caledon's current emissions. Researched best practices in climate mitigation and adaptation from jurisdictions around the world.

Public and stakeholder engagement (fall 2019):

Conducted extensive online and in-person engagement with residents and expert stakeholders to understand local concerns around climate change, community priorities, and what people wanted to see for Caledon's future.

Action development (fall 2019):

Based on the research and stakeholder engagement, developed a list of actions to both mitigate and adapt to the impacts of climate change.

Greenhouse gas emissions modelling (fall/winter 2020):

Established Caledon's baseline GHG emissions for the year 2016; developed a Business-as-Planned scenario to model emissions growth by the year 2050 if no new actions are taken; and modelled the various actions to understand the scale of each required to meet a target of net zero by 2050.

Implementation planning (summer 2020):

Refined actions and developed an implementation framework to establish roles and responsibilities, timelines, and resources required to implement each action.

Finalizing the Resilient Caledon Plan (2021):

Released the draft plan for public comment in September, with final plan to go to Council for approval in 2021.

Photo: Event launch at Good Lot Farmstead Brewing.

WHAT WE HEARD

95% of survey respondents said they are concerned about climate change and its impacts on Caledon.

Resilient Caledon is a community plan to address climate change. It has been developed with input from Caledon residents, businesses, farmers, youth, and expert stakeholders. Over four months in Fall 2019, we heard from more than 670 residents about what they wanted to see in Caledon's updated climate change plan, and their priorities were clear:

- Preserving green space and agricultural land;
- Maintaining Caledon's rural character as the Town grows; and
- Focusing on saving energy and using resources wisely.

Summary of Public Engagement

170 responses to online climate change survey.

300 climate conversations at **9** community events.

More than **200** youth engaged at high school talks.

2 stakeholder workshops attended by over **70** sector experts.

4 DIY workshops hosted by community members.

27 submissions received on the draft Resilient Caledon Plan for public comment.

Photo: West Bolton SNAP community tree planting event.

Caledon also convened a Climate Change Task Force, made up of staff, agency partners, small businesses, and residents, to serve in an advisory role on the development of the Resilient Caledon Plan.[8] Task Force members met on several occasions throughout the project, providing input on key phases of work and deliverables, action development and prioritization, and messaging for public engagement.

Table 2 provides a high-level aggregated summary of the comments received during the public engagement periods, including an online survey and community events in the Fall of 2019, and the public comment period on the draft Resilient Caledon Plan, which took place in Fall 2020. Input from residents and stakeholders has been embedded into the actions outlined in Section 5.

[8] See Acknowledgments section at the beginning of this document for the full list of participants.

Table 2. Summary of comments from public engagement.

ACTION CATEGORY	COMMENTS SUMMARY
Smart Growth	• New residential and commercial buildings should be held to the highest energy efficiency requirements. • Prime agricultural land and natural features should remain protected. • Include more green space and parks in new development. • Development should be close to existing urban areas and should include more commercial space so that people don't have to drive everywhere.
Sustainable Communities	• Need more support for residents to undertake home retrofits through financial incentives and education/resources. • Need to reduce and divert more waste in the commercial sector. • Eliminate single-use plastics and help residents recycle electronics.
Agriculture and Natural Systems	• Help residents plant trees on their property. • Support for farmers who bear the brunt of climate impacts. • Protect trees in towns and villages.
Low-Carbon Transportation	• Restrict drive-throughs, especially in congested areas. • Concerns around potential impacts of new highway infrastructure on emissions and agriculture/natural lands. • More charging stations throughout Caledon. • Better transit and bike connections between towns.
Resilient Infrastructure and Energy	• Support more community solar projects (e.g. through bulk purchasing) and incentivize renewable energy.

WHAT RESIDENTS TOLD US

"Being resilient means that we are able to continue to attract people and businesses to live and work in Caledon. Being resilient means we continue to have a reasonable cost of living. Being resilient means that we can work together as a community when a natural disaster hits."

"It means a stronger, greener, and more conscientious town that cares about our present and our future, and not only for ourselves, but the land and animals we live with as well."

"Meeting the needs of the people of the community, but continuing to implement plans that are sustainable and leave less carbon footprint."

Photo: Kids' climate solutions.

2. Reducing GHG Emissions in Caledon

REDUCING GHG EMISSIONS IN CALEDON

Climate change is a global problem that everyone contributes to, particularly in developed nations like Canada. Although Caledon is a small municipality, we have a responsibility to do our part in the fight against climate change—not only to address our share of contributions to global GHG emissions, but also to reap the benefits of a cleaner economy in our own communities. The Town has set an ambitious target of net zero emissions by 2050, and follows a carbon budget that limits the total amount of GHG emissions that Caledon can emit between now and then. In order to develop a plan to meet that target and budget, we had to first understand where we are and where we're going.

BUILDING A MAP OF THE FUTURE

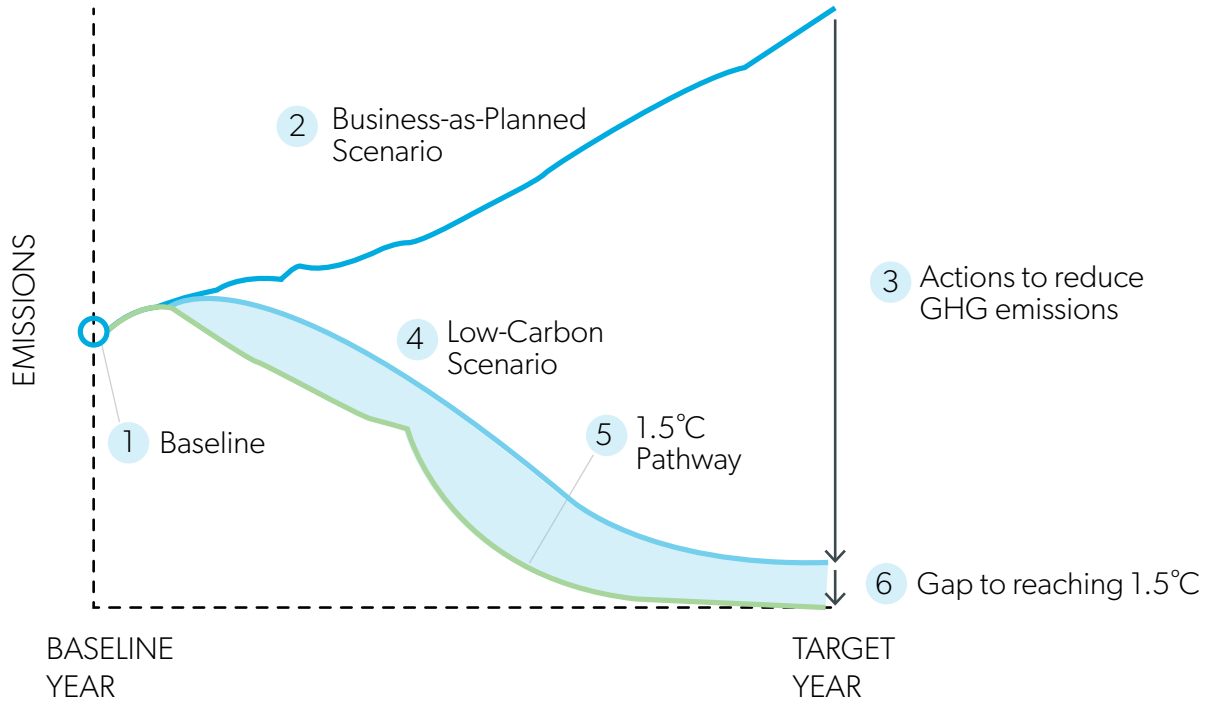


Figure 5. Overview of the net-zero pathway development.

Caledon used a robust modelling approach to understand what our current energy and greenhouse gas emissions are, and what they're likely to be under different scenarios in the future.

As shown in Figure 5, a baseline GHG emissions inventory (1) was developed for the year 2016 (the most recent year for which census and other data were available). A Business-as-Planned (BAP) Scenario (2) was modelled to determine what emissions are likely to be by the year 2050 if no new action is taken while the Town's population continues to grow. Actions to reduce emissions (3) were developed through research and public engagement, and a model used

to develop a Low-Carbon (LC) Scenario (4) for Caledon to get as close as possible to a 1.5°C warming pathway representing its 'fair share' of remaining global GHG emissions (5). The gap between the 1.5°C pathway (net zero by 2050) and the Low-Carbon Scenario (6) will be addressed through carbon sequestration, emissions offsets, and the development of new technologies. See the Technical Report for a detailed methodology.

CURRENT AND FUTURE EMISSIONS IN CALEDON

CALEDON'S GHG EMISSIONS PROFILE

In 2016, Caledon's total GHG emissions were 520,000 tCO_2e, which is the equivalent to burning 260,000 tons of coal.[9] This amounts to approximately 7.6 tCO2e/person, on par with other Ontario municipalities and just above the average from a selection of approximately 300 global municipalities recently reporting to the Carbon Disclosure Project, as seen in Figure 6.

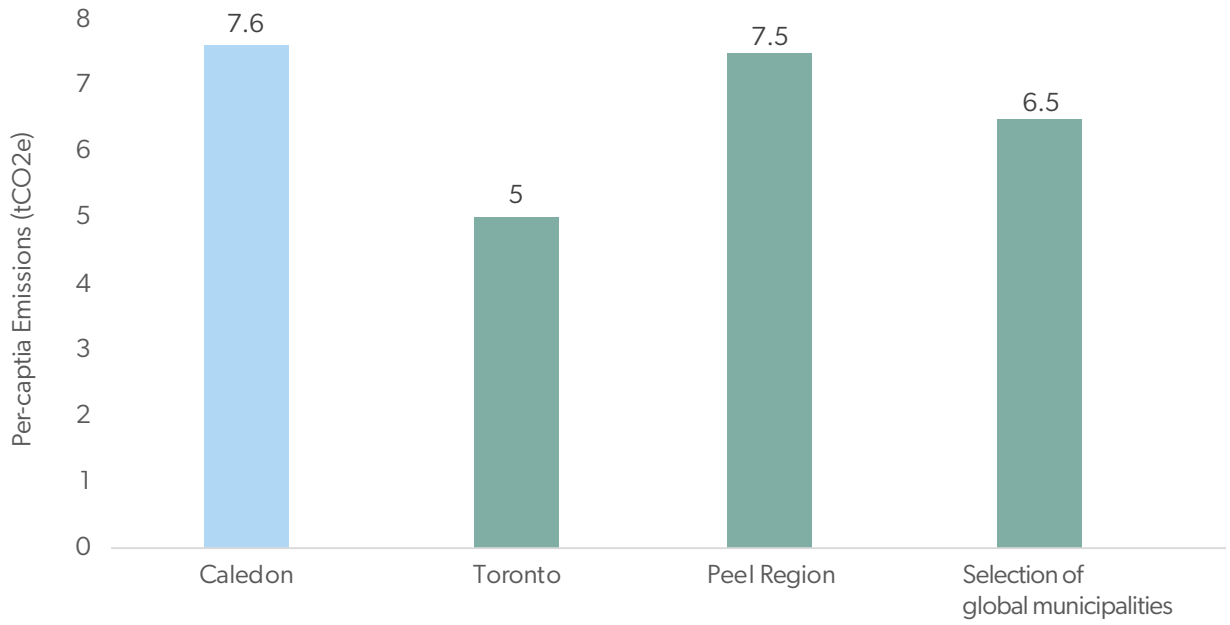


Figure 6. Per-capita comparison of emissions for Caledon, select Ontario municipalities, and a selection of municipalities reporting to the Carbon Disclosure Project.

[9] Equivalency from the US EPA Greenhouse Gas Equivalencies Calculator. https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

More than half of Caledon's emissions were from transportation, including commuters travelling out of the town for work, and commercial vehicles and trucks. Residential and commercial buildings were responsible for nearly 30% of the town's emissions, arising primarily from the use of natural gas for space and water heating. The remainder of Caledon's emissions came from agricultural and industrial activities, waste disposal and wastewater treatment, and leaks and losses from industrial activity and energy transmission.[10] See Figure 7 below.

While not shown in the figure below, an estimated 10% of these emissions were sequestered, or absorbed, by Caledon's forests and agricultural soils in 2016.

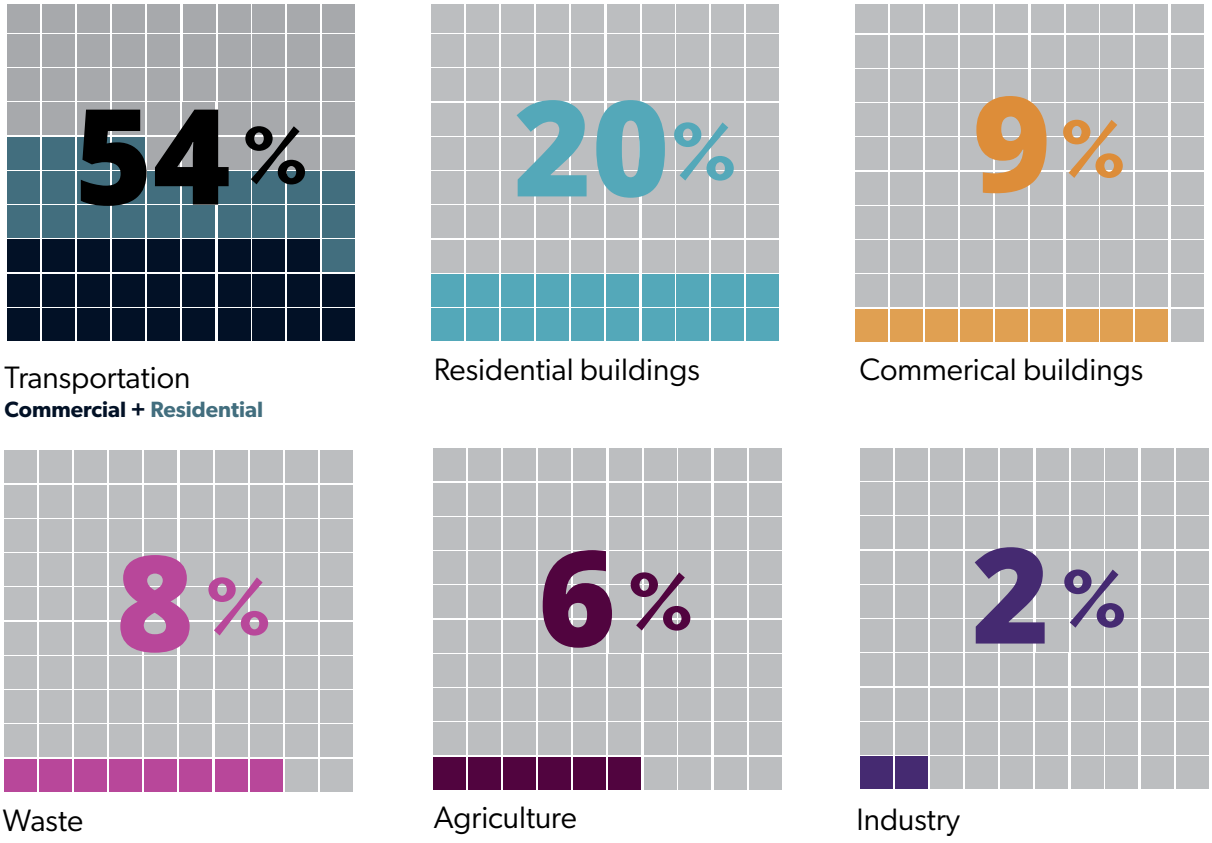


Figure 7. Community GHG emissions in Caledon, 2016.

[10] Fugitive emissions are those attributable to leaks or losses in energy delivery (e.g. natural gas escape). These amount to 0.2% of Caledon's 2016 emissions, and are not shown in the figure since they are so small. It is estimated that these numbers could be much higher due to underestimates of upstream emissions, and if distribution emissions were added on top of production emissions. Liggio, J., Li, S., Staebler, R.M. et al. Measured Canadian oil sands CO2 emissions are higher than estimates made using internationally recommended methods. Nat Commun 10, 1863 (2019). https://doi.org/10.1038/s41467-019-09714-9

WITHOUT ACTION, EMISSIONS WILL GROW

Caledon's population is expected to more than double from 2016 to 2050.[11] Figure 8 below shows that under a Business-as-Planned (BAP) Scenario, in which no further climate action is taken, Caledon's emissions are likely to increase by 119%.

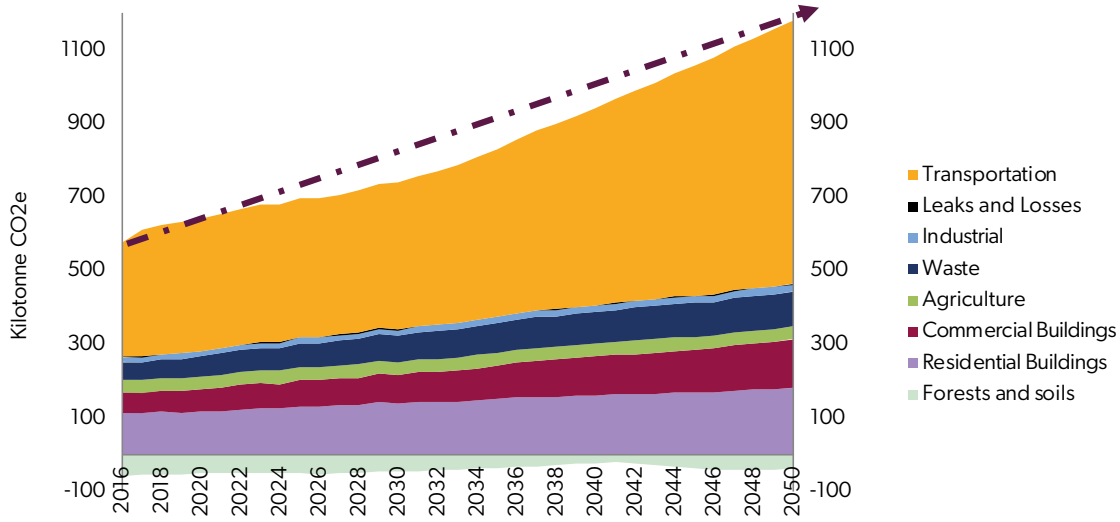


Figure 8. Growth in GHG emissions in Caledon under a Business-as-Planned scenario, 2016-2050.

Transportation emissions are projected to increase the most quickly (+130%) due to growth in population and jobs, and the travel associated with each. By 2050, approximately 61% of the Town's emissions will come from transportation, meaning that actions to reduce vehicle use and switch from conventional to electric vehicles will be critical to reach the Town's net-zero emissions target.

Caledon's emissions from residential buildings are expected to grow by 58% from 2016 to 2050. This is slightly less than what would be expected, considering the scale of population growth projections. The slower rate of growth is the result of planned improvements to the building code and heating system improvements that will make homes more energy efficient. Emissions from commercial buildings are expected to see the highest jump—a 140% increase by 2050 due to the influx of new businesses and employment coming into Caledon. Converting heating systems in existing and new buildings from natural gas to electric and renewable energy sources, as well as further improving building efficiency, will be key actions for reducing emissions in Caledon.

[11] These projections extrapolate the growth from the Region of Peel's 2041 projections for the Town of Caledon forward to the year 2050.

BUILDING A LOW-CARBON PATHWAY

To establish a plan for Caledon's emissions reductions, actions were identified from best practice research; reviews of past and current actions being implemented in Caledon; and consultations with the Climate Change Task Force, members of the public, and stakeholders. These actions were then modelled and adjusted to get the town as close as possible to a net-zero trajectory and 1.5°C pathway. The table and figure below shows how Caledon's emissions would decrease relative to the BAP Scenario as each action (represented by a coloured bar) in the plan is implemented over time.

Under the Low-Carbon Scenario (LCS), GHG emissions in 2050 are 77% lower than in 2016, as summarized in the table below.

Table 3. Low-Carbon Scenario Action Impact Summary

SECTOR	TARGET	GHG REDUCTION (KTCO2E) RELATIVE TO 2050 BAP	CONTRIBUTION TO TOTAL EMISSIONS REDUCTIONS[12]
Electric Vehicles (EVs)	• 100% of vehicles are EV, or zero emissions, by 2050.	**677**	**66%**
Buildings	• 100% of existing buildings are retrofit for increased efficiency by 2040. • 100% of new buildings are net zero by 2030. • 100% of buildings use electric heat pumps by 2040.	**227**	**22%**
Waste Diversion and Reduction	• 80% of waste diverted by 2050. • Per capita waste generation reduced by 50% from 2016 by 2050.	**38**	**4%**
New Solar Photovoltaics (PV)	• 100 MW of ground-mount PV are installed by 2030. • All viable rooftops have PV installed by 2040 (394 MW). • All PV systems include battery storage	**61**	**6%**

[12] Numbers in this column do not add to 100% due to rounding.

SECTOR	TARGET	GHG REDUCTION (KTCO2E) RELATIVE TO 2050 BAP	CONTRIBUTION TO TOTAL EMISSIONS REDUCTIONS[12]
Additional Actions (i.e. active transportation and transit infrastructure; biogas for agriculture waste; water conservation; etc.)	• 1000 kW of on-farm biogas systems are installed by 2050. • Peel Transportation Master Plan (TMP) 2040 targets are exceeded as a result of increased transit services, active transportation infrastructure, and infill/densification. • By 2030, one third of homes have reduced their water consumption by 50%. • Industrial process improvements.	**10**	**1%**
Protection and Restoration of Natural systems	• Increased infill and densification result in the preservation of several hectares of forests, wetlands, and agricultural lands.	**7**	**<1%**
Total		**1,020**	

Photo: West Bolton SNAP Community Tree Planting

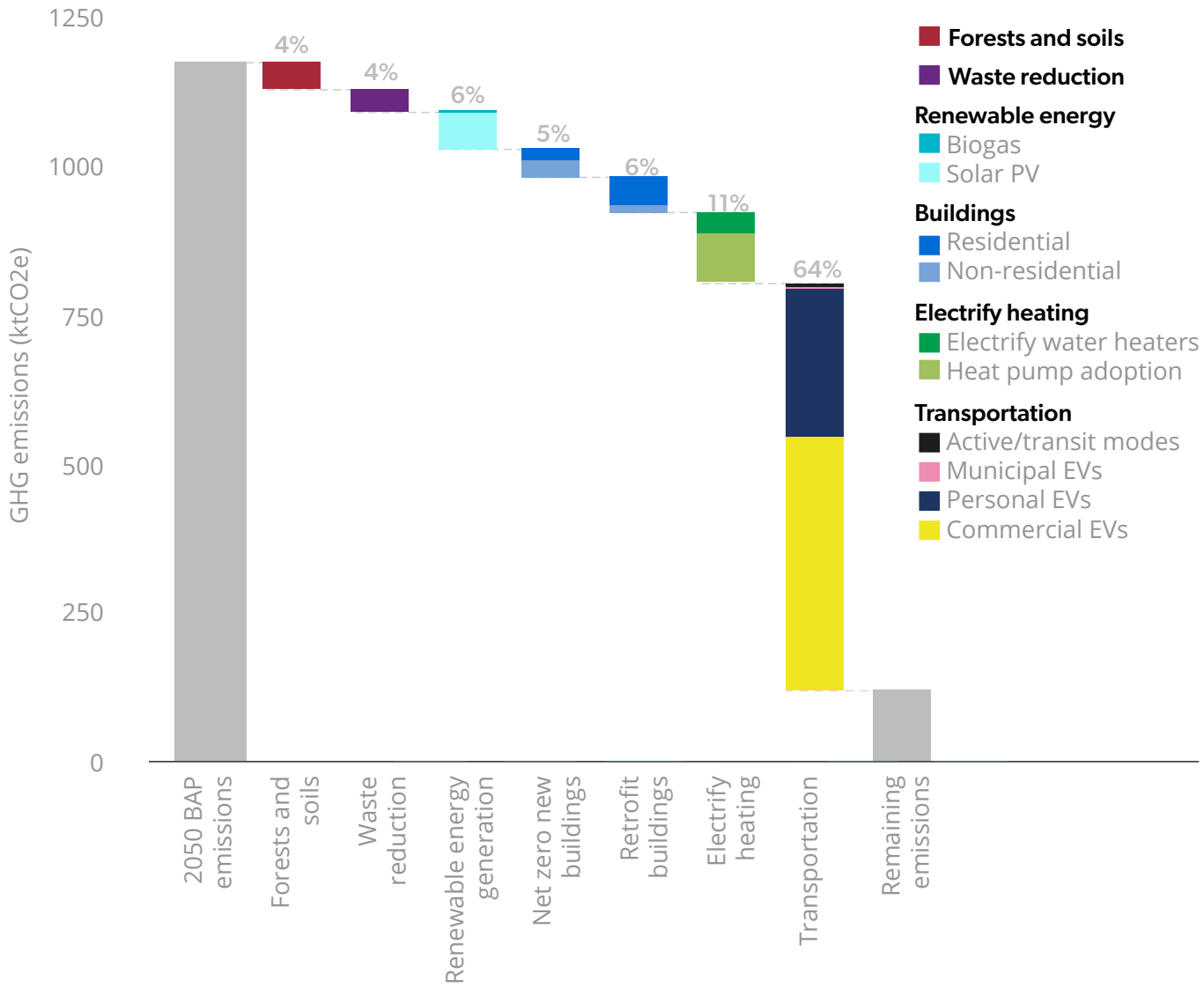


Figure 9. Waterfall diagram illustrating the emissions reductions associated with each low-carbon action relative to the Business-as-Planned scenario. The diagram shows the emissions reduction effect of implementing all modelled actions, and the gap still remaining to reach the net zero target.

CALEDON'S CARBON "BUDGET"

The Town is pursuing a GHG emissions reduction target of net zero by 2050 as part of the Resilient Caledon Plan.

While this target provides an end goal for GHG reductions, it does not capture the fact that every tonne of GHG emissions between now and 2050 counts. This is because cumulative emissions over time will determine the degree of global warming that will take place.[13] A "carbon budget" addresses this problem. It can be thought of like a spending budget, a designated amount of emissions that can be spent each year until they are used up. Adopting a carbon budget alongside the 2050 target helps the Town to ensure accountability for its emissions reductions, because it must achieve additional reductions in the following years if it fails to meet its target for a particular year. There is an opportunity to then tie this carbon budget to the Town's financial budgets using a "carbon accounting framework", where all of the Town's investments and financial statements must include amounts of GHGs that will be emitted or mitigated. This approach, which is further discussed in Section 6: Implementing the Plan, can help ensure that the Resilient Caledon Plan is implemented across all Town departments.

To be consistent with a 1.5°C warming pathway, in 2016 the Town's carbon budget (the sum of each year's allowable emissions represented by the green lines in the figure below) was 7,900,000 tCO_2e or 7.9 $MtCO_2e$. In 2020, just four years later, it is now only 5,700,000 tCO_2e or 5.7 $MtCO_2e$. Under a BAP Scenario, Caledon would use up its carbon budget by 2029.

If Caledon follows the carbon budget approach, its annual emissions should decline by 36% to 326,000 tCO_2e by 2030 and reach net zero by 2050.

A 'fair share' for Caledon

In order to prevent dangerous levels of climate change, scientists have determined the total GHGs that can be emitted into the atmosphere, called the global 'carbon budget.' This budget can be distributed so that high emitters (often from wealthier countries) reduce their emissions at a faster rate than low emitters. The amount allocated to different countries or cities using this scheme represents their 'fair share' of the world's remaining allowable emissions.

[13] 2018: Technical Summary. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. https://www.ipcc.ch/sr15/technical-summary

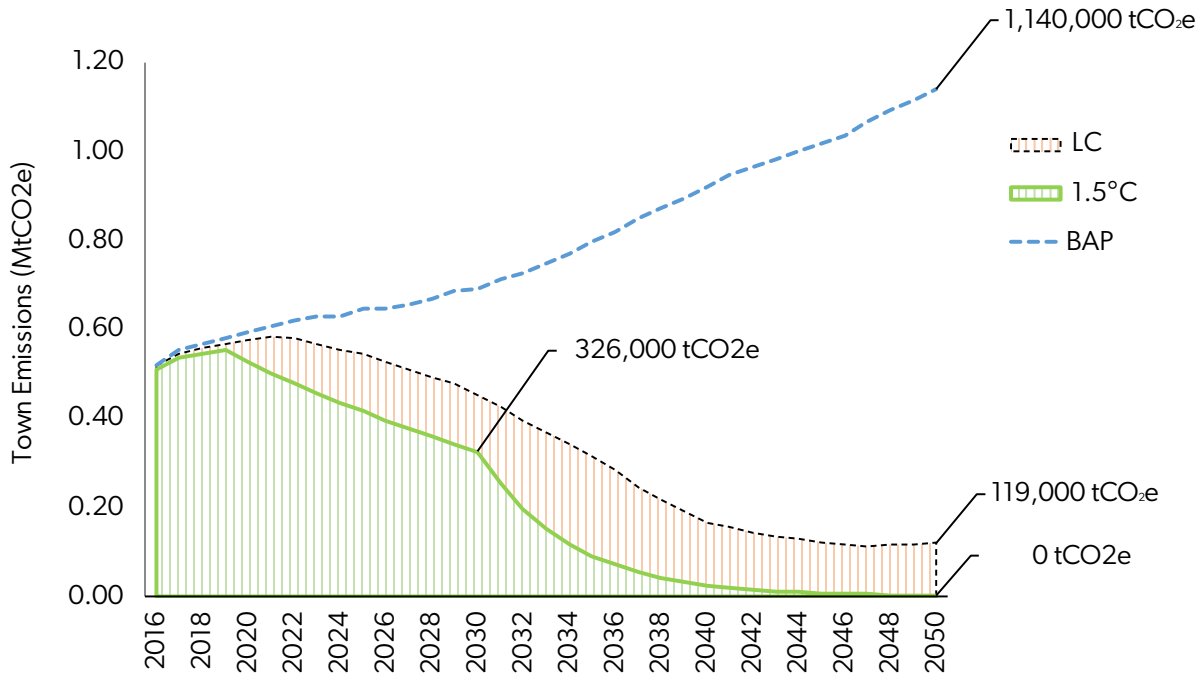
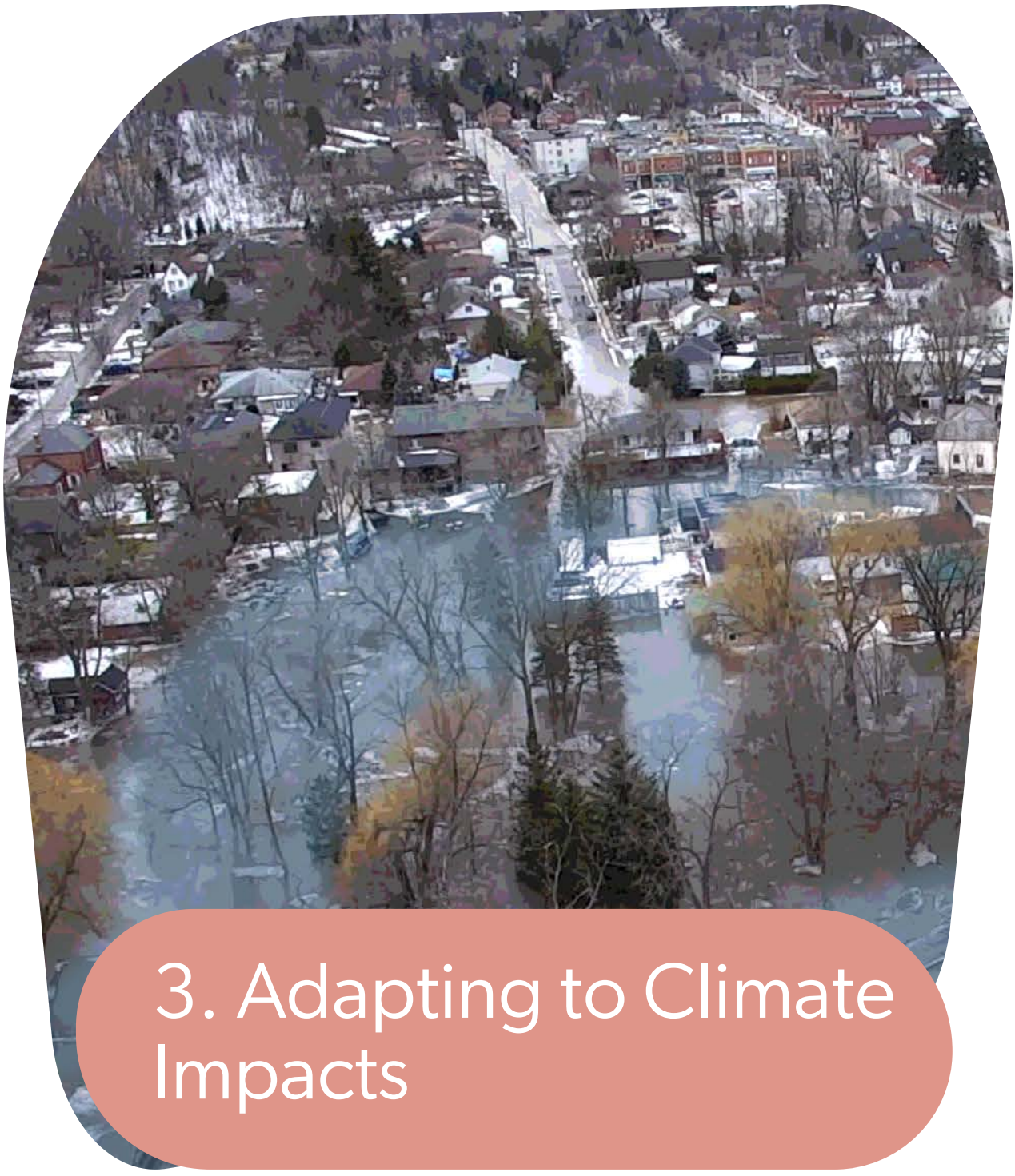


Figure 10. Caledon's 1.5°C pathway and carbon budget. The striped green lines, when added together, represent Caledon's carbon budget, and the solid green line represents its 1.5°C zero carbon pathway.

CLOSING THE EMISSIONS GAP

The actions in this plan result in cumulative GHG emissions reductions of 15.5 $MtCO_2e$, leaving a gap of 4.3 $MtCO_2e$ over the Town's fair share of remaining global emissions. This gap will need to be addressed through future measures. One prospective strategy for the Town is to switch to renewable electricity sources more quickly (as opposed to Ontario's electrical grid, which continues to use non-renewable fuels for peak generation). Another option would be to deploy emerging technologies, such as green hydrogen and other innovations that may be developed in the coming decades.[14] A final option would be to increase sequestration and storage of carbon dioxide beyond the actions already included in this plan, for example from further improved agricultural practices to trap carbon in soils, further increasing and restoring forested areas and tree cover, and capturing CO_2 in concrete.

[14] Hydrogen fuel that is produced through renewable electricity.



3. Adapting to Climate Impacts

ADAPTING TO CLIMATE IMPACTS

Although Caledon's priority is to rapidly transition away from fossil fuels, it's clear that a certain amount of climate change is now inevitable. We are currently experiencing the effects of emissions produced more than 100 years ago and these impacts will continue to become more severe in the near future, even if we stop all emissions today. It is imperative that, alongside actions to mitigate climate change, Caledon takes actions to prepare for a climate that looks very different from the one we're used to.

A COMING STORM

The impacts of climate change are already being felt in Caledon. Climate projections tell us that Caledon can expect extreme events to become more frequent and severe as a result of a changing climate.[15]

Table 4. Extreme weather events in Caledon.

DATE	EVENT	DESCRIPTION
October 1954	Hurricane Hazel	• Resulted in flooding in urban areas of Caledon East and Bolton.
December 2013	Ice storm	• Power outages (~14,000 homes).
March 2016	Ice storm	• Power outages, forcing many local businesses to close.
August 2016	Rain event	• Flooding and infrastructure damage in Alton.
October 2017	Wind storm	• Power outages (~2,200 homes).
June 2017	Extreme precipitation	• Flooding and dam failure on Main Credit River.
March 2019	Warmer Temperatures	• Ice jam (ice accumulation that impeded the flow of water) along the Humber and Credit Rivers, resulting in flooding in the areas of Bolton and Inglewood.

Caledon's Future Climate Projections report indicates that these extreme weather impacts will become the new normal. Should emissions continue to climb at current rates, Caledon will see its annual mean temperature nearly double by the end of the century. Extreme heat days will become more common in the summers, winters will become warmer and wetter, and total yearly precipitation will increase, while summers will likely become drier.

[15] Amec Foster Wheeler (2018). Future Climate Projections for the Town of Caledon.

Table 5. Future conditions in Caledon.

INDICATOR OF CHANGE	DESCRIPTION
TEMPERATURE	
Annual mean temperatures	Baseline annual mean temperature is 7.0°C and increases to 13.3°C by the end of the century. Temperature will increase across all seasons. (+90%)
Hot days above 35°C	Annual baseline hot days above 35°C is currently 0.1 days (without humidex) and increases to 8.9 days by the end of the century. (+880%)
Cold days below 0°C	Annual baseline cold days below 0°C is currently 49 and decreases to 21 days by the end of the century. (+57%)
Growing season length	Growing season is projected to start earlier and end later. Baseline length is currently 163 days and is expected to increase to 224 days. (+7%)
PRECIPITATION	
Annual total precipitation (mm)	Annual baseline precipitation is currently 867 mm/year and is expected to increase to 976 mm/year by the end of the century. Similar increases in total precipitation are seen in winter, spring, and fall, with a slight decrease in the summer. (+13%)
Maximum one-day precipitation (mm)	Annual baseline is currently 37 mm and is expected to increase to 44 mm by the end of the century. (+19%)

Photo: 2016 ice storm.

IMPACTS TO CALEDON

To better understand what these changes will mean for Caledon, in 2017-2018 the Town and Region of Peel undertook various Risk and Vulnerability Assessments (RVA), which found a number of severe impacts to Caledon's infrastructure, socioeconomic, natural, and agriculture systems. See Technical Report for a detailed methodology.

INFRASTRUCTURE

Flooding from extreme rainfall and snow melt is anticipated to increase pressures on stormwater infrastructure, often overwhelming existing drainage systems and flooding basements. Warmer temperatures may increase the frequency of algal blooms in streams and waterways, with impacts on health, recreation, and drinking water operations. Caledon's roads and bridges will experience increased stress and maintenance requirements, as a result of warmer winters and more freeze-thaw cycles, as well as more intense rain events. These impacts will increase demands on municipal finances.

NATURAL SYSTEMS AND AGRICULTURE

Warmer temperatures are impacting the ability of plants and wildlife to thrive in their traditional habitats, and invasive species and pests are crowding out native species. In the agricultural sector, the growing season is expected to lengthen over the next 60 years, but any benefits this may bring to farmers are likely to be offset by greater unpredictability during the growing season, including from heat waves and droughts, more intense rainstorms, and diseases and pests that create significant crop and livestock management challenges. The combination of drier summers interspersed with heavy rain events could worsen soil erosion, place added pressure on water supply, and lead to increased stress on crops and livestock.

SOCIOECONOMIC SYSTEMS

Climate change will have direct impacts on Caledon's economic systems, with costs for homeowners from property damage, disruptions to business operations, loss of productivity in the food and agriculture sector, and increased municipal servicing costs.

Health impacts from climate change have been well documented. Residents could become more at risk from extreme heat-related illness and death; chronic respiratory and cardiovascular conditions due to poor air quality; injury and death from extreme weather; illness from contamination of food and water; and vector-borne illnesses from disease-carrying organisms like ticks.

These impacts will not affect the population evenly. Seniors, children, people living with chronic conditions or disabilities, socially and economically marginalized individuals, and those experiencing social isolation will feel the effects of these climate-related impacts most strongly.[16] Unless climate actions are designed and prioritized with these populations in mind, climate change will widen existing inequalities.

TAKING ACTION

The impacts identified through Caledon's RVA were prioritized based on their likelihood of occurrence and severity of impact. Actions were developed to address all impacts rated medium to high risk for Caledon. They were based on best practices from other municipalities and refined through public and stakeholder feedback. For a full list of actions see: Section 5: Actions.

Table 6. RVA Action development process and example.

CLIMATIC THREAT	LOCAL IMPACT	WHO/WHAT IS IMPACTED?	RISK AND VULNERABILITY	ACTIONS
Increase in annual temperatures and more frequent extreme heat days	Increased heat stress, especially in urban areas	Children, seniors, and those with underlying health conditions, particularly those who don't have air conditioning	Likelihood and severity of impact, plus adaptive capacity Medium-High	Identify vulnerable populations, expand cooling centres, enhance heat warnings and communications, increase green infrastructure in urban areas to promote cooling

Emphasis was also placed on finding synergies between adaptation and mitigation actions—a strategy known as Low-Carbon Resilience.[17] For example, the development of a residential retrofit program will take a "whole home" approach to promote both energy efficiency, as well as resiliency retrofits, to make homes better able to withstand climate impacts.

Photo: Humber River in Bolton after the 2019 ice jam.

[16] Government of Canada. 2018. Climate Change and Health: Populations at Risk. https://www.canada.ca/en/health-canada/services/climate-change-health/populations-risk.html

[17] Hardford and Raftis. 2018. Low Carbon Resilience: Best Practices For Professionals. https://act-adapt.org/wp-content/uploads/2018/12/lcr_best_practices_final.pdf

4. Climate Action Co-Benefits

CLIMATE ACTION CO-BENEFITS

Climate action is not only about reducing GHG emissions. Implementing the actions outlined in this plan will result in a number of important co-benefits, all of which are community priorities. These benefits were assessed in an actions impacts and prioritization exercise, which was used to develop the final actions (detailed in the next section).

The Resilient Caledon Plan is a major investment opportunity for Caledon, with up to $4.9 billion in savings and returns to the community over the next 30 years.

RETURN ON INVESTMENT

Stimulating the Local Economy

Transitioning away from fossil fuels requires investments from residents, businesses, the Town, and other levels of government. These include investments for home and municipal building retrofits, renewable energy installations, EV purchases, and municipal transit fleet. The value of the investments required by the Resilient Caledon Plan is illustrated in Figure 11 by the green bars.

Between 2020 and 2050, the Resilient Caledon Plan requires $2.8 billion more in investments than the business-as-planned (BAP) scenario. This works out to approximately $94 million in additional investments per year. The plan front-loads the investments to generate GHG emissions reductions early so Caledon can stay within its carbon budget. The sooner investments are made, the sooner financial savings and other benefits will be realized, and the greater the benefits to the community overall. Delaying investments represents a forfeited opportunity to reduce emissions and accrue community benefits.

Implementing low-carbon actions will result in savings from reduced utility bills from more efficient buildings, lower operating costs of electric vehicles relative to conventional ones, revenue from renewable energy generation, and avoided carbon tax costs. Over time, savings will far outweigh costs. Financial analysis shows that the community will see approximately $4.9 billion in net savings between 2020 and 2050. These savings are the results of reduced costs for residents, businesses, and the Town (in 2016, community-wide energy expenditures were approximately $315 million), as well as revenues from additional opportunities to stimulate the local economy, such as through renewable energy generation.

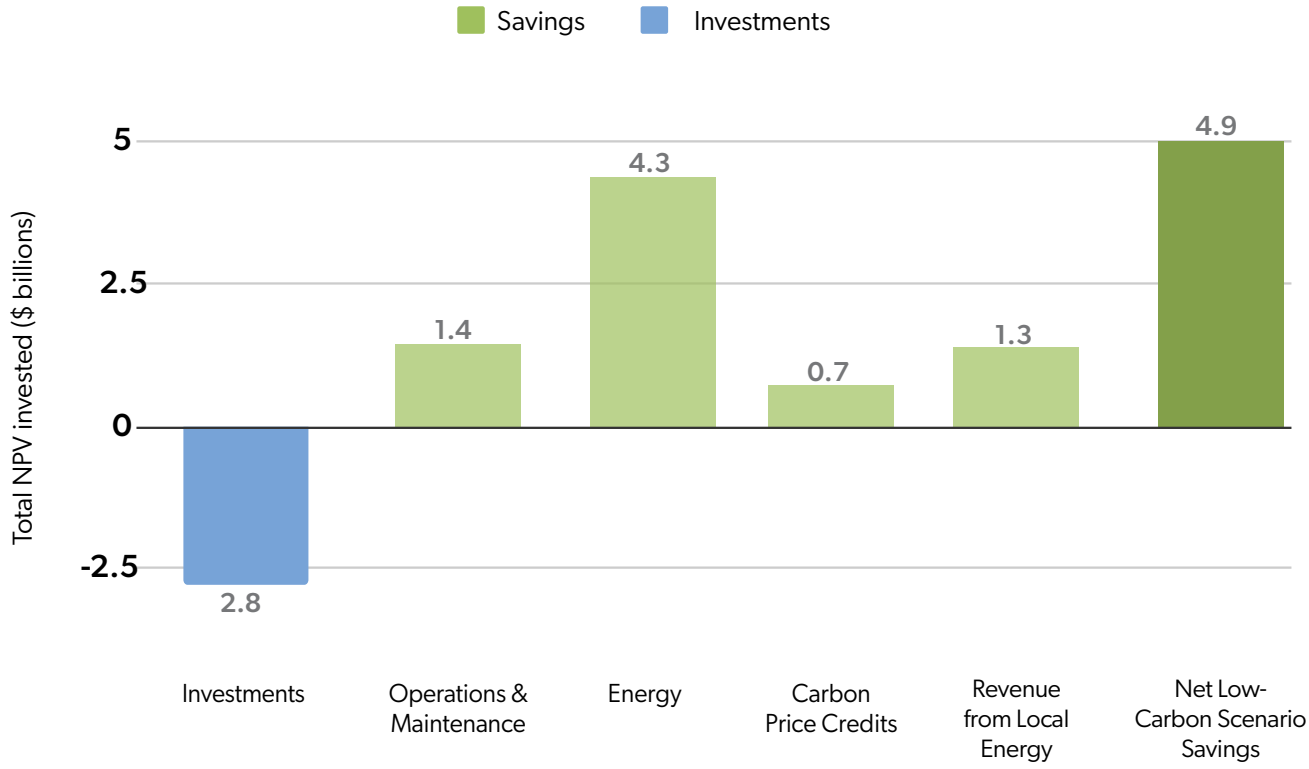


Figure 11. Capital investments in the Resilient Caledon Plan by sector.

Avoiding the Costs of Climate Change

Savings from this plan are not just associated only with reductions in energy use and local energy generation. Climate change is already costing communities across Canada. The Bank of Canada estimates that global GDP losses from extreme weather could range between 4% to 50% annually by 2100 if action is not taken to slow warming.[18] In Canada, insurance claims due to severe weather are increasing in cost and frequency; of the 10 highest insurance loss years on record, eight have occurred since 2010, largely due to wildfires and flooding.[19]

Investing in climate change adaptation measures can help municipalities avoid some of the most significant costs of extreme weather, including from infrastructure damage and liability.

The Insurance Bureau of Canada estimates that for every $1 invested in climate adaptation, $6 are saved in avoided future damages.[20] Homeowners and businesses can also make investments to protect their properties and business operations from severe weather damage and disruptions.

NEW JOBS AND INVESTMENT

The investments in the Low-Carbon Scenario will result in new jobs, including opportunities in renewable energy installation, design, and construction of zero-carbon and resilient buildings, and retrofits to existing buildings. Investments made across all sectors will create approximately 38,000 person years of employment[21] in Caledon from 2020-2050, an average of just over 1,100 jobs per year. Some jobs will also be lost or will have to transition to other sectors as investments are shifted, resulting in a net of 923 jobs per year. Examples of actions that will result in job losses include vehicle electrification (since electric vehicles require less maintenance than gasoline and diesel vehicles), and in new construction (since building smaller or attached homes generally require less labour per dwelling unit).

The town currently sees most of its energy dollars leave the community, since virtually all energy consumed within Caledon is imported. Developing clean energy locally will create more jobs within the community and will stimulate Caledon's economy by keeping energy dollars within the community.

[18] Ens, E., & Johnston, C. (2020, May 19). Scenario Analysis and the Economic and Financial Risks from Climate Change. Retrieved from https://www.bankofcanada.ca/2020/05/staff-discussion-paper-2020-3

[19] Insurance Bureau of Canada. (2020, January). Severe Weather Caused $1.3 Billion in Insured Damage in 2019. Retrieved from: http://www.ibc.ca/on/resources/media-centre/media-releases/severe-weather-caused-1-3-billion-in-insured-damage-in-2019

[20] Insurance Bureau of Canada (2020, February) Investing in Canada's Future:The Cost of Climate Adaptation at the Local Level. Retrieved from: http://assets.ibc.ca/Documents/Disaster/The-Cost-of-Climate-Adaptation-Report-EN.pdf

[21] A person year of employment is equivalent to 1 person working a full-time job for 1 year. Person years of employment were calculated using known numbers of jobs created per dollar invested across different sectors, and applying these to the investments required to implement the actions in the plan.

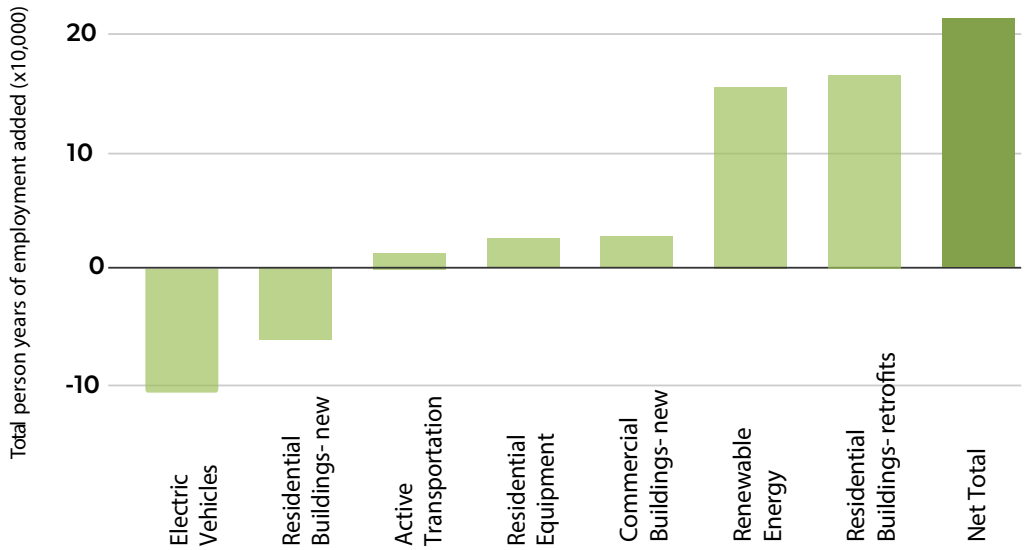


Figure 12. New jobs created under the Low-Carbon Scenario.

PROTECTING HABITAT AND BIODIVERSITY

The Resilient Caledon Plan includes actions to protect and restore natural systems, including forests, wetlands, and grasslands to enhance carbon sequestration and resiliency to climate impacts. These actions have multiple important benefits across the community, including:

- Enhancement of wildlife habitat and biodiversity;
- Cleaner air and water from the filtration of pollutants;
- Education opportunities;
- Increased tourism; and
- Improved physical and mental health through recreational activities.

A HEALTHIER COMMUNITY

Many of the Resilient Caledon Plan actions increase the health and well-being of community members, reducing costs and burdens on health services. Examples include:

- Reduced risks of respiratory illness from less exposure to traffic-related air pollution and overall cleaner air, as zero-emissions vehicles do not produce tailpipe emissions;
- Reduced risk of conditions, such as heart disease and chronic obstructive pulmonary disease, from increased physical activity (walking and cycling from the creation of compact communities);
- Noise reduction from vehicle engines, reducing mental health stresses from noise exposure;
- Healthier buildings from reduced flood and mould risks, as well as retrofits to heating and ventilation systems;

- Improvements to mental health from increased social interactions when walking, cycling,[22] or taking transit, and as a result of regular physical activity; and
- Potential to reduce social isolation and increase community connection from the creation of compact, walkable communities.

These benefits are not included in the financial analysis, even though the public benefit of the health improvements could, on its own, justify investment in many of the actions.

EQUITY

Climate adaptation and mitigation actions help to promote equity amongst residents by:

- Prioritizing vulnerable populations in resilience measures such as emergency preparedness;
- Cost savings from energy retrofits for low-income households;
- A more age-friendly and child-friendly town from the development of safer walking and cycling networks, as well as increased transit options;
- Providing an opportunity for cities to invest in improvements to the built environment and servicing in low-income communities; and
- More diverse and affordable housing options for a range of income groups through increased shares of apartments, townhouses, and smaller single family homes as compared to larger homes.

SAFETY

Safety of residents is improved by:

- Reduced vulnerability of residents and businesses to climate impacts, such as flooding, infrastructure damage, heat stress, and power outages; and
- Reduced risk of liability to the Town for inaction on climate change.

A VIBRANT, LIVABLE CALEDON

Resilient Caledon actions will make the town more attractive, vibrant, and liveable, all of which can attract new residents and businesses. Some of these positive impacts include:

- Improvement in the Town's reputation and exposure through innovations on climate action;
- Walkable, complete communities with access to green space and mixed land uses; and
- Attracting innovative businesses that help to enhance a low-carbon future.

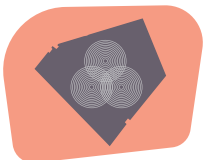
[22] Ione Avila-Palencia, et al. The effects of transport mode use on self-perceived health, mental health, and social contact measures: A cross-sectional and longitudinal study. Environment International, 2018; 120: 199 DOI: 10.1016/j.envint.2018.08.002

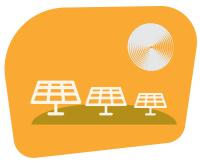
5. Actions

ACTIONS

Table 7. Summary of the Resilient Caledon Plan actions.

	SUMMARY OF ACTIONS
	SMART GROWTH
1	Establish climate-friendly land-use and building policies.
2	Protect communities from flood risks.
3	Promote the development of compact, complete communities.
	SUSTAINABLE COMMUNITIES
4	Retrofit homes, institutions, and commercial buildings to be net zero and climate resilient by 2040.
5	Reduce community-wide waste generation and improve water conservation.
6	Develop and upgrade emergency response plans so that all town residents, staff, businesses, and community organizations are prepared for climate-related emergencies.
7	Green Caledon's economy by supporting existing businesses in becoming low carbon and climate resilient, attracting new businesses, and diversifying energy supply.
8	Enhance community capacity by engaging and empowering residents, businesses, community groups, and schools to take action on climate.
	AGRICULTURE AND NATURAL SYSTEMS
9	Support a resilient food and agriculture sector across Caledon.
10	Protect Caledon's natural and agricultural lands.
11	Restore and enhance natural features on public and private land.
	LOW-CARBON TRANSPORTATION
12	Increase walking and cycling through improved programs and infrastructure.
13	Expand Caledon's transit network in alignment with new growth areas.
14	Expand Caledon's EV charging network and encourage the adoption of low-carbon vehicles.
	RESILIENT INFRASTRUCTURE AND ENERGY
15	Diversify Caledon's energy supply with renewable and resilient energy sources and systems.
16	Enhance the capacity of Town roads and bridges to withstand extreme weather impacts.
17	Upgrade stormwater plans and practices to reduce risks from extreme weather events.
18	Ensure Town facilities are carbon neutral and climate resilient by 2040.
19	Embed climate change considerations into the Town's Asset Management planning process.





CLIMATE ACTIONS FOR CALEDON

The sections below provide an overview of the key actions in the Resilient Caledon Plan. A detailed list of actions, sub-actions, implementation mechanisms, and additional considerations can be found in the Appendix: Implementation Tables. This section is organized as follows:

Climate Action Area:

- Overarching goal
- Description of the action area and its relevance
- What partners/community members will or can do to support the action area
- Key actions and timelines for implementation
- Whether the action addresses adaptation (A), mitigation (M) or both (A/M)

Timelines are as follows:

- Immediate: within the year
- Short: 2-3 years
- Medium: 4-6 years
- Long: 7-10 years
- Ongoing: continuous and/or already initiated

SMART GROWTH

Goal: Caledon's new communities and buildings are low carbon and resilient to climate impacts. They prioritize energy efficiency, walkability, effective stormwater management, and green space.

Caledon is a growing community, with the population expected to more than double over the next 20 years. How Caledon grows and welcomes that population will be critical to ensure the Town is prepared for climate change impacts, and is healthy, livable, and environmentally sustainable over the long-term. Planning policies can provide direction to reduce urban sprawl and allow for the efficient use of land, energy, and transportation systems; promote a greater mix of housing options that are more energy efficient and affordable; ensure the design and construction of new buildings produces as few GHG emissions as possible; and emphasize green infrastructure, urban forests, and community amenities that improve health and well-being.

Raising the Bar on Home Energy Efficiency: Caledon's Sustainable Residential Home Strategy

Mayfield West is one of Caledon's fastest growing communities and will be home to a planned population of 10,348 residents. This area will develop as a complete community that is compact, pedestrian and cyclist friendly, and transit-oriented, as outlined in the Plan area's nine guiding principles emphasizing environmental sustainability. The Sustainable Residential Home Strategy encourages all new homes in the Mayfield West Plan area to be designed and constructed with water and energy conservation standards that exceed the Provincial Building Code. Given the contribution of residential buildings to Caledon's GHG emissions, it's critical that new homes are built as efficiently as possible. This Strategy will serve as a pilot for a Caledon-wide green development standard to ensure all new developments prioritize resource efficiency and sustainability.

Photo: New construction in Caledon

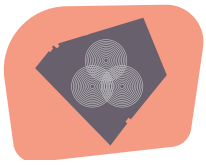
What YOU can do:

RESIDENTS: Support Town policies that establish compact, walkable communities and energy efficient new buildings. Get involved in the Official Plan Review and other planning processes.

DEVELOPERS: work with the Town to implement ambitious green building standards in energy efficiency and stormwater retention

SMART GROWTH: TOWN ACTIONS		TIMELINE
1. ESTABLISH CLIMATE-FRIENDLY PLANNING AND BUILDING POLICIES (A/M)		
1.1	Integrate climate change targets and actions into land-use planning policies and processes, including the current Official Plan Review expected to be complete in 2022.	Short
1.2	Create a sustainable development standard to ensure all new residential and commercial buildings are net zero and climate resilient by 2030, and promote efficient, green, and livable community design.	Short
2. PROTECT COMMUNITIES FROM FLOOD RISKS (A)		
2.1	Prohibit new development in high-risk flood zones and maintain sufficient setbacks along water bodies and near natural features.	Short
2.2	Increase the amount of green space incorporated into all new communities to provide green infrastructure, stormwater management, and recreation services.	Medium
3. PROMOTE THE DEVELOPMENT OF COMPACT, COMPLETE COMMUNITIES THAT ARE WALKABLE, BIKEABLE, TRANSIT FRIENDLY, AND ENERGY EFFICIENT (M)		
3.1	Support the development of eco-districts in the commercial sector to promote energy efficiency and opportunities for district energy.	Ongoing
3.2	Prioritize mixed-use, compact community design that enables active transportation and transit.	Ongoing
3.3	Increase the share of sustainable and active transportation modes both in and between urban areas.	Ongoing
3.4	Deliver transportation demand management programs and public education to support more sustainable travel.	Ongoing

SUSTAINABLE COMMUNITIES



Goal: Caledon residents are prepared for climate impacts and have the capacity to reduce GHG emissions and build resilience in their own homes, businesses, and neighbourhoods.

Caledon has a diverse community profile, from small villages and hamlets, to rural landowners, to agricultural operations and equestrian facilities, to larger urban centres with a strong commercial and manufacturing base. Participation from all residents, in all of Caledon's varied communities, will not only ensure the Town can meet its climate change targets, but that it does so in a way that meets the needs of each unique community.

Sustainable communities in Caledon will undertake retrofits of their buildings to become more resilient to climate impacts, and reduce their emissions and energy use, starting with older buildings that are the least efficient and those that are most at risk from extreme weather events. They will reduce their waste generation from local activities, increase waste diversion away from landfills, and conserve water resources. They will develop hazard-specific emergency response plans to ensure the safety of all community members during extreme weather events and set up programs that empower local groups and businesses to take action. Local businesses will take actions to improve their energy performance and resilience; an emerging green economy will be established through local investments in climate actions. The Town will support these actions through capacity building and fostering engagement and connectivity across communities.

Bolton Residents Green their Home

Meet Alessandra and Nick McIntosh. In 2019 their home received a green makeover through the West Bolton Sustainable Neighbourhood Action Program, with support from Enbridge Gas. The goal: reduce greenhouse gas emissions, save energy, and improve water retention on their property. The McIntosh's installed a new high efficiency furnace and hot water heater, added attic insulation, and conducted air sealing, all of which greatly reduced their natural gas usage. Outside, they put in a fusion rain garden and planted trees, which help absorb more water during heavy storms, improve water quality, and provide cooling during extreme heat. Why? Nick says, "we're making these changes to help slow the effects of climate change and leave a better planet for our kids."

Photo: West Bolton SNAP Green Home Makeover. Photo credit: Toronto and Region Conservation Authority.

What YOU can do:

RESIDENTS: Retrofit your home to improve efficiency, switch to renewable sources of energy, and prepare for the impacts of climate change. Join or start a local climate action group. Keep up to date on how you can participate in local climate action programs and opportunities. Reduce waste from packaging and food. Conserve water in your home.

BUSINESSES: Complete retrofits to your building(s) and improve energy efficiency throughout your operations. Improve waste reduction and diversion. Conserve water within your operations.

COMMUNITY GROUPS: Educate residents on climate actions they can take. Lead climate action projects within the community. Work with other groups to establish community hubs during extreme weather emergencies.

SUSTAINABLE COMMUNITIES: TOWN ACTIONS		TIMELINE
4. RETROFIT HOMES, INSTITUTIONS, AND COMMERCIAL BUILDINGS TO BE NET ZERO AND CLIMATE RESILIENT BY 2040 (A/M)		
4.1	Develop and deliver a home retrofit program to fast-track deep energy and climate resilience retrofits in residential buildings.	Immediate
4.2	Review and enhance the Town's Community Improvement Plan program to enable energy and resiliency retrofits to commercial buildings.	Short
5. REDUCE COMMUNITY-WIDE WASTE GENERATION AND IMPROVE WATER CONSERVATION (A/M)		
5.1	Work with Peel Region and other partners to reduce waste generation and increase waste diversion throughout the community.	Ongoing
5.2	Support water conservation through public education and awareness.	Long
5.3	Reduce waste and enhance water conservation measures at municipal facilities.	Ongoing
6. DEVELOP PROACTIVE EMERGENCY PREPAREDNESS AND RESPONSE PLANS TO REDUCE RISK AND PREPARE TOWN RESIDENTS, STAFF, BUSINESSES AND COMMUNITY ORGANIZATIONS FOR CLIMATE-RELATED EMERGENCIES (A)		
6.1	Review and update the Town's emergency response plans and protocols to consider climate impacts and extreme weather.	Ongoing
6.2	Improve emergency management communication and coordination among partners and the public.	Short
6.3	Work with Conservation Authorities to better prepare for and respond to flood emergencies, especially in high flood-risk areas.	Ongoing
6.4	Continue education and training to prepare Town staff for climate impacts.	Ongoing
7. GREEN CALEDON'S ECONOMY BY SUPPORTING EXISTING BUSINESSES IN BECOMING LOW CARBON AND CLIMATE RESILIENT, ATTRACTING NEW BUSINESSES, AND DIVERSIFYING THE TOWN'S ENERGY SUPPLY (A/M)		
7.1	Develop programs and education to support businesses in reducing GHG emissions and increasing adaptive capacity.	Ongoing
7.2	Integrate climate change, energy management, and natural heritage into the Town's Economic Development Strategy and its implementation.	Ongoing
8. ENHANCE COMMUNITY CAPACITY TO TAKE ACTION ON CLIMATE CHANGE BY ENGAGING AND EMPOWERING RESIDENTS, BUSINESSES, COMMUNITY GROUPS AND SCHOOLS (A/M)		
8.1	Prepare and support vulnerable populations for and during extreme weather and heat events.	Short
8.2	Educate residents and businesses about potential climate change impacts, what they can do to prepare, and how they can reduce their carbon footprint.	Ongoing
8.3	Review and enhance Caledon's School and Community Green Fund programs to build community capacity to address climate change.	Short
8.4	Engage students and youth in Caledon on planning policies and local climate action.	Short
8.5	Work collaboratively with local First Nations communities to learn from and support climate action in Caledon.	Short

AGRICULTURE AND NATURAL SYSTEMS

Goal: Caledon's natural and agricultural systems are protected and enhanced to maximize carbon sequestration and resilience to climate impacts like flooding, invasive species, and pests.

NATURAL SYSTEMS

Forty percent of Caledon's 700 square kilometres comprises natural areas.[23] Much of this is part of either the Niagara Escarpment or the Oak Ridges Moraine, both of which are protected by provincial legislation and plans. Caledon's natural areas provide a range of benefits or "ecosystem services", including serving as a major carbon sink, reducing the urban heat island effect,[24] mitigating flood risk during extreme rainfall events, providing water filtration for the Region of Peel and GTA, and being an important tourism and recreation asset.[25]

Development pressures have continuously stressed Caledon's natural systems, either from conversion to new land uses, such as residential, commercial, and agricultural, or from damaging land and water management practices within or around them (such as contamination from quarries or use of pesticides).

Strategies for protection of natural areas include protecting green spaces that already exist through conservation and land-use planning; restoring and maintaining key features through careful management and ecosystem restoration; and expanding natural areas through initiatives like tree planting and wetland restoration. Benefits can also be realized more broadly by applying a green infrastructure approach to many Town initiatives, such as stormwater management, urban development, and asset management.

AGRICULTURE

Climate change poses increased risks to agriculture and food systems, including adverse impacts on agricultural crops (decreased crop yield and decreased nutritional quality of crops grown), increased food prices, contaminated water and food supplies, increases in new and existing pests and diseases, and damage and disruption to food supply and distribution infrastructure from extreme events.

Additionally, food production and distribution contribute to GHG emissions, through methane produced by livestock (mainly cattle); manure and fertilizers; pasture and crop management; energy for agricultural vehicles and machinery; conversion of forests, grasslands, and other carbon 'sinks' into cropland; and energy used in food processing, transport,

[23] Toronto and Region Conservation Authority, and Ontario Climate Consortium (2017). Natural Systems in Peel Region: Vulnerability Assessment.

[24] The heat island effect occurs when closely-packed buildings and paved surfaces amplify and trap heat in dense urban areas. These surfaces trap heat more effectively than natural ecosystems. Urban areas also generate heat through furnaces, air conditioners and vehicles, contributing to the problem.

[25] Town of Caledon (2018). Official Plan- April, 2018 Office Consolidation.

packaging, and retail. Actions in the agricultural sector will aim to improve adaptive capacity to climate impacts, reduce emissions from agriculture operations, minimize impacts on the surrounding environment, and build food security for local residents.

Healthy Soil, Healthy Climate

Did you know that a major climate solution lies right beneath our feet, and that many Caledon farmers are already doing it? Regenerative agriculture aims to restore the health of our soils by reducing tillage, planting cover crops, enhancing crop diversity, and using compost. Soil has an incredible capacity to absorb and store carbon, making regenerative agriculture an important tool to address emissions that are already in the atmosphere. Innovative farms such as Mount Wolfe Farm (pictured below), Riverdale Farm and Forest and many others in Caledon are actively improving soil health to not only address climate change, but to achieve healthier, more productive and more resilient crops.

Photo: Sarah Dolamore, farm manager at Mount Wolfe Farm (left).

Bringing New Life to an Old Stream

When the tile drain on David and Faith Clarkson's Caledon farm began to fail, they had a choice: replace the tile or try something new. The tile drain had been used to bury a freshwater stream that originally ran through the property in order to help improve crop conditions on the farm. The Clarksons decided it was time to bring back the stream, a process known as "creek daylighting." Over 5 years they worked with the experts at Credit Valley Conservation to restore the stream, and in the process brought back numerous species of fish, birds and amphibians. David Clarkson explained why they took on this project: "Our connection to this place is fleeting. It's been someone else's before, it will be someone else's in the future, and we have the privilege of being the custodians for now."

Photo: Restored stream on the Clarkson property. Story and photo credit: Credit Valley Conservation.

What YOU can do:

LANDOWNERS: Protect natural features on your property and restore natural systems where possible, through activities like tree planting, wetland creation, and restoring the natural course of streams.

FARMERS: Implement best management practices like conservation tillage, planting cover crops and installing erosion control measures to improve soil health; minimize contamination of natural features and waterways from nutrients, manure, and pesticides; explore opportunities to restore and create habitat on marginal farmland; and participate in programs (e.g. the Peel Rural Water Quality Program) to access funding and technical assistance to implement many of the above measures.

RESIDENTS/COMMUNITY MEMBERS: Volunteer at restoration events like community tree planting; learn about Caledon's natural areas and the threats to them; advocate for further protection of Caledon's natural areas; take action on your own property (for example, planting a tree, building a rain garden or vegetable garden, and/or planting pollinator-friendly plant species); and support local food and agriculture by buying from local farms or participating in a community garden. "It is more important than ever for Caledon to support local farmers (shop local, promote healthy farm soil)."[26]

AGRICULTURE AND NATURAL SYSTEMS: TOWN ACTIONS		TIMELINE
9. SUPPORT A RESILIENT FOOD AND AGRICULTURE SECTOR ACROSS CALEDON (A/M)		
9.1	Develop an agriculture strategy to help farmers adapt to changing climate conditions and access new opportunities.	Long
9.2	Support community agriculture initiatives to enhance local food security (e.g. community gardens, farmer's markets, etc.)	Medium
9.3	Support agricultural best management practices that improve soil health, minimize impacts on local ecological systems, reduce runoff and erosion, and improve adaptive capacity.	Medium
10. PROTECT CALEDON'S NATURAL AND AGRICULTURAL LANDS (A/M)		
10.1	Enhance protection of agricultural lands, natural features, and water resources through planning and zoning policies.	Ongoing
10.2	Explore a tree protection by-law to prevent loss of the town's tree canopy and provide guidelines for tree replacement where appropriate.	Short
10.3	Work with Conservation Authorities to manage priority invasive species in Caledon.	Ongoing
10.4	Identify and implement alternative land procurement approaches.	Long
10.5	Create an Open Space Strategy for parks and green space in Caledon that considers future climate conditions in land acquisition, as well as park development and management.	Medium
11. RESTORE AND ENHANCE NATURAL FEATURES ON PUBLIC AND PRIVATE LAND (A/M)		
11.1	Work with Conservation Authorities and other partners to develop restoration strategies that enhance ecosystem resilience to climate change.	Ongoing

[26] Caledon 2019 Climate Change Survey Respondent.

AGRICULTURE AND NATURAL SYSTEMS: TOWN ACTIONS		TIMELINE
11.2	Expand restoration efforts on private land (residential, commercial, rural, and marginally productive agricultural), including tree planting, wetland restoration, stream rehabilitation, etc.	Ongoing
11.3	Increase tree planting and restoration of wetlands, streams, and meadows on public lands including Town-owned Parks, Conservation Areas, public right of ways, and other areas .	Ongoing
11.4	Explore an offsetting program to require that new developments compensate for loss or degradation of natural features.	Long

Photo: Local farming.

LOW-CARBON TRANSPORTATION

Goal: Caledon residents and businesses use low- or zero-carbon options for transportation. Cycling, walking, and transit mode shares are increased through the establishment and expansion of safe and efficient networks and infrastructure.

Caledon covers a large geographic area and, as a result, its citizens and communities are heavily reliant on cars and trucks for daily life. About 95% of yearly trips in Caledon are made using a personal vehicle. Accordingly, transportation accounted for 55% of community emissions in 2016 and 47% of its energy use. Incoming growth poses challenges to reducing transportation emissions, as new residents and businesses are moving in.

Switching to electric vehicles (EVs) will improve air quality, reduce fuel costs, and reduce vehicle maintenance requirements for owners. Facilitating the switch to EVs will require coordination with local partners and industry specialists to prepare for a shift from gasoline to electricity use, and planning for and building charging infrastructure throughout Caledon.

Expansion of transit and active transportation networks will allow more community members to choose low-carbon transportation methods. These will also serve to reduce traffic congestion, improve air quality, and enhance the physical and mental health of residents. The Town can build upon existing initiatives like the Transit Feasibility Study and Caledon's first bus routes through Bolton and Mayfield West by increasing bus service, exploring on-demand transit opportunities, advocating for a GO Station, and continuing to improve and expand upon its cycling network. The Town will also ensure that new communities are more accessible via transit, walking, and cycling by promoting compact urban design, a mix of residential and commercial areas in close proximity, and establishing robust active transportation infrastructure.

The Electric Revolution

Kenneth Bokor knows just a thing or two about electric vehicles. An EV owner and enthusiast himself, he runs a YouTube channel dedicated to providing information on EVs, and started a new chapter of the Canada-wide EV Society right here in Caledon. Because Ontario's electricity grid is currently very clean, EVs offer a huge opportunity to lower our transportation emissions. Not only that, EVs require less maintenance than traditional vehicles, and an average driver can save around $2,000 on fuel costs every year. What motivates Ken? "I'm trying to bring awareness and education and understanding to how electric vehicles can help people and the environment, and hopefully move forward EV adoption."

Photo: Kenneth Bokor talking to residents at an EV event.

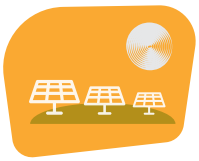
What YOU can do:

RESIDENTS: Walk, bike, take transit or carpool to destinations whenever possible, and switch to an EV.

BUSINESSES: Convert to an EV fleet and install public EV charging infrastructure where appropriate. Offer employees support and incentives for using sustainable travel modes to get to work.

LOW-CARBON TRANSPORTATION: TOWN ACTIONS		TIMELINE
12. INCREASE WALKING AND CYCLING THROUGH IMPROVED PROGRAMS AND INFRASTRUCTURE (M)		
12.1	Expand and enhance active transportation infrastructure to promote walking and cycling in urban areas and as a means of travel between them.	Medium
13. EXPAND CALEDON'S TRANSIT NETWORK IN ALIGNMENT WITH NEW GROWTH AREAS (M)		
13.1	Expand the Town's transit network with new bus routes and service in built-up areas, as well as car sharing and carpooling, and plan for transit in new communities.	Long
14. EXPAND CALEDON'S EV CHARGING NETWORK AND ENCOURAGE THE ADOPTION OF LOW CARBON VEHICLES (M)		
14.1	Develop and implement a community-wide zero-emissions vehicle strategy, including expansion of public charging infrastructure.	Immediate
14.2	Develop a municipal Green Fleet Strategy to convert the Town's fleet to zero emissions.	Medium
14.3	Reduce transportation-related pollution in Caledon through education and enforcement.	Ongoing

RESILIENT INFRASTRUCTURE & ENERGY



Goal: Caledon's energy infrastructure is diversified, low carbon and resilient, and core infrastructure assets are better able to withstand major weather events like storms, flooding, and freeze-thaw cycles.

ENERGY

Reducing GHG emissions across the Town will require large-scale switching from higher-carbon fuels like fuel oil and gasoline, to zero-carbon electricity. Community-scale solar generation will increase the supply of local renewable energy, while also stimulating the economy and building on local business expertise. Heat pumps will allow residents to transition away from natural gas while delivering a highly efficient and cost-effective heating source. Diversifying Caledon's energy supply will also make it more resilient to power outages caused by climate impacts and help stimulate the local economy.

CORE INFRASTRUCTURE

The Town manages a complex network of infrastructure, including roads, bridges, culverts, stormwater systems, and municipal buildings, which residents and businesses depend upon every day. Critical transportation and stormwater infrastructure needs to withstand the impacts of climate change in the near and long term. This objective requires protecting and strengthening existing infrastructure to ensure it can withstand increasingly intense storms, higher average temperatures, and increased freeze-thaw cycles due to warmer winters amongst other climate impacts.

It also requires planning for the future by building climate projections into the design of new or upgraded infrastructure, and looking to innovative green infrastructure solutions (e.g. rain gardens, naturalized stormwater ponds, etc.), which are often more effective and less costly than focusing on "grey" infrastructure alone. By improving the resilience of infrastructure now, the reactive resources needed for emergency response and/or repairs from future impacts will be reduced.

Caledon also has an opportunity to reduce the energy use and emissions associated with its own infrastructure. The Town can explore processes and materials that reduce emissions from building new infrastructure and can work to reduce energy use at its facilities like community centres, fire halls, and libraries.

ASSET MANAGEMENT PLAN

The Town is updating its Asset Management Plan (AMP) to better manage and maintain its core infrastructure assets like roads, bridges, and stormwater systems. Incorporating climate change risks into the AMP process is one of the most effective tools available to ensure the Town's infrastructure continues to be safe and reliable, even as the climate changes. The AMP can also help value the Town's green infrastructure assets, such as trees, to better account for the services they provide to the community.

A Low Carbon Congregation

Environmental sustainability and community well-being are at the heart of the Palgrave United Church. Starting in 2007, the church made a commitment to greening its own operations and educating the broader community about sustainability. Since then, the church has been an environmental leader, reducing and diverting waste, greening their grounds, promoting local sustainable food through Peel Region's first certified community kitchen, purchasing Bullfrog power to offset the church's emissions, and eventually installing a 10kW rooftop solar array that generates clean power to the grid while providing income. Their work, however, doesn't stop there - their vision is to become a carbon neutral facility. Barb Imrie, Manager of their community kitchen, notes: "You have to start where you are. We may not be able to change the world but we can bring change to our own church and be an example for our community. It's really about local action."

Photo: The Palgrave United Church and Community Kitchen.

What YOU can do:

RESIDENTS, BUSINESSES, AND INSTITUTIONS: Install solar panels on your roof or property and convert to ground- or air-source heat pumps. Use ash and sand in place of road salt, where possible. Increase vegetation and install permeable paving on your property in place of asphalt to retain and filter stormwater.

FARMERS: Explore opportunities to install large-scale renewables like solar and biogas, and convert heating sources away from oil, propane, or natural gas to heat pumps. Use best management practices like cover crops to avoid stormwater runoff onto adjacent roads. Plant trees and vegetation as living snow fences to reduce snow blowing onto roads and need for salting.

	RESILIENT INFRASTRUCTURE & ENERGY: TOWN ACTIONS	TIMELINE
15. DIVERSIFY CALEDON'S ENERGY SUPPLY WITH RENEWABLE AND RESILIENT ENERGY SOURCES AND SYSTEMS (A/M)		
15.1	Develop a renewable energy strategy for Caledon to advance solar and other renewable energy systems and explore low-carbon energy procurement.	Short
15.2	Identify and support opportunities for district energy and renewable energy infrastructure.	Medium
15.3	Encourage investment in ground-mount solar projects and support the uptake of rooftop solar on homes and businesses.	Short
15.4	Support the uptake of community rooftop PV.	Immediate
15.5	Develop energy storage solutions as an emergency back-up power supply and energy demand management measure.	Medium
15.6	Develop on-farm renewable energy systems.	Medium
16. ENHANCE THE CAPACITY OF TOWN ROADS AND BRIDGES TO WITHSTAND EXTREME WEATHER IMPACTS (A)		
16.1	Update engineering codes and design standards for new and upgraded municipal and private infrastructure.	Medium
16.2	Prioritize infrastructure upgrades/replacement/maintenance based on susceptibility to climate impacts.	Short
16.3	Enhance the Town's Salt Management Plan to minimize salt use in ecologically and agriculturally sensitive areas, consider salt alternatives and pilot new approaches/ technologies.	Medium
16.4	Update road operations and maintenance procedures in response to climate impacts.	Medium
17. UPGRADE STORMWATER PLANS AND PRACTICES TO REDUCE RISKS FROM EXTREME WEATHER EVENTS (A)		
17.1	Update the Town's Stormwater Management Master Plan to improve resilience to climate impacts like flooding through green infrastructure and other approaches.	Short
17.2	Incentivize lot-level stormwater retention and discourage increases in impervious surfaces through zoning and by-laws.	Medium
17.3	Review and enhance development guidelines for stormwater infrastructure in new developments.	Short
18. ENSURE TOWN FACILITIES ARE CARBON NEUTRAL AND CLIMATE RESILIENT BY 2040 (A/M)		
18.1	Meet the targets in the Town's Corporate Greenhouse Gas Reduction Framework and adopt second generation targets (i.e. net zero) in the next update.	Ongoing
18.2	Update the Town's Corporate Green Building Standard for new municipal buildings and building renovations to achieve net-zero carbon and climate resiliency standards.	Medium
18.3	Incorporate climate change risks into building condition assessments to consider how future climate trends will impact facility structure and operations.	Medium
18.4	Establish low-carbon back-up power systems in all Town facilities to serve as community hubs during emergencies.	Medium

RESILIENT INFRASTRUCTURE & ENERGY: TOWN ACTIONS		TIMELINE
19. EMBED CLIMATE CHANGE CONSIDERATIONS INTO THE TOWN'S ASSET MANAGEMENT PLAN (AMP) PROCESS (A/M)		
19.1	Incorporate climate change considerations into the Town's AMP, including levels of service, levels of risk, and the risk assessment of core and non-core assets.	Medium
19.2	Update asset maintenance and monitoring programs of core infrastructure to reflect climate change considerations.	Medium
19.3	Incorporate green infrastructure and natural assets into the AMP by identifying and evaluating Town-owned and community assets and developing management plans.	Medium

Photo: Town of Caledon solar installation.

6. Implementation

IMPLEMENTING THE PLAN

Goal: The Resilient Caledon Plan and its actions are carried forward and supported by robust frameworks for their funding, decision-making, prioritization, and monitoring.

The Resilient Caledon Plan will require leadership, oversight, resources, and innovation. The Town will develop mechanisms for financing climate action, as well as new approaches to managing its own funds and investments. Climate change considerations will be embedded into municipal financial decision-making to ensure that Caledon's resilience to climate impacts is increased and its GHG emissions are reduced. The Town will leverage existing plans, like the Official Plan, Asset Management Plan, and Economic Development Strategy, to strategically implement climate actions alongside other priorities. The Town will work towards developing a municipal carbon budget process, alongside its existing financial budget and capital planning process, to assess how the Town's operations either deplete or add to our annual carbon budget allotment. This will provide Council and senior leadership the necessary tools to understand how the Town is progressing towards its climate change targets on a yearly basis.

In addition, the Town will establish a robust governance and oversight structure that involves staff, stakeholders and community members, as well as a monitoring and evaluation framework to ensure the plan stays on track.

Overall, the implementation of the plan will take an integrated approach by recognizing synergies between different actions and leveraging common programs, policies, and tools. Below is a summary of broad actions and mechanisms to implement the plan. For details on implementation, resourcing, and funding of each action, see the Appendix: Implementation Tables.

IMPLEMENTING THE PLAN: TOWN ACTIONS	TIMELINE
CLIMATE ACTION GOVERNANCE AND CAPACITY	
Goal: The Town has appropriate resources and leadership to carry out and oversee climate action. Staff and residents are informed about the plan and actively contribute to its implementation.	
• Increase staff resources for plan implementation.	Immediate
• Establish a long-term multi-stakeholder implementation governance body for the Resilient Caledon Plan, ensuring representation from the community and Council.	Immediate
• Educate Town staff, Council, and relevant Committees and Task Forces on the Resilient Caledon Plan and how they can support it.	Short
• Ensure that the Resilient Caledon Plan actions are incorporated into other Town and Regional Plans and initiatives, such as the Official Plan, Economic Development Strategies, Sustainable Neighbourhood Action Plans, and the Transportation Master Plan.	Medium
• Add a "Climate Implications" section to all Council reports to require consideration of climate risk and GHG emissions associated with Town initiatives.	Short
• Communicate the Plan and its implementation to the public through interactive educational tools on the Town's climate change page, events and other engagement mechanisms.	Short
• Advocate to other levels of government for strong climate policy and legislation, as well as financial support for municipal climate action.	Immediate
MUNICIPAL FINANCING AND DECISION-MAKING	
Goal: Climate considerations are integrated into municipal financing, decision-making, and governance.	

• Integrate climate change into the Town's financial decision-making by:
  • Reporting annually on climate-related financial disclosures[27];
  • Establishing a municipal carbon budget report; and
  • Applying a climate lens to capital and business planning and asset management.
	Short

• Establish a financing framework for the Town to invest annually in corporate and community climate action.	Immediate
• Integrate climate change considerations into the Town's procurement policies to support low-carbon alternatives for materials, equipment, and services.	Short
CARBON ACCOUNTING	
Goal: The Town is prepared to achieve net-zero emissions through offset strategies, as required, and incorporate additional emissions reduction measures into carbon accounting and reduction strategies.	
• Develop a framework for how the Town can purchase carbon offsets.	Medium
• Develop a GHG emissions inventory that accounts for the impacts of production and consumption of goods used within the Town.	Long
• Incorporate standards for embodied carbon in the Town's Green Development and Corporate Green Building Standards.	Long

[27] Ensuring that investments and financial statements account for the physical, liability, and transition risks associated with climate change, following the recommendations of the Climate Disclosure Standards Board

IMPLEMENTING THE PLAN: TOWN ACTIONS	TIMELINE
MONITORING AND REPORTING	
Goal: Monitor and report on climate action and impacts to learn from and adapt to successes and challenges.	

• Report annually to Council and the public on progress towards key indicators, and evolving climate impacts and risks. Include in reporting:
  • Status of actions' implementation and their effectiveness;
  • Town staff and operations capacity and learning;
  • Emerging resources, technologies, opportunities, or innovations that can support progress towards eliminating the town's emissions gap; and
  • Annual climate conditions and climate events.
	Ongoing

• Complete town-wide GHG inventories on a yearly basis and track Caledon's carbon budget. GHGs emitted must be subtracted each year from the Town's overall carbon budget, starting with 5.7 MtCO2e in 2020.	Short
• Meet regularly with implementation partners to track progress, exchange knowledge, and identify areas for collaboration.	Ongoing
• Update the Resilient Caledon Plan every 10 years, with a mid-point review every 5 years.	Medium

MOVING FORWARD

Much work lies ahead for Caledon to reach our goal of net-zero emissions by 2050, stay within a 1.5°C carbon budget, and increase our resilience to the impacts of future climate conditions. With every tonne of GHG emissions released today having greater impacts down the road, the Town needs to mobilize resources and take action immediately to jump start our low-carbon pathway. In the near term, the Town will focus on initiating the following five priority actions:

1. Programs to retrofit older buildings and expand renewable energy;
2. Establish a community-wide Green Development Standard;
3. Planning for zero carbon municipal buildings and fleet;
4. Framework for assessing risk and protecting critical infrastructure; and
5. Financing and governance strategy to implement the Resilient Caledon Plan over the next 10 years.

While the Town has been a pioneer of climate action that began addressing climate change over 20 years ago, the level of ambition of this Plan is unprecedented. Our residents, businesses, and staff will need to be bold and innovative. Caledon will see a significant amount of growth in our Town, with the population anticipated to more than double over the next two decades. This presents an opportunity to direct our investments to actions that support a low-carbon, resilient, and livable community, while paying back in energy savings that support our local economy.

We live in unprecedented times. How we respond to climate change not only affects future generations but, increasingly, the livelihoods and well-being of our current generation. This Plan outlines how Caledon will take action on climate change with integrity to uphold ourselves as leaders and protect the natural heritage that inspired us to take action in the first place.

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APPENDIX

Actions Implementation table

TIMING	BUDGET
• Ongoing: continuous or already initiated	• N/A: covered by existing staff capacity or operating budgets
• Immediate: within the next year	• $: Low Cost ($0 - $100,000)
• Short: 2-3 years	• $$: Medium Cost ($100,000 - $500,000)
• Medium: 4-6 years	• $$$: High Cost ($500,000+)
• Long: 7-10 years	

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
SMART GROWTH								
1. ESTABLISH CLIMATE-FRIENDLY LAND-USE AND BUILDING POLICIES.								
1.1	Integrate climate change into land-use planning policies and processes, including the Official Plan update.	• Draft a climate change discussion paper as part of the Official Plan review process to propose and gain feedback on climate-supportive planning policies. • Educate the public on the links between municipal land-use decision-making and climate change. • Develop education and training for Committee of Adjustment members on climate change and planning/development.	Short	• Planning tools[28] • By-laws • Green Development Standards (GDS) • Incentives/ rebates • Toronto Region Conservation Authority (TRCA) Living City Policies	Town (Planning, Development, Finance, Economic Development, Energy and Environment)	• Relevant Town departments • Region of Peel • Landowners and developers • Utilities • Trades • Clean Air Partnership • The Atmospheric Fund • Conservation Authorities (CAs)[29]	$$ Staff time to update OP and relevant standards/ guidelines, including appropriate wording and policies. Staff time and capital costs to develop the standard and update development processes.	• Climate targets and by-laws adopted • Policies updated/ amended • Building energy performance • Instances of building standard certification (e.g. Passive House) • Greenhouse gas emissions (tonnes/ year) • Total building energy consumption (MWh/ year) • Number of secondary plans or new developments built to the green development standard
1.2	Develop and apply a green development standard to ensure all new residential buildings are net zero and climate resilient by 2030, and promote efficient, green, and livable community design.	• Review the Town's Development Charge rebate program for commercial buildings and explore options to enhance it and/or incorporate it into a broader community-wide standard. • Develop sustainability metrics to improve energy efficiency, lot-level stormwater retention, urban tree canopy, air quality, active transportation, etc. • Update development planning policies and relevant guidelines/ standards (e.g. urban design guidelines, stormwater guidelines, etc.) to include in the new standard. • Consider requiring a "climate impacts" section in all development applications submitted to the Town, including an assessment for how a development could reach net zero by 2030.	Immediate					

[28] Planning tools include Official Plan, secondary plans, zoning policies/by-laws, development applications, development charges, and design guidelines.

[29] Conservation authorities include Credit Valley Conservation (CVC) and the Toronto and Region Conservation Authority (TRCA), which are each responsible for management of one of Caledon's two primary watersheds.

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
SMART GROWTH								
2. PROTECT COMMUNITIES FROM FLOOD RISKS.								
2.1	Prohibit or restrict new development in high-risk flood zones, maintain sufficient setbacks along water bodies, and enhance flood resiliency in urban areas through planning and zoning.	• Work with conservation authorities to determine the most vulnerable watercourses and management options. • Conduct a basement flood study to determine areas at high risk for groundwater flooding and consider restricting new basement construction in high-risk areas. • Review zoning by-laws to discourage increases in impermeable surface area on private lots.	Short	• Stormwater Management Master Plan • Green Development Standards • Planning tools • Risk and Return on Investment Tool (Credit Valley Conservation) • TRCA Flood Risk Assessment and Ranking Study and Flood Characterization Studies • TRCA Living City Policies	Town (Planning, Development Engineering)	• Town (Energy and Environment) • Region of Peel • Conservation authorities • Developers	$ Staff time for plan and policy updates.	• Ha of restricted/ unrestricted flood-vulnerable area • Permeable to non-permeable surface area ratio
2.2	Increase the amount of green space and permeable surface incorporated into all new communities to provide green infrastructure, stormwater management, and recreation services.	• Maintain sufficient landscaped area on private properties. • Increase the viability of urban street trees to reduce the impacts of extreme heat and improve water retention (see also Agriculture and Natural Systems). • Ensure adequate parkland is included in all new subdivisions. • Make an inventory of Caledon's natural assets.	Short					

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
SMART GROWTH								
3. PROMOTE THE DEVELOPMENT OF COMPACT, COMPLETE COMMUNITIES THAT ARE WALKABLE, BIKEABLE, TRANSIT FRIENDLY, AND ENERGY EFFICIENT.								
3.1	Support the development of eco-districts to establish sustainable commercial areas.	• Update the Town's Eco-Industrial Guidelines and incorporate them into the Official Plan Update and relevant zoning by-laws • Work with local businesses and Town Planning staff to identify potential eco-district locations and collaborations.	Ongoing	• Planning tools • By-laws • Green Development Standards • Transportation Master Plan • West Bolton SNAP (TRCA) • Settlement Area Boundary Expansion (SABE) Study	Town (Planning, Development, Regulatory Services, Transportation)	• Town (Energy and Environment) • Developers/ builders/real estate • Partners in Project Green	$ Staff time to update development processes and engage with developers and the community.	• Housing starts • Dwellings per hectare • Floor space ratio • New-building type ratios • Amount of growth occurring in settlement areas • Amount of growth occurring in built boundary
3.2	Prioritize mixed-use, compact community design that enables active transportation and transit.	• Focus residential and commercial development in infill/ intensification and transit-served areas (e.g. Bolton, Mayfield West). • Require net-zero plans with energy efficiency and climate change criteria for new developments. • Decrease dwelling sizes and share of new single-family detached houses.	Ongoing					
3.3	Increase the share of sustainable and active travel modes, particularly in urban areas.	• Prioritize development in areas well connected by transit with a mix of uses (residential, commercial, employment) and set affordable housing targets near transit hubs. • Require active transportation infrastructure (sidewalks, bike lanes, bike racks) in new developments and upgrades. • Develop a Complete Streets Policy and Design Guidelines to support connectivity and continuity of on-road and off-road transportation networks for all road and trail classifications. • Maintain and build upon drive-through restrictions in congested areas.	Ongoing					
3.4	Deliver transportation demand management and education programs.	• Continue implementation of the West Bolton SNAP project, including improving active transportation amenities. • Work with schools, businesses, and advocacy groups on webinars, workshops, and other activities to promote active transportation.	Ongoing					

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
SUSTAINABLE COMMUNITIES								
4. RETROFIT HOMES, INSTITUTIONS, AND COMMERCIAL BUILDINGS TO BE NET ZERO AND CLIMATE RESILIENT BY 2040.								
4.1	Develop and deliver a residential building retrofit program to fast-track deep energy and climate resilience retrofits.	• Explore design options for a retrofit program for Caledon residents, considering scope, market uptake, cost, financing models, and partnership/third-party delivery opportunities. • Consider eligible retrofits for energy efficiency (e.g. windows, insulation, air sealing, furnace), renewable energy (e.g. switch to heat pumps, install solar panels, etc.), flood prevention (e.g. disconnect downspout, install a backwater valve) and green infrastructure (e.g. reduce impervious surface, install a rain garden, use rain barrels). • If required, pass an appropriate by-law enabling the program (e.g. LIC by-law). • Educate and provide tools/guidance to homeowners to help them navigate the retrofit process.	Short	• CIP Grant Program • GreenBiz Caledon Program • Property Assessed Clean Energy (PACE) Program or Local Improvement Charge (LIC) Program • West Bolton SNAP (TRCA)	Town (Finance, Building Services, Economic Development, Energy and Environment)	• Peel Climate Change Partnership (PCCP) • Clean Air Partnership • Federal/ provincial retrofit programs • Utilities • Trades • Residents and Businesses • Partners in Project Green (TRCA)	$$$ Staff time for program development and outreach. Retrofit incentives/grants.	• Buildings retrofit • Building energy performance • Total buildings energy consumption (MWh/ year) • Retrofit program participation rate • Average GHG savings per building • Total GHG emissions (tonnes/year) • Average energy savings per building
4.2	Review and enhance the Town's Community Improvement Plans (CIP) program to support retrofits to commercial buildings.	• Review energy efficiency and landscaping program criteria to maximize GHG reduction and adaptation/stormwater management opportunities. • Review project funding caps and eligibility requirements. • Educate and raise awareness about the program within Caledon's business community.	Immediate					

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
SUSTAINABLE COMMUNITIES								
5. REDUCE COMMUNITY-WIDE WASTE GENERATION AND IMPROVE WATER CONSERVATION.								
5.1	Work with Peel Region and other partners to reduce waste generation and increase waste diversion throughout the community.	• Coordinate with the Region and other partners on waste disposal strategies, such as education, incentives/ disincentives on certain types of waste, organics diversion, etc. • Set annual waste reduction and diversion targets that progress towards a high-level zero-waste goal, and report on progress. • Promote food donation and reusable take-out container programs.	Long	• Region of Peel Waste Management Plan • Town Green Fund Program • Corporate GHG Reduction Framework • West Bolton SNAP • GreenBiz Caledon • Peel Region Water Efficiency Strategy	• Region of Peel • Town (Energy and Environment, Facilities, Recreation)	• Town (Energy and Environment) • Residents and businesses • Schools • Ontario Waste Management Association • Conservation Authorities • Partners in Project Green (TRCA)	$ Staff time for outreach and engagement, and development of plans/ strategies.	• Town, residential, and commercial waste generation and diversion rates • Waste reduction and diversion programs implemented
5.2	Support water conservation and protect water quality in the community through education and awareness campaigns.	• Work with CAs to minimize groundwater contamination through well and septic health programs in rural areas, road salt management, and other initiatives. • Work with Peel Region and CAs on protecting groundwater supply, particularly in anticipation of drought periods.	Long					
5.3	Reduce waste and improve waste diversion at municipal facilities.	• Ban single-use plastics at all Town facilities. • Ensure waste bins are easy to use, install signage, and educate Town staff and residents on waste reduction and diversion at facilities. • Measure waste performance before and after retrofits have been completed.	Long					

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
SUSTAINABLE COMMUNITIES								
6. DEVELOP AND ENHANCE EMERGENCY RESPONSE PLANS AND PROTOCOLS SO THAT ALL CALEDON RESIDENTS, STAFF, BUSINESSES, AND COMMUNITY ORGANIZATIONS ARE PREPARED FOR CLIMATE-RELATED EMERGENCIES								
6.1	Review and update the Town's emergency response plans and protocols to consider climate impacts and extreme weather.	• Create site- and hazard-specific plans for emergency outreach, response, and evacuation protocols, including identifying areas most vulnerable to flooding. • Investigate options to offset higher operating costs in emergency services and infrastructure investments due to extreme weather events, such as an extreme weather reserve fund or climate disaster bonds.	Short	• Emergency response protocols • Business Continuity Plans • Community Emergency Response Plan • Community Handbook for Flood Vulnerable Areas • TRCA online platform for residents • Conservation Authority Early warning systems	• Town (Fire and Emergency Services, Health and Safety, Energy and Environment) • Conservation Authorities • Region of Peel	• Town (Operations, Engineering, Communications, Engineering/ Stormwater, staff, Finance, other divisions) • Conservation authorities • Office of the Fire Marshall and Emergency Management	$ Staff time to update plans and protocols, and conduct outreach and education.	• Emergency plans/protocols updated or created
6.2	Improve emergency management communication and coordination.	• Work with Peel Region and conservation authorities to review and enhance early warning systems in light of climate-related emergencies. • Explore different communications channels to alert community members of major weather emergencies (e.g. working with local radio stations).	Ongoing					
6.3	Work with conservation authorities to better prepare for and respond to flood emergencies, particularly in high-risk flood areas.	• Map flood and ice-jam prone areas. • Implement proactive response measures (e.g. culvert clean outs). • Review equipment acquisition/upgrades to ensure the Town has the right equipment. • Review traffic control and detour routes. • Work with conservation authorities to maintain and enhance flood-control structures in high-risk communities.	Ongoing					
6.4	Continue education and training to prepare Town staff for climate impacts.	• Integrate climate change impacts into the Town's Business Continuity Plans and continue emergency training for staff. • Modify work policies and protocols (e.g. schedules) for outdoor workers (e.g. operations, recreation, and camp staff) if needed and ensure outdoor workers are well informed and trained to protect from extreme heat, diseases, and pests.	Ongoing					

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
SUSTAINABLE COMMUNITIES								
7. GREEN CALEDON'S ECONOMY BY SUPPORTING EXISTING BUSINESSES IN BECOMING LOW CARBON AND CLIMATE RESILIENT, ATTRACTING NEW BUSINESSES, AND DIVERSIFYING THE TOWN'S ENERGY SUPPLY.								
7.1	Develop programs and education to support businesses in reducing GHG emissions and increasing adaptive capacity.	• Deliver the GreenBiz Caledon pilot program starting in 2021 to support businesses to develop and implement climate change measures that enhance their business. • Develop business-specific information and resources about climate impacts, available supports, and energy-reduction measures.	Ongoing	• Community Improvement Plans • Green Development Standards • Development charges • GreenBiz Caledon • Economic Development Strategy	Town (Economic Development, Energy and Environment, Planning, Development)	• Region of Peel • Downtown Bolton Business Improvement Area • Partners in Project Green • Caledon businesses	$ Staff time for program development and implementation.	• Number of participating businesses • Efficiency/resilience upgrades made
7.2	Integrate climate change and energy management into the Town's Economic Development Strategy and its implementation.	• Support energy efficient and resilient design for new buildings and retrofits of existing buildings to help businesses save energy costs (see also Resilient Infrastructure and Energy). • Explore opportunities for district energy and renewable energy sources in the institutional, commercial, and industrial sectors. • Develop strategies to attract innovative green tech businesses as part of Caledon's economic diversification goals. • Work with Economic Development to promote ecotourism destinations in Caledon.	Ongoing					

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
SUSTAINABLE COMMUNITIES								
8. ENHANCE COMMUNITY CAPACITY BY ENGAGING AND EMPOWERING RESIDENTS, BUSINESSES, COMMUNITY GROUPS, AND SCHOOLS TO TAKE CLIMATE ACTION.								
8.1	Prepare vulnerable populations for and support them during extreme weather and heat events.	• Map the location of vulnerable populations in Caledon (including seniors, children, and rural/isolated residents) relative to potential impacts, evacuation routes, and community centres. • Partner with community and faith groups that can help establish "hubs" and support vulnerable populations.	Short	• Emergency response protocols • Community Emergency Response Plan • Community/ School Green Fund • Peel Public Health and Education • Conservation authority education programs • Stormwater Outreach Collaborative • West Bolton SNAP • Communications channels (social media, website, radio, news, etc.)	• Town (Energy and Environment, Fire and Emergency) • Region of Peel (Public Health)	• Town (Engineering, Communications) • Health authorities • Region of Peel • Conservation authorities • Caledon Community Services • Other community organizations • Schools and school boards • Seniors' homes • Office of the Fire Marshall and Emergency Management	$ • Staff time for vulnerability assess-ments, plan devel-opment, and outreach and engage-ment.	• Number of engagement events held • Number/list of plan(s) and policies developed or updated • Number of Green Fund projects implemented and financial resources provided
8.2	Educate residents and businesses about potential climate change impacts, what they can do to prepare, and how they can reduce their carbon footprint.	• Develop a toolkit to help residents, businesses, and schools better understand the impacts of climate change on health (e.g. heat stress, ticks, disease), flooding (e.g. how to protect your property), and extreme weather (e.g. ice storms, wind storms). • Enhance communications to residents and businesses before and after major events, including communications to keep people away from water hazards, especially during high water or flood conditions. • Educate residents about what they can do to reduce their GHG emissions through webinars, partnering with community organizations, and providing resources/information.	Ongoing					
8.3	Review and enhance Caledon's School and Community Green Fund programs to build community capacity to address climate change.	• Review program criteria and application process. • Explore ways to expand the program through greater community involvement.	Short					
8.4	Engage students and youth in Caledon on planning and local climate action.	• Participate in the Innovate MY Future challenge to empower young people to develop community-based climate action projects. • Engage with students at local schools in Caledon when feasible. • Support student research on municipal governance and climate change. • Retain a student intern on an annual basis to develop skills and knowledge on municipal climate action.	Ongoing					
8.5	Work collaboratively with local First Nations communities to address climate change in Caledon.	• Incorporate traditional knowledge of First Nations communities into Caledon's approach. • Identify how First Nations may be uniquely impacted by climate change and support adaptation measures to mitigate these risks.	Short					

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
AGRICULTURE AND NATURAL SYSTEMS								
9. SUPPORT A RESILIENT FOOD AND AGRICULTURAL SECTOR ACROSS CALEDON.								
9.1	Develop an agriculture strategy to help farmers adapt to changing climatic conditions and access new opportunities.	• Conduct a study to assess the vulnerability of the local food and agricultural sector in Caledon to climate impacts and identify vulnerabilities in production, distribution, and processing. • Work with local, regional, and other representatives to create and implement an Agriculture Plan to support the long-term viability of the agricultural sector in Caledon. Activities could include: o Expanding on-farm diversified uses, o Farm incubator programs for new farmers, o Regular updates on local climate projections and potential impacts for the agriculture sector, and o Addressing skilled farm-labour availability,	Long	• Environmental farm plans • CVC Site Assessment Tool • Official Plan • Development charges • Peel Rural Water Quality Program • Peel Fusion Landscaping Program	• Town (Planning and Development, Economic Development, Energy and Environment) • Farmers/ agriculture organizations	• Agriculture organizations and Farmers • Conservation authorities • Ontario Ministry of Agriculture, Food, and Rural Affairs • Peel Region • Universities	$ Staff time and capital costs for vulnerability assessments and strategy development.	• MW of on-farm renewable energy • Uptake of on-farm best management practices (from agricultural census reports) • Farm-support programs implemented
9.2	Support community agriculture initiatives to enhance local food security.	Initiatives may include: • Farm-to-schools/businesses/restaurants/grocery store programs, including web-based initiatives; • Urban agriculture policy for Caledon to supporting urban agriculture initiatives like community and backyard gardens, including allocating Town land for community garden initiatives; • Establishment of a permanent or semi-permanent farmers market in Caledon to help local farmers get their products to local markets; and • Education or community events focused on climate-smart food.	Medium					
9.3	Support agricultural best management practices that improve soil health, mitigate impacts on local ecological systems, reduce runoff and erosion, and improve adaptive capacity.	• Work with representatives from the agricultural community and conservation authorities to support and promote low-carbon, resilient farming practices, including those that minimize stormwater runoff and associated contamination issues (i.e. through manure management, drainage activities, etc.). • Investigate potential incentives for programs that reward farmers for providing environmental services to reduce runoff and contamination, and improve soil health. • Support on-farm renewable energy projects, such as solar and biogas (see also Resilient Infrastructure and Energy). • Consider exemptions for new energy-efficient farm structures from development charges.	Medium					

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
AGRICULTURE AND NATURAL SYSTEMS								
10. PROTECT CALEDON'S NATURAL AND AGRICULTURAL LANDS.								
10.1	Enhance protection of agricultural lands, natural features, and water resources through planning and zoning policies.	• Establish a town-wide target for minimum protected areas within designated growth areas and incorporate these targets into the Official Plan. Ensure connectivity of natural features and farmland. • Work with Conservation Authorities and agricultural organizations to determine natural/riparian areas of high value, as well as prime agricultural land, and maintain sufficient setbacks from natural features when siting new development near these areas.	Ongoing	• Planning Tools • Green Development Standards • Easements, buffers • Region of Peel Greenlands Securement Program • Rural Land Classification • By-laws • Park management plans/ procedures • Municipal Natural Asset Initiative (CVC) • Town Green Fund	• Town (Planning, Development, Parks, Energy and Environment) • Conservation Authorities • Region of Peel	• Environmental non-profit organizations • Landowners/ farmers • Residents • Developers/ builders • Peel Climate Change Partnership	$ Staff time to develop and implement by-laws, and update park management procedures.	• Total ha of protected land • Ha of agricultural lands • Ha of protected agricultural lands • Number of projects implemented (monitoring assessments, invasive species management) • Species diversity • Ha invasive species removed
10.2	Explore a tree protection by-law to prevent loss of the Town's tree canopy and provide guidelines for tree replacement, where appropriate.	• Review the Woodland Conservation By-Law and explore options to introduce similar protection for individual trees in residential areas.	Short					
10.3	Work with Conservation Authorities to manage priority invasive species in Caledon.	• Support prevention, monitoring, and management of invasive species and pests, and allocate additional resources for these activities, where appropriate. • Introduce an invasive species by-law to prevent property owners from planting and growing invasive plants. • Identify opportunities to remove invasive species as a part of other projects (e.g. roads projects) in collaboration with CAs.	Ongoing					
10.4	Identify and implement alternative land procurement approaches.	• Work with CAs to identify and monitor priority areas for land acquisition, particularly land that has significant ecological value, vulnerable ecosystems or species, restoration potential, and/or high vulnerability to climate impacts like flooding.	Long					
10.5	Create an Open Space Strategy for parks and green space in Caledon that considers future climate conditions in land acquisition, park development, and park management.	• Establish park management procedures that enhance climate resiliency, including selecting climate resilient trees and plant species, reviewing procedures, and training staff. • Identify vulnerable parks or park areas and determine interventions that will improve resilience to climate risks. • Identify opportunities to expand the Town's trail network ("regional greenways") to provide recreation and commuter routes. • Work with CAs to identify alternative land procurement approaches with a focus on land that has high ecological value, restoration potential, and vulnerability to climate impacts like flooding.	Medium					

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
AGRICULTURE AND NATURAL SYSTEMS								
11. RESTORE AND ENHANCE NATURAL FEATURES ON PUBLIC AND PRIVATE LAND.								
11.1	Improve coordination between the Town, Conservation Authorities, and other partners to implement restoration strategies that address natural systems vulnerabilities to climate impacts and stressors (e.g. invasive species, wildfire, heat, dryness).	• Develop a key contacts list of municipal, Conservation Authority, and other organization partners and meet at least once per year to identify priority restoration sites and track restoration progress over time. • Support Conservation Authorities in restoration work, where possible. • Consider waiving fill-removal fees for restoration projects like wetland creation and creek daylighting.	Ongoing	• Planning tools • Green Development Standards • Easements, buffers • By-laws • Park management plans/ procedures • Municipal Natural Asset Initiative • Tree Seedling Program • Town Green Fund • Peel Region Urban Forest Strategy/ Working Group • West Bolton SNAP • CVC Risk and Return on Investment Tool	• Town (Development, Parks, Facilities, Energy and Environment) • Conservation Authorities • Region of Peel	• Environmental Organizations (Ducks Unlimited Canada, Nature Conservancy, Ontario Streams) • Landowners • Agriculture organizations and farmers • Residents • Developers/ builders • Peel Climate Change Partnership	$ Staff time for developing, implementing, monitoring, and reporting on programs.	• Annual increase in canopy cover • Total ha of restored land • Number of projects implemented (e.g. stream bank restoration, wetland creation, planting projects)
11.2	Expand restoration efforts on private land (residential, commercial, rural, and agricultural), including tree planting, wetland restoration, stream rehabilitation, etc.	• Establish canopy cover targets for Caledon and measure cover on a regular basis. • Work with Conservation Authorities and others to educate residents and develop guidelines on planting and caring for native and climate-resilient vegetation. • Review and enhance the Town's Tree Seedling Program to encourage more residents to plant trees, particularly in priority areas.	Ongoing					
11.3	Increase tree planting and restoration of wetlands, streams, and meadows on public lands including Town-owned Parks, Conservation Areas, public right of ways, and other areas.	• Review street tree-planting guidelines for new developments to ensure trees are able to survive and grow to maturity. • Maintain and regularly update geospatial inventory of public trees and potential planting sites. • Determine priority opportunities for public plantings (e.g. shading, stormwater management, etc.) and identify climate-resilient vegetation. • Enhance naturalization plantings in parks, accompanied by public education and awareness. • Identify opportunities to install low-impact development (LID) projects and rain gardens at Town facilities.	Ongoing					
11.4	Explore an offsetting program that requires new developments to compensate for loss or degradation of natural features.	• Review existing tree-replacement guidelines and ratios. • Work with Conservation Authorities to align with their offsetting policies.	Long					

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
LOW-CARBON TRANSPORTATION								
12. INCREASE WALKING AND CYCLING THROUGH IMPROVED PROGRAMS AND INFRASTRUCTURE.								
12.1	Expand and enhance active transportation infrastructure to promote walking and cycling in urban areas and as a means of travel between them.	• Explore bike-sharing programs, cycle-only parking, priority lanes and traffic lights for cyclists, and signage. • Improve pedestrian crossings, install connected walking routes, and provide walking maps and signage. • Expand bike paths and lanes, prioritizing commuter routes and routes to commercial centres. • Implement road diets to expand space for active transportation modes. • Expand the Town's trail network to enable walking and cycling to common amenities and between urban areas (see also Agriculture and Natural Systems). • Connect residents with resources and tools to access active transportation options.	Medium	• Transportation Master Plan • Complete Streets Policy • Transportation Demand Management Plan • Traffic calming strategies • Planning tools • Active Transportation Task Force • West Bolton SNAP	• Town (Transportation, Parks) • Peel Region	• Town (Energy and Environment, Engineering, Planning, Recreation) • School boards and local schools • Employers • Institutions • Toronto and Region Conservation Authority	$$ Staff time to manage infrastructure upgrades and conduct public engagement. Capital costs to install bike lane and sidewalk infrastructure.	• Traffic counter data (vehicle counts, and vehicle kilometres travelled) in key areas • User experience (surveys, interviews) • Total kms of bike lanes and trails

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
LOW-CARBON TRANSPORTATION								
13. EXPAND CALEDON'S TRANSIT NETWORK IN ALIGNMENT WITH NEW GROWTH AREAS.								
13.1	Expand opportunities for low-carbon transit and car-sharing in built-up areas and plan for transit in new communities.	• Expand bus service density, coverage, and scheduling. • Establish a policy to purchase electric vehicles for transit. • Explore on-demand transit opportunities using zero-emissions vehicles and prioritize low-carbon opportunities where possible. • Prioritize parking for car-share and car co-operative vehicles at transit hubs and parking lots. • Encourage the uptake of car-share and car co-operative programs (i.e. starting with a pilot in multi-unit residential building (MURB) areas), as well as increased carpooling. • Consider future bus rapid transit ways or partial priority facilities for bus services in network upgrades.	Long	• Transportation Master Plan • Transit Action Plan • Transportation Demand Management Plan • Development plans • Official Plan	Town (Transportation, Planning)	• Town (Engineering, Roads and Fleet) • Local transit authorities • Metrolinx • Employers (incentive programs) • Institutions (incentive programs) • School boards and local schools	$$$ Staff time to coordinate transit service upgrades and conduct public outreach and engagement. Capital costs to expand and maintain transit fleet.	• Ridership • Vehicle kilometres travelled (VKT, km/year) • Transit mode share in urban areas

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
LOW-CARBON TRANSPORTATION								
14. EXPAND CALEDON'S EV-CHARGING NETWORK AND ENCOURAGE THE ADOPTION OF LOW-CARBON VEHICLES.								
14.1	Work with regional partners to develop and implement a community-wide strategy to promote the use of zero-emissions vehicles in Caledon.	• Continue to expand EV-charging infrastructure across Caledon, including level-3 charging stations. • Require EV infrastructure in new residential and commercial developments. • Support green hydrogen fuel expansion, particularly for heavy duty trucks. • Evaluate options to incentivize the use of green vehicles and work with Peel Region on a region-wide approach to traffic congestion. • Educate the public about and raise awareness of the benefits of EVs.	Immediate	• Transportation Master Plan • Official Plan • PCCP Zero Emissions Vehicle Strategy • Green Development Standard • Green Fleet Strategy • Corporate GHG Reduction Framework • Caledon Task Force on illegal trucking	Town (Planning, Energy and Environment, Roads and Fleet, Facilities, Finance)	• Vehicle suppliers • Provincial and federal governments • Businesses • Institutions • Auto dealerships and rental agencies • Local transportation-focused not-for-profit groups • Region of Peel/ Peel Climate Change Partnership • Smart Freight Centre	$$$ Staff time to develop strategies, manage new charging infrastructure, and engage residents and businesses. Capital costs for EV charging infrastructure, and Town fleet upgrades and replacements.	• Greenhouse gas emissions (tonnes/ year) • Average fleet kilometerage (km/l equivalent) • Annual operating costs ($/km) • EV market penetration • Available charging infrastructure • EV vehicle user experiences/ recommendations • Number of EV charging connectors
14.2	Develop a municipal Green Fleet Strategy to convert the Town's fleet to zero emissions.	• Provide support for maintenance, operations, and staff training for new fleet vehicles. • Establish a policy for replacing fleet vehicles with low-carbon options. • Evaluate the infrastructure requirements to support a low-carbon vehicle fleet. • Ensure that vehicles are right-sized with staff needs.	Medium					
14.3	Reduce transportation-related pollution in Caledon through education and enforcement.	• Improve compliance with the Town's anti-idling by-law through education campaigns and increased signage, as well as enforcement. • Increase enforcement of illegal trucking operations. • Continue advocating for expanded access to broadband internet throughout Caledon to support tele-work opportunities. • Work with regional partners to enhance sustainability of freight vehicles (e.g. Smart Freight Centre)	Ongoing					

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
RESILIENT INFRASTRUCTURE AND ENERGY								
15. DIVERSIFY CALEDON'S ENERGY SUPPLY WITH RENEWABLE AND RESILIENT ENERGY SOURCES AND SYSTEMS.								
15.1	Develop a Renewable Energy Plan to advance solar and other renewable energy systems, as well as to explore low-carbon energy procurement.	• Convene stakeholders in the related energy, electrification, and education fields to advise on the plan. • Consider different organizational structures that could support energy procurement and accelerate installation (e.g. a renewable energy co-operative).	Short	• Official Plan • Zoning by-Laws • Green Development Standards • Community Improvement Plan Program • GreenBiz Caledon • Caledon Renewable Energy Potential Study (University of Guelph) • Municipal Energy Maps (2016)	• Town (Planning, Energy and Environment, Finance, Building Services) • Renewable Energy providers	• Town (Economic Development) • Utilities • Local/regional renewable energy generation businesses and suppliers • Peel Climate Change Partnership • Large-scale energy organizations and local non-profit renewable energy groups • Transmission and distribution companies • Subject matter experts/ academia • Farmers/ agriculture organizations	$$$ Staff time for strategy development and coordination. Capital costs for feasibility studies and installing new renewable energy capacity.	• Annual projects initiated and completed • Grid emissions avoided (tCO2e/ year) • Installed solar PV capacity (MW/ year) • Annual maintenance cost ($/year) • Scale of community participation in renewable procurement purchases (MWh, as a percentage of total community electricity demand)
15.2	Identify and support areas and opportunities for district energy and renewable energy infrastructure.	• Explore a low-carbon district energy pilot for new residential developments. • Include consideration of district energy opportunities alongside the actions for eco-districts and mixed-use, compact design.	Medium					
15.3	Encourage investment in ground-mount solar projects.	• Explore potential for a new solar neighbourhood with battery back-up power. • Identify potential solar sites and prioritize their development with input from stakeholders and the public, and include in Official Plan zoning by-laws as a permitted use.	Short					
15.4	Support the uptake of community rooftop PV.	• Deliver outreach and training to homeowners, businesses, developers, and builders. • Arrange bulk solar-PV system purchasing. • Coordinate with electrical utilities on net metering programming. • Develop partnerships with local renewable energy system providers and installers and coordinate pricing. • Establish installed capacity milestone targets (kW/year).	Immediate					
15.5	Develop energy storage as an emergency back-up power supply and energy demand management measure.	• Conduct a feasibility study and determine energy storage options for Town facilities. • Coordinate with partners to develop an energy storage installation schedule and install energy storage in concert with new renewable energy systems.	Medium					
15.6	Seek opportunities to develop on-farm renewable energy systems.	• Conduct a feasibility study on local options for on-farm renewable energy systems, including biogas, biodiesel, solar, wind, and geothermal. • Coordinate with the local farming community to promote and assess options. • Consider potential incentives for farmers that install renewable energy systems.	Medium					

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
RESILIENT INFRASTRUCTURE AND ENERGY								
16. ENHANCE THE CAPACITY OF TOWN ROADS AND BRIDGES TO WITHSTAND EXTREME WEATHER IMPACTS.								
16.1	Update engineering codes and design standards for new and upgraded municipal and private infrastructure.	• Review updated federal and provincial guidelines and industry best practices, considering design, construction practices, and materials. • Incorporate best practices and participate in research and pilot projects to evaluate climate impacts and adaptation measures for transportation infrastructure.	Medium	• Asset Management Plan (AMP) • Engineering Design Standards • Road Needs Study • Natural Resources Canada design guidelines for road adaptation • Stormwater Management Master Plan • Transportation Master Plan • Asset-scale risk and vulnerability assessments • Asphalt rehab, resurfacing, and gravel programs • Annual winter reserve budget • Town and Peel Salt Management Plans • Weather information systems	Town (Road Operations, Engineering, Asset Management)	• Town (Energy and Environment) • Region of Peel • Ministry of Transportation • Conservation Authorities	$$ Staff time to update standards and procedures, perform additional inspections and maintenance. Capital costs for new road design and upgrades.	• Number of transportation infrastructure assets identified as high or medium risk • Number of road repair requests/complaints per year related to climate impacts (e.g. potholes, flooding, etc.)
16.2	Prioritize infrastructure upgrades/ replacement/maintenance based on susceptibility to climate impacts.	• Conduct asset-scale vulnerability assessments aligned with existing infrastructure update/review cycles (see also Asset Management Plan). • Incorporate stormwater management considerations into road upgrades.	Short					
16.3	Enhance the Town's Salt Management Plan to minimize salt use in ecologically and agriculturally sensitive areas, consider alternatives, and pilot new approaches/ technologies.	• Partner with Conservation Authorities to monitor the impacts of road-salt use on ecologically sensitive areas and develop remediation plans where required. • Educate residents and businesses on appropriate use of road salt.	Medium					
16.4	Update road operations and maintenance procedures in response to climate impacts.	• Review operations and maintenance procedures for Town roads in light of climate impacts, including staffing levels, equipment needs, etc. • Allocate budget or establish a reserve fund for expected increase in road repairs due to weather-related damages. • Implement consistent monitoring and reporting framework to track road damages.	Medium					

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
RESILIENT INFRASTRUCTURE AND ENERGY								
17. UPGRADE STORMWATER PLANS AND PRACTICES TO REDUCE RISKS FROM EXTREME WEATHER EVENTS.								
17.1	Update the Town's stormwater management master plan to improve resilience to flood-related climate impacts.	• Integrate green infrastructure and low-impact development approaches to stormwater management into the updated master plan. • Incorporate updated floodplain maps and climate change adjusted intensity-duration-frequency (IDF) curves. • Develop a monitoring and maintenance program for all stormwater infrastructure (culverts, storm sewers, stormwater ponds, LID, etc.) and incorporate into the asset management plan.	Short	• Engineering/ Stormwater Management Master Plan • Asset Management Plan • Engineering Design Standards • Planning tools • Green Development Standard • Provincial standards and guidelines • Risk and Return on Investment Tool • Drainage Act • LID Treatment Train Tool (TRCA)	Town (Stormwater, Asset Management, Engineering, Planning and Development, Road Operations, Regulatory Services)	• Town (Energy and Environment, Building Services) • Conservation Authorities • Sustainable Technologies Evaluation Program (TRCA)	$$$ Staff time to update procedures and guidelines, and coordinate monitoring and maintenance. Capital costs for Stormwater Master Plan and stormwater upgrades/ maintenance.	• Number of stormwater infrastructure assets implemented/ maintained/upgraded • Land area that has stormwater management controls for water quality and quantity in place
17.2	Develop and implement a stormwater by-law and sustainable financing option to incentivize lot-level stormwater retention and discourage increases in impervious surfaces.	• Review levels of service and risk for stormwater assets (through the Asset Management Plan) to determine maintenance costs. • Develop financing options to offset potential for higher stormwater costs. • Investigate permit and regulatory approaches to reduce increases in impervious surfaces. • Educate residents on how they can minimize strain on the Town's stormwater system. • Establish an encroachment by-law on Town right-of-ways or easements to prevent blockages to stormwater flow.	Medium					
17.3	Review and enhance development guidelines for stormwater infrastructure in new developments.	• Review stormwater guidelines with Planning and Engineering, and ensure alignment with planning policies and zoning by-laws. • Integrate climate projections into stormwater guidelines to account for impacts like longer higher intensity storms. • Require consideration of green infrastructure approaches to stormwater management in new developments.	Short					

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
RESILIENT INFRASTRUCTURE AND ENERGY								
18. ENSURE TOWN FACILITIES ARE CARBON NEUTRAL AND CLIMATE RESILIENT BY 2040.								
18.1	Meet the targets established in the most recent Corporate Greenhouse Gas Emissions Reduction Framework, working towards more ambitious targets in the next update.	• Meet the Town's corporate emissions reduction target of 24% below 2017 levels by 2024, then work towards a net zero by 2050 target. Set interim targets that will help achieve this goal. • Continue to transition to low-carbon energy sources in Town buildings and pursue deep energy retrofits to improve the efficiency of buildings. • Explore innovative financing mechanisms to fund deep energy retrofit projects at Town facilities. • Allocate annual budget for energy efficiency projects at recreation and non-recreation facilities.	Ongoing	• Corporate Green Building Standard • Corporate Greenhouse Gas Emissions Reduction Framework • Asset Management Plan • Corporate Energy Team • Building Condition Assessments • Corporate Energy Revolving Fund	Town (Facilities, Energy and Environment, Recreation, Finance)	• Town (Asset Management) • Council	$$$ Staff time to develop the standard and manage energy audits, retrofits, and energy performance monitoring. Capital costs for building upgrades and net-zero new buildings.	• Greenhouse gas emissions (tonnes/year) • Natural gas consumption (m3/year) • Electricity consumption (kWh/year) • Annual energy costs ($/year) • Number of annual retrofits
18.2	Update the Corporate Green Building Standard for new municipal buildings and building retrofits to achieve net-zero carbon and climate resiliency.	• Work with key staff to guide the update of the Town's Corporate Green Building Standard to ensure that new Town buildings and major renovations meet a standard that follows a net zero emissions pathway. • Consider opportunities for green infrastructure in new buildings and retrofits, including green/blue roofs, rain gardens, etc.	Short					
18.3	Incorporate climate change risks into building-condition assessments to consider how future climate trends will impact facility structure and operations. See also 19. Asset Management Plan actions.		Medium					
18.4	Increase low carbon back-up power systems in Town facilities to serve as community hubs during emergencies.	• Include natural gas generators in the short-term, then look to lower-carbon solutions, such as solar with battery storage, biogas, etc., in the longer term.	Medium - Long					

	ACTIONS	SUPPORTING ACTIONS	TIMING	IMPLEMENTATION TOOLS	LEAD	SUPPORTING PARTNERS	RESOURCES REQUIRED	KPIS
RESILIENT INFRASTRUCTURE AND ENERGY								
19. EMBED CLIMATE CHANGE CONSIDERATIONS INTO THE TOWN'S ASSET MANAGEMENT PLANNING PROCESS.								
19.1	Incorporate climate change considerations into levels of service, levels of risk, and the risk assessment of core and non-core infrastructure assets.	• Identify where climatic changes may impact costs of service delivery, including evaluating the costs of delivering current vs. desired level of service when accounting for climate risks. • Conduct asset-scale vulnerability assessments for core and non-core infrastructure, review the assessments annually and re-assess non-core infrastructure every 3 to 5 years.	Medium	• Asset Management Plan • Climate Change Action Plan • Municipal Natural Assets Initiative (CVC) • Risk and Return on Investment Tool (CVC) • TRCA Asset Management Planning • CityWide	Town (Asset Management)	• Town (Engineering/ Stormwater, Facilities, Energy and Environment, Parks) • Conservation Authorities • Federation of Canadian Municipalities • Asset Management Ontario	$$ Staff time to update Asset Management Plan with climate change. Capital costs for asset-scale vulnerability assessments.	• Plans/policies updated
19.2	Update asset maintenance and monitoring programs for core infrastructure to reflect climate change considerations.	• Enhance monitoring and data collection through programs like CityWide to track infrastructure damage, causes, and impacts.	Medium					
19.3	Incorporate green infrastructure and natural assets into the AMP by identifying and evaluating Town-owned assets and developing management plans.	• Continue updating Caledon's public tree inventory. • Develop levels of service for Town-owned green infrastructure assets like street trees (e.g. that trees planted in new developments survive and grow to maturity). • Over the long term, consider the value of community green infrastructure assets and incorporating green infrastructure assets into the AMP.	Medium					