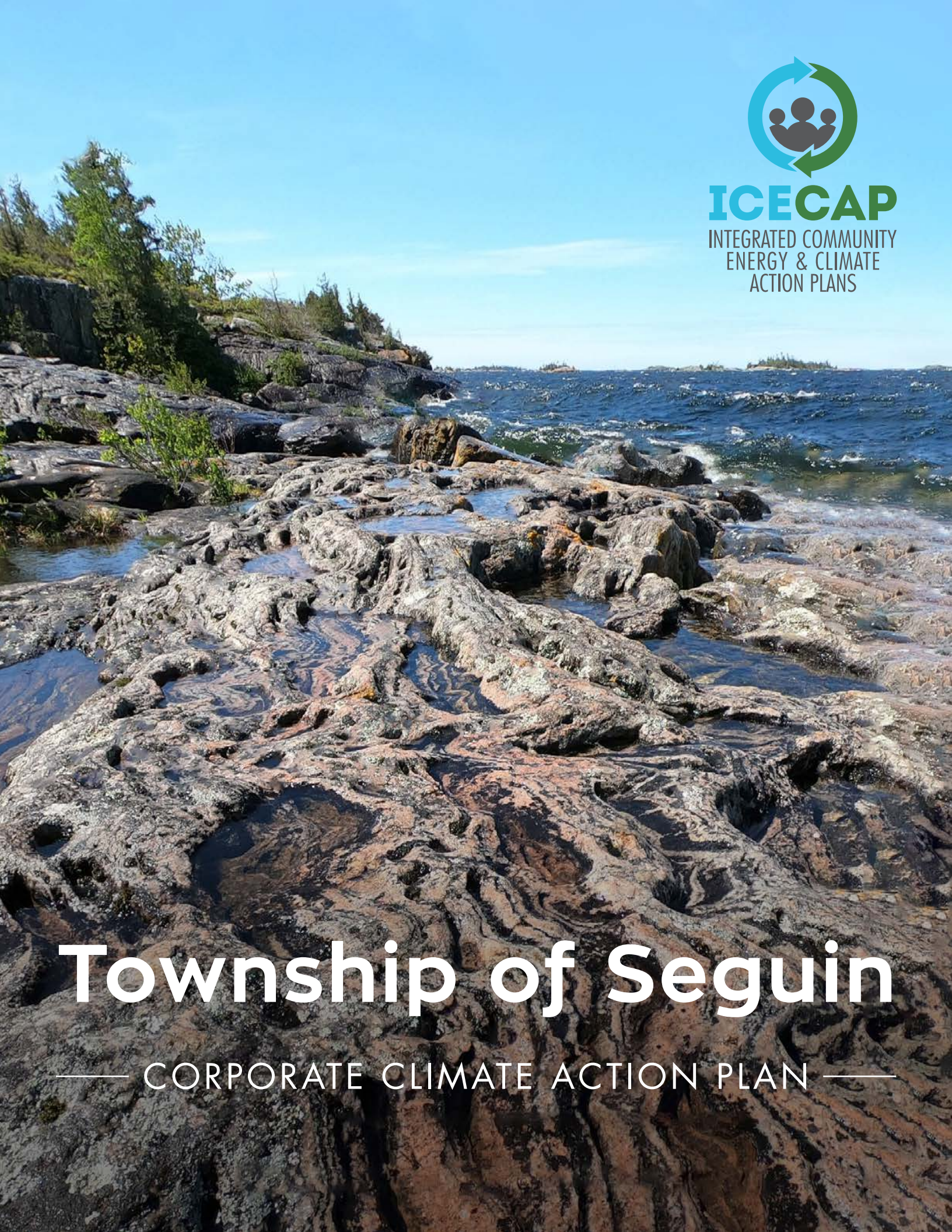

ICECAP
INTEGRATED COMMUNITY ENERGY & CLIMATE ACTION PLANS

Township of Seguin

CORPORATE CLIMATE ACTION PLAN

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1st Edition

Approved by Council:

DATE NEEDED

UNESCO

United Nations
Educational, Scientific and
Cultural Organization

GEORGIAN BAY
BIOSPHERE
MNIDOO GAMII

Land Acknowledgment

Seguin Township acknowledges that we are on the traditional territory of the Anishinaabe peoples in the Williams and Huron Robinson treaty areas. We recognize and respect the long history of First Nations and Metis peoples on this land. We also recognize and honour that this region continues to be home to many thriving First Nations communities – the Wahta Mohawks, the First Nations of Moose Deer, Shawanaga, Wasauksing, Magnetawan, Henvey Inlet, Nipissing, the Dokis and others that have lived on Turtle Island for time immemorial.

In acknowledging ourselves as new-commers, Seguin Township also recognizes our role in building relationships and deepening our understanding of the lasting, devastating impact that colonization has had on Indigenous people and this land. Seguin Township recognizes that we have much to learn about how to build a better future that includes the responsible stewardship of our planet to ensure that the decisions we make today will take into consideration the future of our children and that of their children's children.

It is important that Seguin Township is dedicated to the commitments identified in this climate action plan. This document is one example of action we can take to move forward in the spirit of partnership and collaboration, as new-commers and stewards of this land.

Miigwech,
Thank you.

Executive Summary

CCAP

This Corporate Climate Action Plan (CCAP) is a document that will guide greenhouse gas (GHG) emission reductions for the Township of Seguin's municipal operations. It is a plan that is to be used by municipal staff and departments that contains dozens of specific and achievable actions. Through the actions outlined in this plan, the Township of Seguin will strive to reduce its corporate GHG emissions by 30% below 2016 levels by 2030. As technology advancements allow, the Township of Seguin will also strive to achieve net-zero corporate GHG emissions by 2050. By implementing this plan, the Township of Seguin will also contribute to the regional climate action objectives of the ICECAP partnership.

As a member of the Integrated Communities Energy and Climate Action Plans (ICECAP) partnership, the Township of Seguin has adopted the following goals:

1. Reduce greenhouse gas emissions
2. Improve energy efficiency
3. Reduce the use of fossil fuels
4. Adapt to a changing climate by building greater resilience

In addition to working towards these goals, the publication of this plan achieves corporate milestone 2 and 3 of the Partners for Climate Protection Program, administered by the Federation of Canadian Municipalities. Implementing this plan works towards Milestone 4 and the evaluation framework that has been developed in this plan will contribute to Milestone 5.

This CCAP is a long-term initiative that will require engagement and support across all departments over several years to succeed. Ongoing support from Council will be essential to ensure that the implementation of this plan maintains momentum. Some actions contained in this plan will require capital investments. These funding requirements will be integrated into the annual municipal budget cycle. Staff will also work to capitalize on external funding opportunities as they become available, and continue to seek strategic partnerships that support the efficient use of resources and the implementation of this plan.

The knowledge contained within this plan will enable the Township of Seguin to make informed decisions to prioritize actions that limit GHG emissions that are contributing to climate change. By taking climate change into consideration in its municipal operations, the Township of Seguin will lead by example in its community. These efforts will chart a course to a healthier, greener, and more livable future for the residents of the Township of Seguin now and for generations to come.

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Glossary of Terms

Adaptation	Actions that reduce the observed or expected negative impacts of climate change.
Business as Usual	The continued use of standard practices without any changes.
Clean Energy	Energy produced from sources like solar, hydro, nuclear, etc.
Community Emissions	Greenhouse gas emissions produced by residents & businesses within a jurisdiction.
Corporate Emissions	Greenhouse gas emissions produced by a local government's (Municipalities or First Nations) operations.
Energy Conservation	Reducing wasteful energy use by using fewer energy services.
Energy Efficiency	The ability to complete a task using less energy than before.
Energy Poverty	Defined by a household which spends 6% or more of their after-tax household income on home energy.
Greenhouse Gas	Gases that absorb and trap heat in the Earth's atmosphere.
ICECAP Members	First Nations and Municipalities who have joined the ICECAP partnership by signing a Memorandum of Understanding.
ICECAP Partners	Those who participate in ICECAP without having signed the partnership's Memorandum of Understanding. They include public, private, and community organizations, and members of the public.
Mitigation	Actions to limit climate change and its effects by reducing or stopping the emission of excess greenhouse gases.
Net Zero	A state in which the greenhouse gases going into the atmosphere are balanced by removal out of the atmosphere.
Retrofit	Adding new technology or features to a building to improve its energy.
Zero Emission Vehicle	A vehicle that produces no tailpipe emissions.

Glossary of Abbreviations

EV	Electric Vehicle.
FCM	Federation of Canadian Municipalities.
GBB	Georgian Bay Biosphere.
GHG	Greenhouse gas.
ICECAP	Integrated Community Energy & Climate Action Plans.
ICEP	Indigenous Community Energy Plan.
ICLEI	International Council for Local Environmental Initiatives.
IPCC	Intergovernmental Panel on Climate Change.
PCP	Partners for Climate Protection.
PHEV	Plug-in Hybrid Electric Vehicle.
tCO2e	Tonnes of carbon dioxide equivalents. This is a standard unit of measurement for GHG emissions that considers multiple different GHGs at once (i.e. carbon dioxide, methane).
ZEV	Zero-emission vehicle.

Introduction

Introduction

Community Profile

The Township of Seguin (Township) contains thousands of kilometres of shoreline between its inland lakes, rivers, and access to Georgian Bay. As part of the Georgian Bay Biosphere region, and in the heart of Ontario's cottage country, its natural beauty makes it a prominent tourist destination. The Township thus experiences a massive increase in population during the warmer months to include several thousand seasonal residents.

Georgian Bay Biosphere Region

Designated by UNESCO in 2004, the Georgian Bay Mnidoo Gamii Biosphere (GBB) is situated within the Robinson-Huron Treaty of 1850 and Williams Treaty of 1923, and located on Anishinabek territory. Mnidoo Gamii is an Anishinaabek name for 'Spirit Lake' or Georgian Bay.

Renowned for its natural beauty, the GBB is one of over 700 UNESCO biosphere reserves throughout the world, and one of 19 currently in Canada. Stretching from the Severn River to the French River along the eastern shoreline of Georgian Bay, the GBB region covers 347,000 hectares of shoreline ecosystem and contains over 50 species of animals and plants that are at risk in Canada and Ontario. Climate change is one of many pressures on these species' populations.

As an organization, the GBB seeks to build capacity for regional sustainability in eastern Georgian Bay by inspiring highly collaborative partnerships for learning and action. As such, GBB facilitates numerous partnerships in the region to nurture a balance between humans and nature, including the ICECAP partnership.

ICECAP

Across the GBB region, communities are taking climate action. Originating out of a shared desire to address climate change together, communities have joined to create the Integrated Communities Energy and Climate Action Plans (ICECAP) partnership. ICECAP is a partnership between the First Nations and municipalities in the GBB region for the purpose of a collaborative, more cost-effective approach to energy management and the reduction of greenhouse gas emissions for the operations of each member, their communities, and for the broader region. Figure 1 contains a list of official ICECAP members as of 2022.

Figure 1: ICECAP Membership Map

Member	Joined
Township of The Archipelago	2019
Township of Carling	2019
Township of Georgian Bay	2019
Township of McKellar	2019
Town of Parry Sound	2019
Township of Seguin	2019
Municipality of McDougall	2019
Municipality of Whitestone	2019
Shawanaga First Nation	2019
Moose Deer Point First Nation	2019

The 4 main objectives of ICECAP are to:

1. Encourage the reduction of greenhouse gas emissions
2. Improve energy efficiency
3. Reduce the use of and reliance on fossil fuels
4. Adapt to a changing climate by building greater resilience

Members of ICECAP are participating in one of two programs designed to help either First Nations or Municipalities reduce their GHG emissions by improving energy efficiency, energy conservation, and fuel-switching. These programs are the Indigenous Community Energy Plans Program for First Nations, and the Federation of Canadian Municipalities Partners for Climate Protection Program for Municipalities.

As seen in Figure 2, these two programs mirror each other closely. ICECAP brings these two processes together and creates synergies between them, bolstering communities' efforts to reduce emissions across the GBB region.

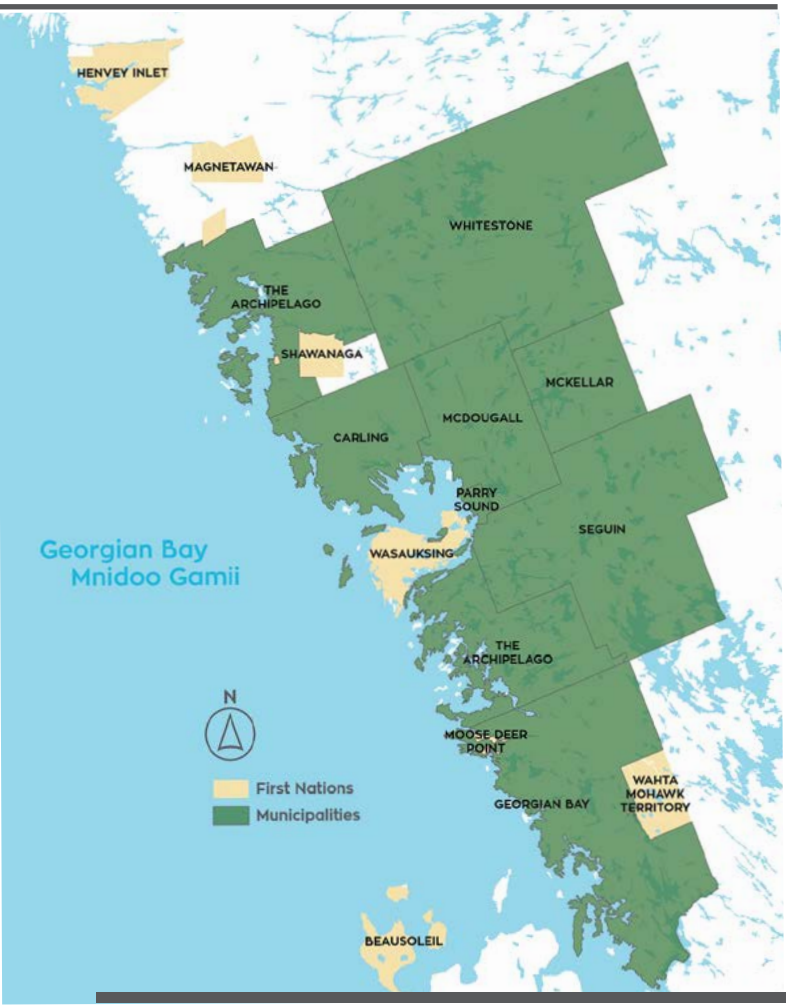


Figure 2: ICECAP Program Model

What is the Federation of Canadian Municipalities?

The Federation of Canadian Municipalities (FCM) is the national voice for municipal governments in Canada. With a congregation of nearly 2,000 municipal members across the country, FCM advocates for municipalities to ensure their citizen's needs are reflected in federal policies and programs. Through this advocacy the FCM is able to provide funding and programming to help municipalities tackle local challenges, such as climate change, asset management, and more.

What is the Partners for Climate change program?

The Partners for Climate Protection (PCP) program is designed to guide municipalities through the process of reducing greenhouse gas emissions through climate change and energy planning. In partnership with the International Council for Local Environmental Initiatives (ICLEI), the PCP program is administered by the FCM. Since the program's establishment in 1997, nearly 400 municipalities across Canada have joined. The PCP program consists of a five-milestone framework that guides municipalities in their efforts to reduce greenhouse gas emissions. The milestones can be found in Figure 3.

Figure 3: Five-Milestone Framework of the Partners for Climate Protection Program

The Partners for Climate Protection program looks at these milestones from both a corporate and community perspective. Corporate refers to the GHG emissions produced as a result of a local government's operations and services. Its purpose is to identify the GHG emissions within a local government's direct control or influence, and for which the local government is accountable as a corporate entity. Community refers to the greenhouse gas emissions generated by the residents and businesses of the community in which the local government serves and represents. This Corporate Climate Action Plan (CCAP) will focus on reducing the GHG emissions associated with the Township of Seguin's operations.

The Climate Change Challenge

The Climate Change Challenge

Climate change is the result of excess greenhouse gas (GHG) emissions being released into the atmosphere as a result of human activity. The burning of fossil fuels such as oil, gas, and coal to power industry, vehicles and buildings are the primary contributors to this issue. These human activities are causing unprecedented rates of warming. As of 2021, the previous six years have included all of the warmest years on record. The Intergovernmental Panel on Climate Change (IPCC) has underscored that global temperatures must stay below 1.5°C by drastically reducing GHG emissions and balancing remaining emissions through carbon sinks to achieve net-zero emissions by 2050.

Addressing climate change is especially important for Canada and its residents. Due to its northern latitude, Canada is experiencing a rate of warming approximately twice the global average. The GBB region, along with the rest of the world must act now to avoid the worst impacts of climate change. By actively managing, monitoring, and taking measures to limit the production of GHG emissions, the impacts of climate change will reduce in severity.

Climate Change in the Georgian Bay Biosphere Region

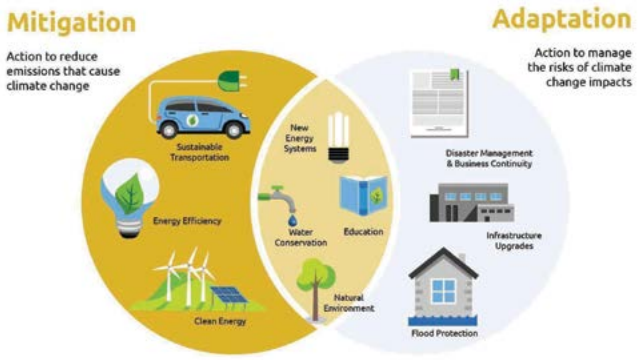
The GBB Region is already experiencing the effects of climate change. Both air and water temperatures are warming, which correspond to increased incidences of heatwaves, reduced ice cover and thickness, and a shorter winter season. Climate change is also increasing the frequency and chances of catastrophic flooding, extreme weather, and wildfires.

The increased frequency and intensity of these climate impacts will impose added stress on the built environment, shortening the effective life of community infrastructure and causing additional infrastructure failures. Moreover, these climate impacts will further compromise the integrity of important ecological services provided by biodiversity and natural infrastructure, such as shoreline stabilization and water filtration. In summary, these impacts change how we interact with the landscape, affect mental and physical health, and the local economy.

Mitigation & Adaptation

Climate change can be addressed through mitigation and adaptation. Mitigating climate change means taking actions that reduce GHG emissions being released into the atmosphere. Climate change adaptation refers to actions that help cope with the impacts of climate change when they happen. Sometimes, mitigation measures are a form of climate adaptation. Similarly, climate adaptation measures can be a form of climate mitigation (Figure 4). Both types of action are essential to addressing climate change. This Corporate Climate Action Plan (CCAP) focuses on mitigation.

Figure 4: Climate Change Mitigation & Adaptation Strategies



Local governments have a unique interest and opportunity in planning for a changing climate. As front-line responders to severe weather events and other climate change impacts, First Nations and local governments often experience and witness the financial, environmental, and social repercussions of climate

change within their communities. Therefore, they have the ability to be leaders in addressing climate change, as their knowledge of community needs and considerations can guide the successful implementation of initiatives designed to tackle climate change. In turn, these efforts can have profound financial, environmental, and social benefits in their communities.

Why Does This Matter To Municipalities?

In Canada, local governments can influence or control nearly half of the nation's GHG emissions. As seen in Figure 4, there are many ways in which local governments can influence and control GHG emissions.

Compared to urban communities, rural communities are often more reliant on fossil fuels. This reliance on fossil fuels therefore makes municipal operations more vulnerable to the volatility of uncertain energy markets. As energy costs continue to rise, this will put added financial pressures on the Township of Seguin, and in turn its ratepayers. Switching to more stable and reliable energy sources like electricity, and energy efficiency and conservation efforts have the potential to reduce energy costs, while also reducing GHG emissions.

DID YOU KNOW?

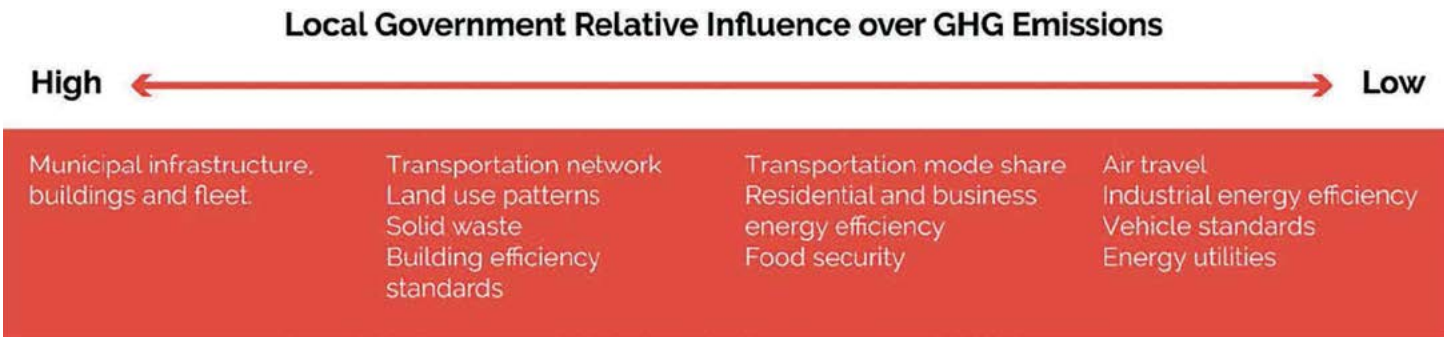
Climate change is causing more frequent and severe weather events which damages local community infrastructure. **Investments in resilient infrastructure can have a return on investment of $6 in future averted losses for every $1 spent.**

Insurance Bureau of Canada, 2020

Investing into actions that reduce energy consumption and switch fuel sources also supports new forms of local employment and innovation. These investments create opportunities for new and emerging sectors, such as those focused on renewable energy, energy efficiency, green buildings, water and waste management, food production, transportation, land use planning, design, and technology.

Actions to reduce GHG emissions can also have social and environmental benefits as well. For example, utilizing natural infrastructure aids in carbon sequestration and provides other ecosystem services, such as pollination and pest management, water purification, preservation of cultural and natural history, and improved mental, physical, and spiritual health for residents. Strengthening these ecosystem services can also increase the adaptive capacity of communities, offering residents and businesses protection against climate change impacts when they happen.

Figure 5: Local Government Influence Over GHG Emissions



Corporate GHG Emissions

This CCAP includes recommendations to reduce energy and emissions from municipal operations including buildings and facilities, fleet, streetlights, and corporate waste. The corporate data focuses exclusively on energy and GHG emissions that are directly controlled by the Township. It does not include emissions that are a consequence of activities from sources not controlled or owned by the municipality, or those that occur outside the Township's geographical boundary.

A corporate greenhouse gas (GHG) inventory identifies and quantifies the sources of GHG emissions from municipal operations and establishes a baseline from which future energy and emissions reductions and progress can be measured. This also assists with monitoring energy expenditures and gathering cost-saving information over time. A breakdown of corporate emissions and fuel consumption by energy consumption in the baseline year can be seen in Table 1 and 2, respectively.

In total, the Township's corporate emissions in the baseline year (2016) were 1,069 tCO2e. As seen in Figure 6, the Township's corporate GHG emissions predominately stem from its fleet (67%) and its buildings and facilities (30%). This is common of rural communities situated in northern Ontario, and presents opportunities for GHG reductions through energy efficiency and conservation efforts, and fuel-switching initiatives.

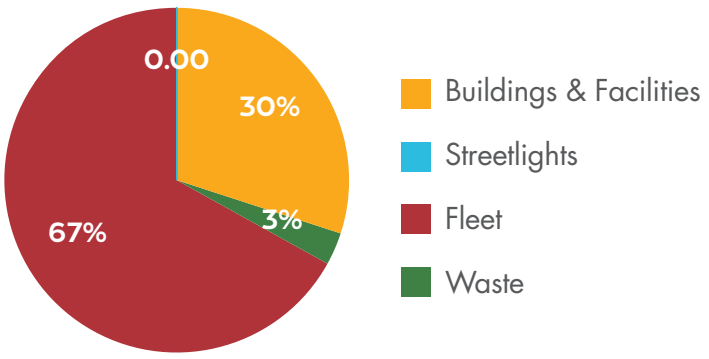
Table 1: Corporate GHG Emissions by Sector (2016)

Emissions Sector	tCO2e
Fleet	718
Buildings & Facilities	319
Streetlights	4
Waste	28
TOTAL	1069

Table 2: Fuel Consumption by Energy Source (2016)

Energy Source	Quantity	Unit
Electricity	1,575,779	kWh
Natural Gas	32,706	m3
Propane	113,932	L
Fuel Oil	9,748	L
Gasoline	48,601	L
Diesel	221,192	L

Figure 6: Township of Seguin GHG Emission Sector Breakdown (%)



Corporate GHG Emissions Forecast

In 2016, the Township's corporate GHG emissions were 1,069 tCO2e as a result of day-to-day municipal operations. If no actions are taken to reduce emissions and operations continue business-as-usual (BAU), the Township's corporate GHG emissions are anticipated to reach 1331 tCO2e by 2030, representing a 25% increase from the baseline year. As GHG emissions are directly correlated to energy costs, the expectation is that municipal expenses would also increase relative to the increase of GHG emissions.

This increase is estimated based on annual population growth rate of 1.58% as determined by Statistics Canada's 2016 census. As population increases, so too does the level of servicing the Township must provide to its residents, thus requiring more energy consumption and resourcing to maintain standard levels of service. As a result, interventions and solutions are needed to maintain appropriate service levels while also reducing emissions.

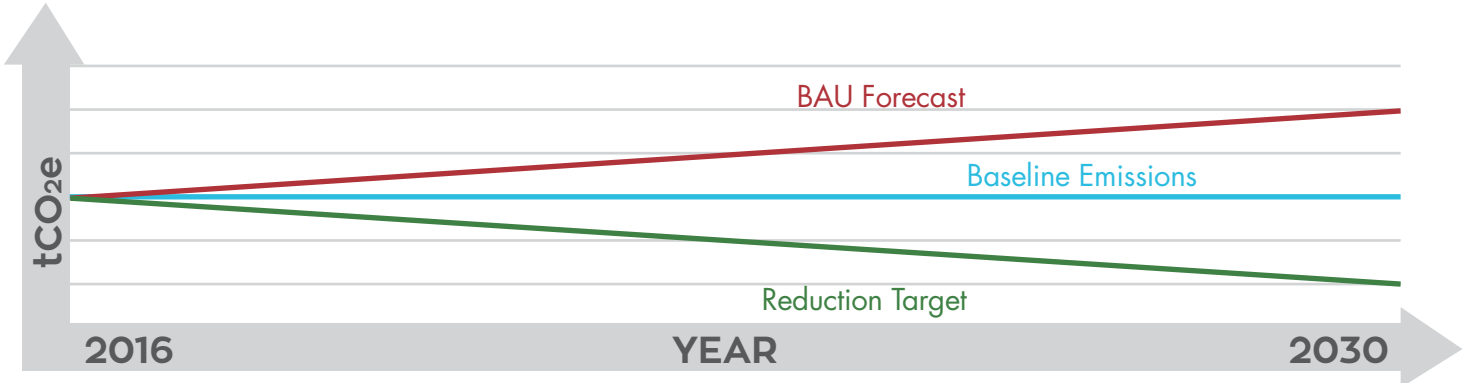
Corporate GHG Emissions Reduction Target

As seen in Figure 7, the Township is aiming to achieve a corporate reduction target of 30% below 2016 emissions by 2030. This target represents an absolute emissions reduction of 321 tCO2e relative to the 2016 baseline of 1,069 tCO2e. This means that the Township will strive to emit no more than 748 tCO2e annually through its municipal operations by 2030.

The Township's corporate emissions reduction target was developed using a bottom-up approach. This approach consists of aligning emission reduction opportunities with the Township's asset management plan and other policies. The benefits of taking a bottom-up approach is that the established target is more feasible and achievable in comparison to a top-down approach, since it has been grounded in data and the operational and circumstantial realities pertinent to the Township.

The Township is also aiming to achieve net-zero operations by 2050, in line with other municipalities and levels of government across Canada. The CCAP will be revised after 2030 to provide a more distinct pathway for achieving this target. Unanticipated factors may inevitably affect the Township's ability to achieve this target. As these factors expose this CCAP to a level of uncertainty, it should be considered a living document and the actions should be regularly reviewed and revised based on current technologies, market conditions, and changing conditions (e.g., new asset acquisition) or changes to policy in senior levels of government.

Figure 7: Emissions Reduction Target and BAU Forecast



Approaches for Reducing GHGs

Approaches for Reducing GHGs

There are three main approaches that can be taken to reduce the Township's corporate GHG emissions. These approaches include, but are not limited to:

1. Energy Conservation and Energy Efficiency
2. Fuel Switching
3. Local Renewable Energy Generation

Energy Conservation and Energy Efficiency

Energy efficiency and conservation are related and complimentary ways to avoid or reduce energy consumption. These approaches are the easiest and most cost-effective ways to reduce GHG emissions.

Energy efficiency is achieved when less energy is used to complete a task or result. This can be done through active and conscious efforts to manage energy consumption when completing tasks, or passively by upgrading or retrofitting equipment and assets to energy efficient models.

Energy conservation can be achieved when the use of energy can be avoided altogether. These efforts can be completed at no cost, but requires conscious and active commitments to approaching daily activities alternative ways. A common example of energy conservation is putting on a sweater when it is cold outside, rather than turning on the building's heating system.

Fuel Switching

Fuel switching involves transitioning from fossil fuels to low or zero carbon energy sources. This often means switching to electricity to heat, cool, or move things.

Electricity is the most versatile form of energy available, as it can be used to power a variety of different mechanisms and equipment, from heating buildings to powering vehicles. In Ontario, electricity is considered a very low carbon energy source because it is primarily produced using emission free sources, such as nuclear, hydro, wind, and solar. As a result, most fuel switching efforts focus on electrification given the GHG emission reduction benefits that can be achieved.

Fuel switching can often lead to cost-savings over the lifetime of an asset as well. This is because the use of fossil fuels is inefficient, as much of the energy produced when they are consumed escapes as heat. Electricity on the other hand is much more efficient, meaning that assets and processes can operate to their desired performance level using less energy. Since energy is directly related to fuel expenditures, using less energy thus leads to operational cost savings. In most cases, the cumulative cost savings will exceed any capital premiums associated with these technologies, making a strong business case for electrification where it is feasible to do so.

Compared to fossil fuels, the market for electricity is more stable and can improve operational resilience. The globalized supply chain of fossil fuels means that political unrest, catastrophes, and macroeconomic market conditions can cause volatile prices of these commodities. As a price-taker in this market, this means the Township's fuel expenditures are influenced by these global realities. On the other hand, electricity has greater price stability since it is both generated and heavily regulated in Ontario. This improved price stability can offer the Township greater confidence in budgeting energy expenditures annually.

Local Renewable Energy Generation

To address emissions at their source, processes that generate energy without emitting any GHG emissions at all, such as solar power systems, wind turbines, geo-exchange, and biofuels are needed. These are often referred to renewable energy sources, which are created by natural processes that replenish at a rate equal to or faster than the rate at which they are consumed. Producing renewable energy locally has many benefits, and has been shown to:

- Provide affordable, reliable, clean energy
- Improve systems that transport, store, and use energy
- Increase local job opportunities
- Keep more energy dollars within the community
- Make energy systems more resilient to external supply and fuel prices

Through community energy planning, non-fossil fuel consuming micro-grids and district energy systems, energy efficient and low-GHG communities can be achieved. This often looks for new opportunities to store clean energy, so that it can be used on demand. While community energy planning is out of scope of this CCAP, the Township can still experience the benefit by integrating its operations with these systems.

Achieving Synergies Between Emission Reduction Approaches

These three approaches to reducing corporate GHG emissions work best when used together, and can be applied individually or collectively across emissions sectors. Energy conservation and efficiency supports fuel switching, as using less energy supports its affordability. It also opens additional capacity on the electrical grid to support the electrification transition. Using locally generated electricity can then further reduce GHG emissions, while also achieving the co-benefits that comes with it.

Together, GBB and Township staff have identified a series of actions that can be taken in each emissions sector to guide the Township in meeting their corporate GHG reduction target. These actions focus on applying the three approaches to reducing emissions through education, policy, and asset upgrades and replacements. This will ensure that the goals and objectives of this CCAP are woven throughout the Township of Seguin's operations and support the organization's rethinking of business as usual.

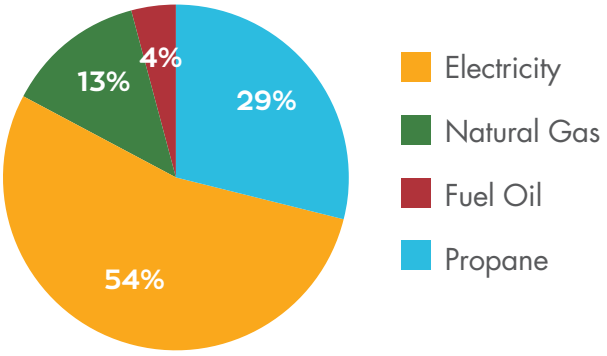
Reducing Corporate GHG's

Reducing Corporate GHG's

Buildings & Streetlights

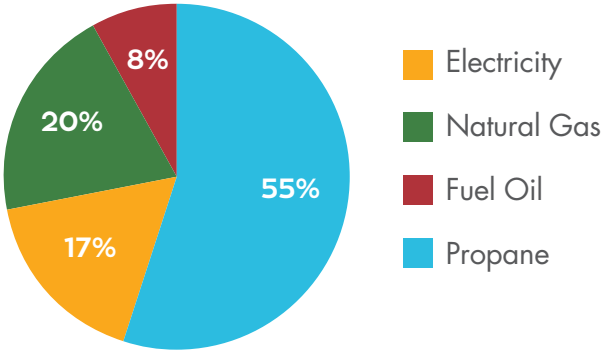
In 2016, the Township operated more than 20 facilities, all of which consumed electricity, and 12 of which used either natural gas, propane, or fuel oil as a heating source. The Township also operates a series of streetlights in its various communities which consume electricity. A breakdown of energy consumption for the Township's buildings and streetlights in the 2016 baseline year can be found in Figure 8.

Figure 8: Buildings and Streetlights Energy Usage (%)



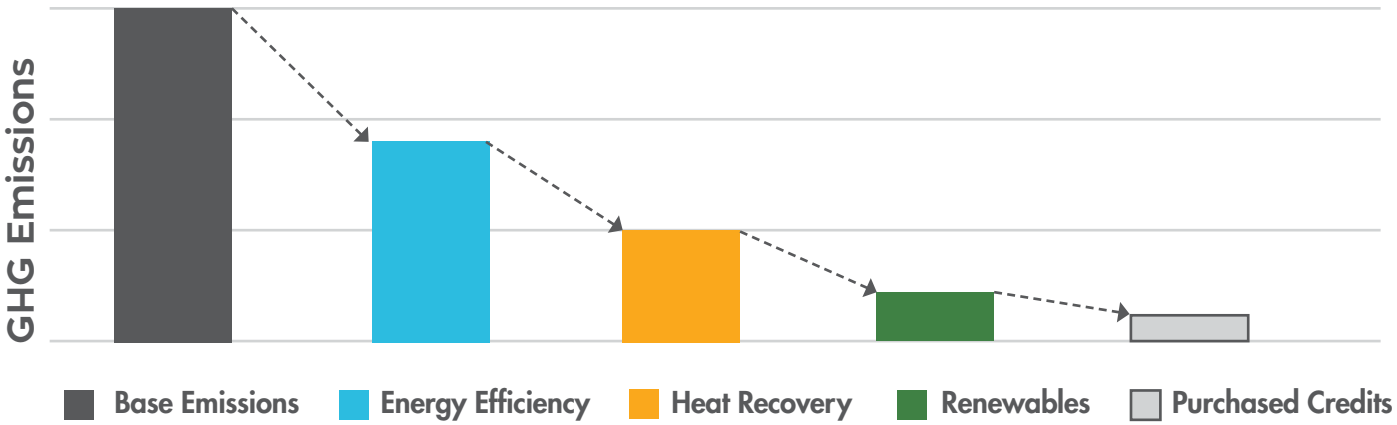
Together, the Township's buildings and streetlight assets produced 323 tCO2e in the 2016 baseline year. Electricity accounted for 17% of these emissions, despite accounting for 54% of energy consumption. Conversely, fuel oil and propane produced 63% of these emissions, while only accounting for 33% of energy consumption. This indicates that moving away from fuel oil and propane to electricity is an effective method for reducing GHG emissions. This is because electricity is almost entirely produced from non-emitting sources in Ontario. A breakdown of GHG emissions by energy source can be found in Figure 9.

Figure 9: Buildings and Streetlights GHG Emissions by Energy Source (%)



Although electricity consumption is not responsible for the majority of emissions, using electricity efficiently plays an important role in reducing operational and equipment maintenance costs. Savings through energy efficiency can further fund fuel-switching efforts, which in turn will continue to further reduce the Township's GHG emissions. As seen in Figure 10, energy efficiency plays an important role in the pathway to net-zero.

Figure 10: Pathway to Net-Zero for Buildings



It should be noted that the pathway to net-zero is not linear, and will differ between each building. All efforts to reduce emissions and energy consumption must be aligned with scheduled maintenance and replacements outlined in the Township's asset management plan.

An overview of actions to reduce GHG emissions in the buildings and streetlights sectors can be found in the following checklist. Further details to each of these actions can be found in Part 2 of this CCAP.

Buildings & Streetlights

Action Checklist

Objective 1 **Improve energy efficiency and conservation through retrofits and fuel-switching.**

- Incorporate regular energy audits into building operations.
- Develop a Green Buildings Policy.
- Install building automation systems where feasible.
- Retrofit lighting systems with efficient LEDs.
- Replace appliances and equipment with energy efficient models at the end of their useful life, where feasible.
- Where feasible and required, improve the building envelope of municipal buildings and facilities.
- Explore the use of high albedo building materials during regular maintenance and repairs.
- Explore the use of natural infrastructure into building systems.
- Develop an Energy Efficient Equipment Purchasing Policy.
- Replace heating and cooling systems with low or zero-carbon alternatives where feasible.

Objective 2 **Integrate energy management practices throughout operations.**

- Continue regular and preventative maintenance on equipment.
- Explore the use of data management systems to house holistic building energy data and information.

Objective 3 **Integrate low or zero carbon technologies into buildings, including renewable energy generation, storage, and use.**

- Explore the integration of renewable energy systems into buildings systems.
- Conduct fuel-switching studies to explore the use of low or zero carbon technologies for heating and cooling.

Objective 4 **Improve the efficiency of outdoor lighting.**

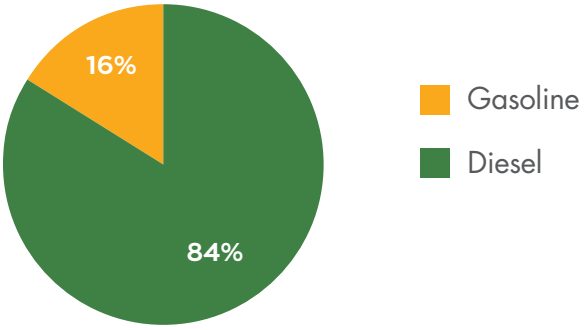
- Replace all remaining outdoor public lighting, including streetlights, with LEDs.
- Explore LED retrofit opportunities for digital signs.

Fleet Transportation

The Township relies on its fleet of vehicles and equipment to maintain roads and parks, provide bylaw enforcement, and many other community services. These vehicles and equipment are essential; however, they produce a substantial portion of the Township's corporate GHG emissions. Seguin, like many other communities in the region, will continue to grow and the fleet will need to expand to provide community services. This growth in vehicles means more fuel consumption and GHG emissions. As a result, a range of strategies are needed to reduce fleet emissions while the size of the fleet grows.

In the baseline year, the Township's fleet produced 718 tCO2e. Diesel and gasoline produced 604 tCO2e and 114 tCO2e respectively, or 84% and 16% of fleet emissions, as seen in Figure 11. In total, the fleet consumed 221,192 litres of diesel and 48,601 litres of gasoline.

Figure 11: Diesel and Gasoline GHG Emissions (%)

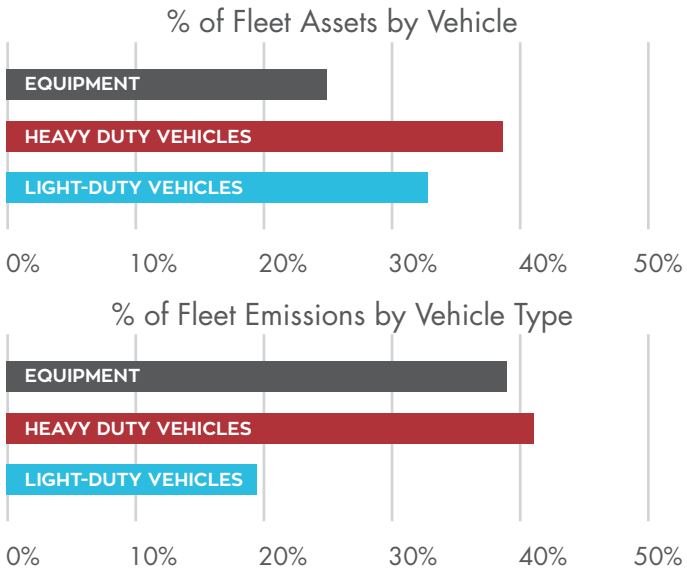


Idling Fast Facts

1. Engine wear is greater during prolonged idles than normal operations.
2. Reducing idle time by 10 minutes a day saves almost 60.8 hours of operating time per year and fuel savings of roughly 100L.

Natural Resources Canada, 2015

Figure 12: Comparison of Fleet Assets and Emissions by Vehicle Type (%)



As seen in Figure 12, heavy-duty vehicles and equipment account for roughly 87% of fleet emissions, while comprising 73% of fleet assets. This means that efforts to reduce emissions produced by these vehicle types can have a large impact. Age, vehicle technologies, and driver behavior are a few of many factors that influence the amount of GHG emissions produced by fleet assets.

Although light-duty vehicles are not responsible for the majority of fleet emissions, the Township recognizes the importance of these vehicles in reducing emissions. During the replacement of vehicles, the low-carbon and fuel-efficient options will be explored. Investigating zero-emission vehicle (ZEV) technologies are especially important for light-duty vehicles in the fleet, as the Government of Canada has mandated that by 2035, all new light-duty vehicle sales in Canada must be ZEV. This means that by 2035, when the Township replaces a light-duty vehicle with a new one, only ZEV options will be available. Given the replacement cycle on vehicles, this timeline represents a growing priority.

ZEV technologies should be piloted in advance so operators become comfortable with them, and charging infrastructure will need to be installed prior to making any ZEV purchases so vehicles can be refueled at the end of the day.

In addition to exploring ZEV purchases, fleet optimization through right-sizing is a complementary practice to that can support GHG emissions reductions. This means that vehicles are purchased based on the average anticipated use. This can lead to emissions reductions and cost savings, by allowing the purchase of smaller vehicles that meet operational needs, while decommissioning underutilized assets.

An overview of actions to reduce fleet emissions can be found in the following checklist. Further details to each of these actions can be found in Part 2 of this CCAP.

DID YOU KNOW?

The time needed to charge an electric vehicle depends on the temperature, its current charge level, and battery capacity.

Using a level 2 charger, the average plug-in hybrid electric vehicles (PHEVs) needs 1 to 4 hours to fully charge, and battery electric vehicles (BEVs) need 4 to 8 hours to fully charge from zero.

This means a municipal fleet vehicle has enough time to receive a full charge every single night.

Hydro One, 2022

Fleet & Transportation

Action Checklist

Objective 5 **Improve the fuel efficiency of the fleet through driver education and fuel-efficient technologies, including electrification.**

- Explore opportunities to optimize and right-size the municipal fleet.
- Explore and pursue opportunities to replace existing vehicle stock with zero-emission vehicles or fuel-efficient alternatives.
- Develop driver education materials to promote fuel-efficient driving behaviours.
- Encourage virtual meetings where possible to limit business travel.

Objective 6 **Develop supporting plans and policies to enable fleet electrification and fuel conservation.**

- Develop a Low Carbon Fleet Policy.
- Conduct a fuel-switching study to align scheduled vehicle replacements with zero-emission vehicle purchasing opportunities.
- Develop a long-term EV charging infrastructure plan.

Solid Waste

In addition to waste generated during operations, the Township offers waste disposal services to the community at its municipal facilities and recreation areas. When this waste is diverted to a landfill it produces methane, a powerful greenhouse gas. This process occurs over many years, which means the methane generated in landfills today is the result of decades of disposed organic waste. As a result, these emissions must be managed differently from those related to the use of fossil fuels and electricity, since they are not from the consumption of energy. Addressing solid waste emissions will also have future emission reduction benefits due to the timely waste decomposition process. In the baseline year, corporate solid waste emissions totaled 28 tCO2e.

Compared to other GHG sectors, solid waste emissions are more difficult to reduce. This is because a large portion of solid waste emissions are produced from waste disposed by the community at municipal facilities and recreation areas. Since the Township of Seguin has limited influence on the quantity and types of waste the community disposes, this requires innovative approaches.

Waste to energy technologies are increasingly presented as an attractive option to not only reduce GHG emissions, but provide on-site renewable energy and address limited landfill capacity challenges. Waste to energy technologies work by processing organic waste into a product that can be used for heat, electrical generation, or as a liquid bio-fertilizer for growing food. Increasing appropriate diversion rates at municipal facilities and recreation areas can support waste to energy efforts by providing clean feedstock for these technologies.

An overview of actions to reduce corporate solid waste emissions can be found in the following checklist. Further details to each of these actions can be found in Part 2 of this CCAP.

DID YOU KNOW?

When it decomposes, organic waste produces methane, a greenhouse gas that is 25 times more potent than carbon dioxide. Reducing the amount of organic waste destined to landfills can be a highly effective way at reducing GHG emissions.

Environment and Climate Change Canada, 2022

Solid Waste

Action Checklist

Objective 7 **Reduce the quantity and types of waste produced by municipal operations.**

- Develop a Waste Master Plan to coordinate waste reduction efforts across different waste streams.
- Conduct a waste audit to identify opportunities to improve waste diversion rates at municipal facilities and recreation areas.
- Develop and promote education materials for staff on corporate waste reduction strategies.
- Implement a process to measure and track corporate waste generation and diversion.

Objective 8 **Integrate waste-to-energy practices into operations.**

- Explore the use of micro-scale anaerobic digestors and other technologies as a means for creating on-site bio-fuels.

Municipal Leadership

Effective corporate climate action is achieved by more than just technologic interventions. To enable widespread climate action across the organization, the Township must demonstrate leadership by embedding climate action principles into its corporate culture and by updating and developing policies that enable staff to carry out the actions outlined in this plan. Although the GHG emissions associated with these efforts cannot be quantified, they are equally as important.

Through its investment decisions, the Township may either grow in a climate compatible manner, or lock itself into an inefficient or unsustainable path for decades to come. Therefore, capital investment into climate action will be critical to success and requires alignment and integration with long term financial planning and asset management plans. Leveraging external funding through federal and/or provincial grant programs will also play a key role in unlocking many of the actions in this CCAP.

Leading by example in areas where the Township has a high level of influence is also critical in setting the pace and catalyzing community action. Investing in action can stimulate local economic growth and develop local industry knowledge that can also benefit the community in their climate action efforts. Open and transparent communications about the implementation of this CCAP can offer lessons learned and guidance to the community by helping them understand how they can implement their own actions. These efforts work harmoniously to reduce the Township's overall collective carbon footprint, bringing a host of additional socio-economic and environmental benefits.

An overview of municipal leadership and enabling actions have been provided below. Further details to each of these actions can be found in Part 2 of this CCAP.

Municipal Leadership

Action Checklist

Objective 9 **Establish financing mechanisms to allocate funds to climate action initiatives.**

- Establish a climate action reserve fund.
- Identify and pursue external funding and partnerships to support climate action efforts and offset capital costs.
- Consider ICECAP membership annually in municipal budgeting.

Objective 10 **Develop internal knowledge and capacity to advance climate action.**

- Hire a Climate & Energy Manager to lead the implementation of climate action and support departments in their efforts.
- Create an Energy Management Committee.
- Develop education and training materials for staff to build climate and energy knowledge and capacity.

Objective 11 **Integrate climate action principles into municipal decision making.**

- Integrate a sustainability criterion into procurement processes.
- Incorporate a climate lens into operations and decision-making processes.

Metrics & Evaluation

Metrics & Evaluation

Success can be measured in many ways; the most relevant approach for the purposes of this CCAP is the reduction of GHG emissions over time. Success will be measured by reaching the GHG reduction targets identified in the CCAP and the ultimate goal of striving for net-zero GHG emissions by 2050. Corporate emissions will be measured annually to monitor progress and identify emerging opportunities and priorities.

Bi-Annually

On a bi-annual basis, the actions outlined in this plan will be reviewed to ensure they remain relevant and are implemented efficiently. This may include:

- Progress on actions
- Success and lessons learned
- New actions
- New external funding opportunities

Every Five Years

A comprehensive review of this plan will be conducted every five years, including:

- Progress update on GHG emissions reduction targets
- Review of actions to identify implementation gaps and opportunities
- New partnership and engagement opportunities

Ongoing

Implementation timelines will be updated to reflect emerging issues that may have impacts on the timing of each action. As new technology and government regulations emerge, this plan will also evolve and adapt to leverage new opportunities. As technologies and market conditions change over time, new actions may be added and existing actions may be modified. As a result, this CCAP should be considered a living document that can be modified to remain accurate, effective and relevant.

The Township of Seguin will continue to engage with ICECAP members and partners, the public, stakeholders, the community, and subject matter experts to understand how circumstances across different scales may impact the implementation of this CCAP. Continuing to develop and engage in supportive partnerships will ensure actions are implemented efficiently.

Call to Action

Call to Action

Climate change is one of the greatest challenges of our time. It affects every aspect of our lives and is changing how we interact with the landscape, affecting mental and physical health, the local and global economy, and livelihoods. As a local government, the Township of Seguin has a responsibility to operate in the best interests of its community, and must demonstrate leadership in its efforts to address climate change.

Over time, fighting climate change will require a fundamental shift in how the Township of Seguin operates. Technologies will change, and policies and behaviours must adapt to enable their effective use and integration into operations. It will require collaboration across departments to develop innovative solutions and action and investment from the Township of Seguin and senior levels of government to happen.

There is strength in numbers, and engaging in collaborative partnerships such as ICECAP can support the Township's efforts. By sharing knowledge and resources with regional partners, the Township of Seguin can approach climate action in a more cost-effective manner.

Much remains to be done to position the Township to meet its GHG reduction targets, but with the establishment of this CCAP, the Township is well on its way.

Part 2:
Taking Action

Taking Action

How to Read Each Action

Together, the themes, objectives, and actions in this CCAP shape the pathway to guide the Township towards its corporate emissions reduction target. Budgets, capacity, asset condition, and other factors will influence when and how action will take place. As such, this section should be viewed as an aspirational list of actions that the Township will strive towards in pursuit of its target. Table 7 explains how the sections of each action table can be interpreted.

Table 7: Action Table Details

Lead Department	The department(s) responsible for completing an action.
Potential Partners	The department(s) who may offer support to the lead department in the implementation of an action.
Launch	The anticipated timeframe for when work on an action will begin. Actions may begin sooner or later depending on emerging priorities and external factors.
Duration	The anticipated time needed to complete an action. Duration can be Short-, Medium-, or Long-term.
GHG Reduction Potential	The anticipated emissions reductions as a result of implementing an action. This is organized by Low, Medium, and High reduction potential.
Anticipated Cost	The anticipated costs for implementing a project. Costs are described in an escalating hierarchy using the '$' symbol to compare the scale of capital required.

Buildings & Streetlight Actions

Objective 1: Improve energy efficiency and conservation through retrofits and fuel-switching.

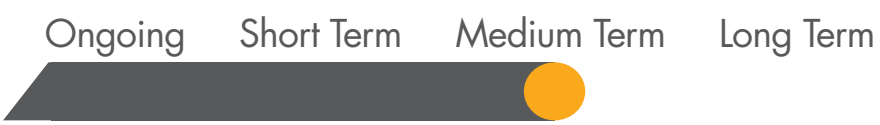
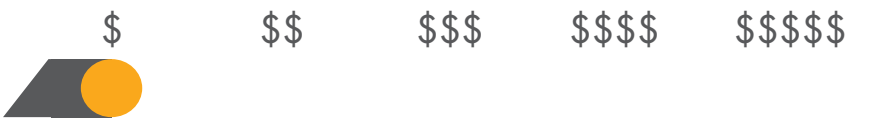
Action 1.1 Incorporate regular energy audits into building operations.

An energy audit can help reduce energy consumption and costs by pinpointing areas or systems in a building that may be wasting energy. In addition to the cost saving benefits from their energy efficiency, their compact size and reduced maintenance requirements can further decrease operational costs. Energy audits can also verify the effectiveness of energy efficiency and conservation projects that have been implemented.

Lead Department	Department Specific
Potential Partners	Strategic Initiatives
Launch	3 Years
Duration	Ongoing / Short Term / Medium Term / Long Term
GHG Reduction Potential	Low / Medium / High
Anticipated Cost	$ / $$ / $$$ / $$$$ / $$$$$

Action 1.2 Develop a Green Buildings Policy.

A Green Buildings Policy can provide direction and requirements to new and existing municipal buildings to achieve higher sustainability standards. This will ensure that conversations of energy efficiency and reducing GHG emissions occur proactively and are discussed during the project planning phase. Such a policy could include clauses outlining minimum LEED or energy performance standards, for example.

Lead Department	Strategic Initiatives
Potential Partners	Department Specific
Launch	3 Years
Duration	
GHG Reduction Potential	
Anticipated Cost	

Action 1.3 Install building automation systems where feasible.

A building automation system (BAS) is a network designed to connect and automate certain functions inside a building. All of a building's control systems are integrated into a single interface and can be monitored and adjusted remotely. This allows staff to quickly identify any problems that may arise and program occupancy and time-of-day settings to maximize energy conservation and efficiency.

Lead Department	Strategic Initiatives
Potential Partners	Department Specific
Launch	3 Years
Duration	Ongoing · Short Term · Medium Term · Long Term
GHG Reduction Potential	Low · Medium · High
Anticipated Cost	$ · $$ · $$$ · $$$$ · $$$$$

Action 1.4 Retrofit lighting systems with efficient LEDs.

Retrofitting lighting systems with LED bulbs is one of the quickest and easiest actions that can be taken to reduce energy consumption and GHG emissions. In addition to the cost saving benefits from their energy efficiency, their compact size and reduced maintenance requirements can further decrease operational costs. The quality of their colour rendering can also improve visibility and safety.

Lead Department	Department Specific
Potential Partners	Strategic Initiatives
Launch	Underway
Duration	Ongoing Short Term Medium Term Long Term 
GHG Reduction Potential	Low Medium High 
Anticipated Cost	$ $$ $$$ $$$$ $$$$$ 

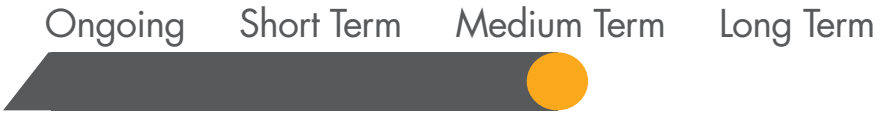
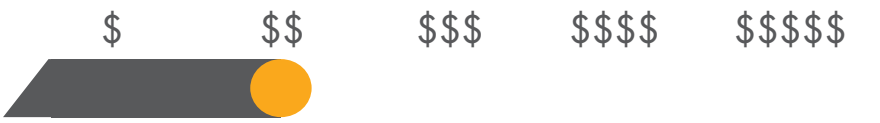
Action 1.5 Replace appliances and equipment with energy efficient models at the end of their useful life, where feasible.

Energy efficient appliances are capable of maximizing small amounts of energy into the required energy needed to complete a task. Many of these appliances can operate under lower temperature and energy settings, which sustain their functionality until the task is completed. Replacing appliances and equipment at the end of their useful life will ensure that the maximum return on investment is achieved.

Lead Department	Department Specific
Potential Partners	Strategic Initiatives
Launch	3 Years
Duration	Ongoing Short Term Medium Term Long Term 
GHG Reduction Potential	Low Medium High 
Anticipated Cost	$ $$ $$$ $$$$ $$$$$ 

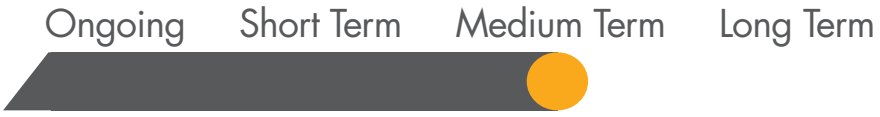
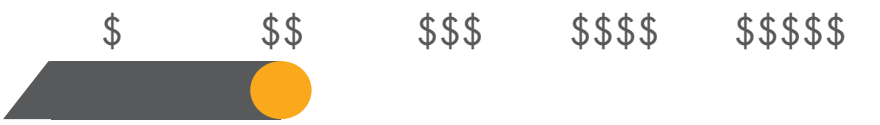
Action 1.6 Where feasible and required, improve the building envelope of municipal buildings and facilities.

An energy-efficient building envelope refers to an effective boundary between the conditioned interior of the building and environment beyond it. An effective building envelope will lower the cost of fuels that power and control a building's interior temperatures. This can also improve the level of comfort and the health and safety of occupants. Insulation upgrades, weather stripping, and caulking are a few of many efforts that can be taken to ensure an air-tight building envelope. Conducting regular energy audits (Action 1.1) can identify where building envelopes may be compromised and what measures can be taken to fix any issues.

Lead Department	Department Specific
Potential Partners	Strategic Initiatives
Launch	5 Years
Duration	
GHG Reduction Potential	
Anticipated Cost	

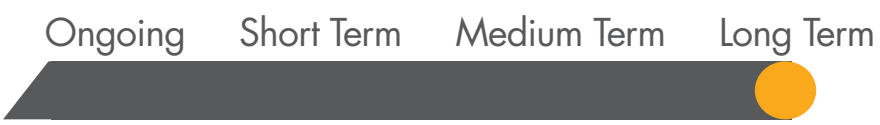
Action 1.7 Explore the use of high albedo building materials during regular maintenance and repairs.

High albedo building materials are those which have high reflectivity and low absorptivity. These properties can reduce the heat gain of a building's envelope because they absorb less sunlight and heat. In turn, a building's cooling demand is reduced and less energy is used as a result. This can also have adaptive benefits during periods of extreme heat, which are anticipated to increase in severity and frequency as a result of climate change. Policy mechanisms (Action 1.2) can strengthen internal efforts to explore the use of these materials in operations.

Lead Department	Department Specific
Potential Partners	Strategic Initiatives
Launch	5 Years
Duration	
GHG Reduction Potential	
Anticipated Cost	

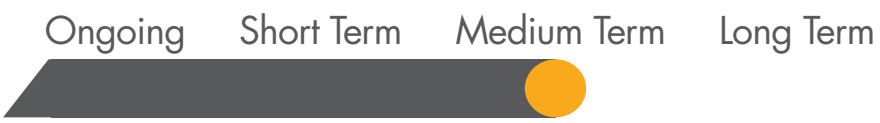
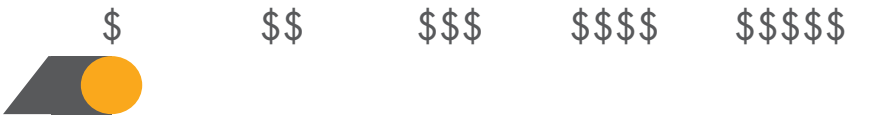
Action 1.8 Explore the use of natural infrastructure into building systems.

Integrating natural infrastructure (such as green roofs, green walls, etc.) into building systems can have social, environmental, and economic benefits. Green roofs, for example, provide insulation that moderates a building's temperature, thereby reducing energy costs. They can also provide stormwater benefits, offering additional adaptive benefits as precipitation and heavy rainfall events are anticipated to increase in the future as a result of climate change. As such, integrating natural infrastructure into the built environment can have cross-cutting benefits that contribute to many of the Township of Seguin's strategic and environmental goals and objectives.

Lead Department	Department Specific
Potential Partners	Strategic Initiatives
Launch	5 Years
Duration	
GHG Reduction Potential	
Anticipated Cost	

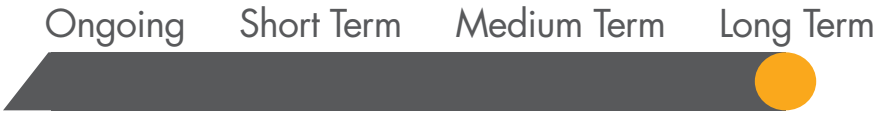
Action 1.9 Develop an Energy Efficient Equipment Purchasing Policy.

An Energy Efficient Equipment Purchasing Policy can direct staff to consider the business case for purchasing energy efficient equipment when undergoing equipment replacements. This policy could also provide direction into the review of fuel-switching technologies.

Lead Department	Treasury
Potential Partners	Strategic Initiatives
Launch	5 years
Duration	
GHG Reduction Potential	
Anticipated Cost	

Action 1.10 Replace heating and cooling systems with low or zero-carbon alternatives, where feasible.

Heating and cooling systems that use fossil fuels have the highest energy demand in buildings. Replacing these systems with low or zero carbon technologies can therefore lead to drastic reductions in GHG emissions. These efforts should align with scheduled replacements in asset management plans to maximize the useful life of the existing system and maximize the return on investment.

Lead Department	Department Specific
Potential Partners	Strategic Initiatives
Launch	3 Years
Duration	
GHG Reduction Potential	
Anticipated Cost	

Buildings & Streetlights

Objective 2: Integrate energy management practices throughout operations.

Action 2.1 Continue regular and preventative maintenance on equipment.

Small inefficiencies can accumulate to large quantities of energy being wasted. As equipment ages it becomes less efficient and more susceptible to failure. Conducting regular and preventative maintenance on equipment will reduce the risk of wasted energy and increase its reliability and long-term efficiency. This can be highly effective at improving energy efficiency when paired with routine energy audits (Action 1.1).

Lead Department	Department Specific
Potential Partners	Strategic Initiatives
Launch	Underway
Duration	Ongoing · Short Term · Medium Term · Long Term
GHG Reduction Potential	Low · Medium · High
Anticipated Cost	$ · $$ · $$$ · $$$$ · $$$$$

Action 2.2 Explore the use of data management systems to house holistic building energy data and information.

Secure, online energy management systems can provide powerful insights that help with identifying underperforming buildings to target for efficiency improvements, set investment priorities, verifying cost and emissions savings from actions, and benchmarking energy performance across a portfolio of buildings. These systems can automatically process trend analysis and some platforms are available free of charge.

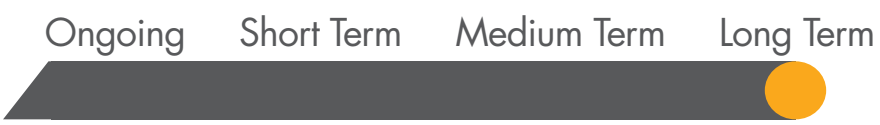
Lead Department	Strategic Initiatives
Potential Partners	Community Services
Launch	< 1 Year
Duration	Ongoing · Short Term · Medium Term · Long Term 
GHG Reduction Potential	Low · Medium · High 
Anticipated Cost	$ · $$ · $$$ · $$$$ · $$$$$ 

Buildings & Streetlights

Objective 3: Integrate low or zero carbon technologies into buildings, including renewable energy generation, storage, and use.

Action 3.1 Explore the integration of renewable energy systems into buildings systems.

Installing on-site renewable energy systems such as rooftop solar panels or wind turbines is a crucial step towards decarbonizing buildings. However, prior to installing renewable energy systems, buildings must first operate efficiently and have an effective envelope. When integrated with fuel-switching initiatives, renewable energy systems can have profound GHG reduction benefits. This will also free up grid capacity for other electrification initiatives elsewhere, such as those occurring in the municipal fleet (Action 5.2 and Action 6.3).

Lead Department	Department Specific
Potential Partners	Strategic Initiatives
Launch	10 Years
Duration	
GHG Reduction Potential	
Anticipated Cost	

Action 3.2 Conduct fuel-switching studies to explore the use of low or zero carbon technologies for heating and cooling.

Replace heating and cooling systems with low or zero-carbon alternatives (Action 1.10) is a critical action to meeting targets. However, there are many system configurations that can be taken. Gaining an understanding of what low or zero carbon technologies will be the most effective and will maximize energy cost savings at different buildings is therefore an important step. Fuel-switching studies can help build the business case for prioritizing fuel-switching efforts.

Lead Department	Strategic Initiatives
Potential Partners	Department Specific
Launch	3 Years
Duration	
GHG Reduction Potential	
Anticipated Cost	

Buildings & Streetlights

Objective 4: Improve the efficiency of outdoor lighting.

Action 4.1 Replace all remaining outdoor public lighting, including streetlights, with LEDs.

Replacing outdoor lighting with LEDs is a quick and effective method for reducing energy consumption and GHG emissions. LED luminaries also have a longer life span in comparison to other types of lighting, thereby reducing maintenance costs. Additionally, LEDs also emit a whiter light than HPS lights, which improves visibility and has been shown to improve community safety and wellbeing.

Lead Department	Department Specific
Potential Partners	Strategic Initiatives
Launch	Underway
Duration	Ongoing · Short Term · Medium Term · Long Term
GHG Reduction Potential	Low · Medium · High
Anticipated Cost	$ · $$ · $$$ · $$$$ · $$$$$

Action 4.2 Explore LED retrofit opportunities for digital signs.

Compared to fluorescent and neon signs, LED signs have been shown to use 80% less energy, while simultaneously providing better sign illumination. They also have reduced environmental impacts compared to fluorescent signs, which contain harmful chemicals such as mercury.

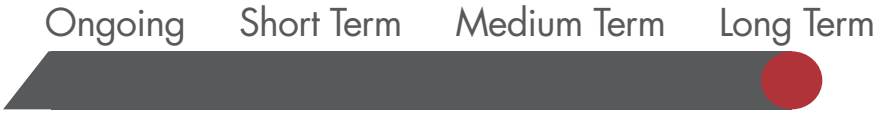
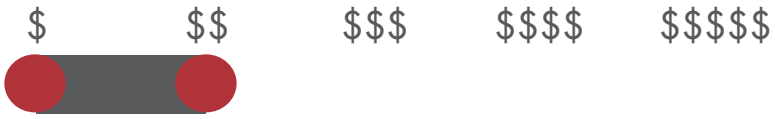
Lead Department	Community Services
Potential Partners	Strategic Initiatives Administration
Launch	3 Years
Duration	Ongoing · Short Term · Medium Term · Long Term
GHG Reduction Potential	Low · Medium · High
Anticipated Cost	$ · $$ · $$$ · $$$$ · $$$$$

Fleet & Transport Actions

Objective 5: Improve the fuel efficiency of the fleet through driver education and fuel-efficient technologies, including electrification.

Action 5.1 Explore opportunities to optimize and right-size the municipal fleet.

It is common for fleet inventories to grow over time and include vehicles that are highly specialized, rarely used, or perhaps unsuitable for current applications or service levels. Right-sizing the municipal fleet should evaluate the business case of each vehicle to determine whether reassigning, replacing, or eliminating a vehicle would reduce fuel and maintenance costs, without compromising fleet activities and municipal service levels.

Lead Department	Fire Services & By-Law
Potential Partners	Public Works Community Services
Launch	3 Years
Duration	
GHG Reduction Potential	
Anticipated Cost	

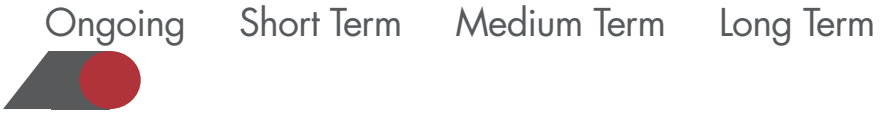
Action 5.2 Explore and pursue opportunities to replace existing vehicle stock with zero-emission vehicles or fuel-efficient alternatives.

Electrifying the municipal fleet or switching to more efficient vehicle models has immense potential for reducing GHG emissions. Additionally, the Township of Seguin must begin this transition in response to the federal government's ZEV mandate, requiring all new light-duty vehicle sales to be ZEV by 2035. These purchases should be aligned with the asset management plan to maximize the useful life of the existing vehicle and the return on investment of its replacement (Action 6.2). In order to accommodate the wide-spread use of zero-emission vehicles in municipal operations, it is also imperative that EV charging infrastructure is in place (Action 6.3).

Lead Department	Strategic Initiatives
Potential Partners	Fire Services & By-Law Public Works Community Services
Launch	3 Years
Duration	Ongoing Short Term Medium Term Long Term
GHG Reduction Potential	Low Medium High
Anticipated Cost	$ $$ $$$ $$$$ $$$$$

Action 5.3 Develop driver education materials to promote fuel-efficient driving behaviours.

Driver training has been shown to demonstrate an average of 10-15% reduction of fuel use and emissions, depending on individual driver habits. Combining effective route optimization through GPS technologies with deliberate driving behaviour can further boost fuel savings.

Lead Department	Fire Services & By-Law
Potential Partners	Strategic Initiatives Public Works Community Services Seguin Public Libraries
Launch	Underway
Duration	
GHG Reduction Potential	
Anticipated Cost	

Action 5.4 Encourage virtual meetings where possible to limit business travel.

Following the Covid-19 pandemic, attending meetings virtually has quickly become a standard business practice across industries. By attending meetings virtually, staff can eliminate the need to use a municipal vehicle to attend a meeting, thereby conserving fuel and emissions.

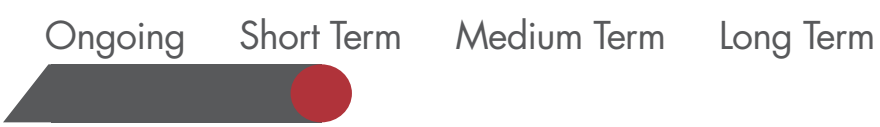
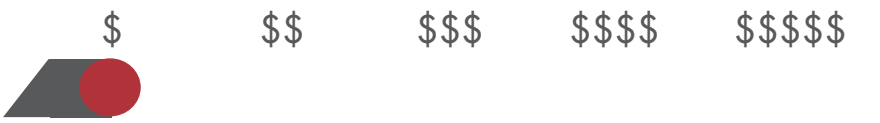
Lead Department	Chief Administrative Officer
Potential Partners	All Departments
Launch	Underway
Duration	Ongoing · Short Term · Medium Term · Long Term
GHG Reduction Potential	Low · Medium · High
Anticipated Cost	$ · $$ · $$$ · $$$$ · $$$$$

Fleet & Transport

Objective 6: Develop supporting plans and policies to enable fleet electrification and fuel conservation.

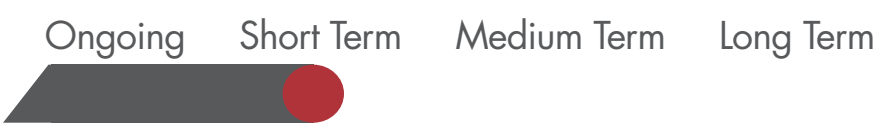
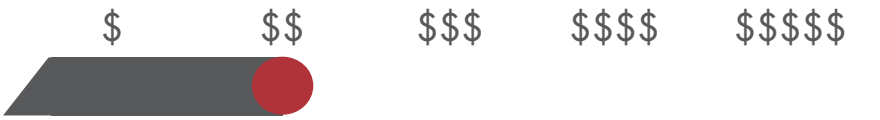
Action 6.1 Develop a Low Carbon Fleet Policy.

A Low Carbon Fleet Policy can guide the use and purchase of municipal vehicles. It can offer direction into what criteria should be explored when purchasing new vehicles, optimizing the fleet by eliminating unused or underused vehicles, applying right-sizing principles, and increasing the use of zero-emission vehicles. It can also outline the use of any shared municipal vehicles or desired driving behaviours.

Lead Department	Strategic Initiatives Fire Services & By-Law
Potential Partners	Public Works Community Services
Launch	3 Years
Duration	
GHG Reduction Potential	
Anticipated Cost	

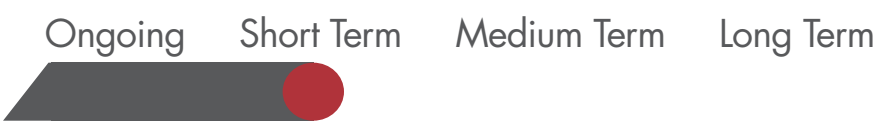
Action 6.2 Conduct a fuel-switching study to align scheduled vehicle replacements with zero-emission vehicle purchasing opportunities.

Conducting a fuel-switching study is an important step towards decarbonizing the municipal fleet. In alignment with scheduled vehicle replacements in the Asset Management Plan, this study can forecast the long-term capital requirements needed to purchase ZEV alternatives. The fuel-switching study should consider multiple replacement cycles, acknowledging that some ZEV technologies have not yet advanced to a performance level required by municipal operations, such as those in the heavy-duty vehicle sector. This study will enable to the Township of Seguin to allocate the appropriate capital requirements during each budget cycle, and identify opportunities to offset costs through external funding programs (Action 9.2).

Lead Department	Strategic Initiatives
Potential Partners	Fire Services & By-Law Public Works Community Services
Launch	3 Years
Duration	
GHG Reduction Potential	
Anticipated Cost	

Action 6.3 Develop a long-term EV charging infrastructure plan.

In order to accommodate the use of zero-emission vehicles in municipal operations, it is imperative that EV charging infrastructure is in place. This plan can forecast the long-term capital requirements needed to purchase and install EV charging infrastructure. This plan should be aligned with the fuel-switching study (Action 6.2) to ensure that progressively increasing EV charging demands are met.

Lead Department	Strategic Initiatives
Potential Partners	Fire Services & By-Law Public Works Community Services
Launch	3 Years
Duration	
GHG Reduction Potential	
Anticipated Cost	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Solid Waste

Objective 7: Reduce the quantity and types of waste produced by municipal operations.

Action 7.1 Develop a Waste Master Plan to coordinate waste reduction efforts across different waste streams.

While aimed at reducing waste produced by the community, a Waste Master Plan can also apply to municipal operations. Through a modular plan design, the Waste Master Plan could consider waste generated during municipal operations, and effective policies and measures to reduce the quantity and types of waste produced.

Lead Department	Public Works
Potential Partners	Strategic Initiatives
Launch	3 Years
Duration	Ongoing · Short Term · Medium Term · Long Term 
GHG Reduction Potential	Low · Medium · High 
Anticipated Cost	$ · $$ · $$$ · $$$$ · $$$$$ 

Action 7.2 Conduct a waste audit to identify opportunities to improve waste diversion rates at municipal facilities & recreation areas.

In alignment with the Waste Master Plan (Action 7.1) a waste audit can identify the types of waste being disposed at various municipal facilities and recreation areas, as well as the quantity of each waste type being disposed. This information can be used to identify where separated waste receptacles may be required in order to improve diversion rates.

Lead Department	Public Works
Potential Partners	Community Services
Launch	3 Years
Duration	Ongoing · Short Term · Medium Term · Long Term
GHG Reduction Potential	Low · Medium · High
Anticipated Cost	$ · $$ · $$$ · $$$$ · $$$$$

Action 7.3 Develop and promote education materials for staff on corporate waste reduction strategies.

Education is key to diverting waste. Providing staff with educational resources on how to sort and dispose waste properly can be an effective tool in reducing waste. The messaging from these resources should be embedded throughout the organization's culture and other training programs, such as employee orientation.

Lead Department	Public Works
Potential Partners	Strategic Initiatives Administration Treasury Seguin Public Libraries
Launch	5 Years
Duration	Ongoing · Short Term · Medium Term · Long Term 
GHG Reduction Potential	Low · Medium · High 
Anticipated Cost	$ · $$ · $$$ · $$$$ · $$$$$ 

Action 7.4 Implement a process to measure and track corporate waste generation and diversion.

Presently, corporate waste generation is calculated using an assumptive model. By designing and implementing a process for measuring corporate waste, the Township of Seguin will have data that enables it to make evidence-based decisions with regards to its corporate waste management practices.

Lead Department	Public Works
Potential Partners	Strategic Initiatives
Launch	5 Years
Duration	Ongoing Short Term Medium Term Long Term 
GHG Reduction Potential	Low Medium High 
Anticipated Cost	$ $$ $$$ $$$$ $$$$$ 

Solid Waste

Objective 8: Integrate waste-to-energy practices into operations.

Action 8.1 Explore the use of micro-scale anaerobic digestors & other technologies as a means for creating on-site bio-fuels.

Through various processes, food and organic waste can be processed into biofuels, a form of renewable energy. If integrated with buildings systems (Action 3.1) these technologies can be an effective and innovative approach at reducing both building and waste emissions. As a form of renewable energy, the use of biofuels can also result in energy cost savings.

Lead Department	Public Works
Potential Partners	Strategic Initiatives
Launch	10 Years
Duration	Ongoing · Short Term · Medium Term · Long Term
GHG Reduction Potential	Low · Medium · High
Anticipated Cost	$ · $$ · $$$ · $$$$ · $$$$$

Municipal Leadership Actions

Objective 9: Establish financing mechanisms to allocate funds to climate action initiatives.

Action 9.1 Establish a climate action reserve fund.

Reserves are an important tool available to municipalities for achieving financial flexibility and sustainability. Often times, energy efficient technologies have a capital premium. Therefore, establishing a climate action reserve fund that can be accessed when capital premiums are larger than anticipated can be an effective approach for ensuring climate action projects can move forward.

Lead Department	Treasury
Potential Partners	Strategic Initiatives Administration
Launch	5 Years
Duration	Ongoing Short Term Medium Term Long Term
GHG Reduction Potential	Low Medium High
Anticipated Cost	$ $$ $$$ $$$$ $$$$$

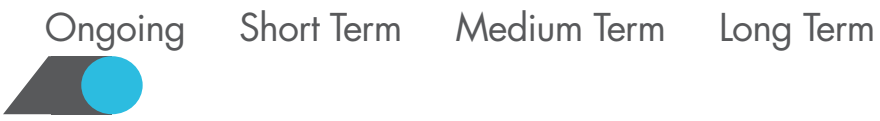
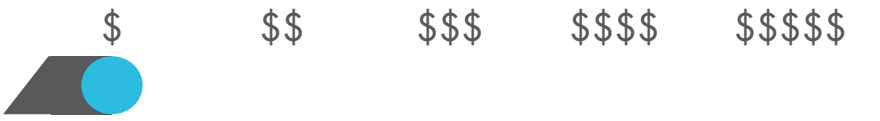
Action 9.2 Identify and pursue external funding and partnerships to support climate action efforts and offset capital costs.

There are numerous external funding opportunities available through federal and provincial agencies for climate action and energy management initiatives. By acquiring external funding, the Township of Seguin can expand its impact per dollar invested. Similarly, participating in partnerships such as ICECAP (Action 9.3) can create additional funding opportunities to advance climate action efforts.

Lead Department	All Departments
Potential Partners	Treasury Strategic Initiatives
Launch	Underway
Duration	Ongoing Short Term Medium Term Long Term
GHG Reduction Potential	Low Medium High
Anticipated Cost	$ $$ $$$ $$$$ $$$$$

Action 9.3 Consider ICECAP membership annually in municipal budgeting.

ICECAP is a partnership between the Municipalities, First Nations, industry, and community groups located in and around the Georgian Bay Biosphere region for the purpose of a collaborative, more cost-effective approach to energy management and the reduction of greenhouse gas emissions. By participating in ICECAP, the Township of Seguin can learn about the efforts neighbouring municipalities and First Nations are undertaking, and by sharing resources and knowledge, can implement its own initiatives more efficiently. Additionally, collaboration can take place amongst partners, leading to cohesion and coordination of the actions taking place across the region.

Lead Department	Strategic Initiatives
Potential Partners	Treasury
Launch	Underway
Duration	
GHG Reduction Potential	
Anticipated Cost	

Municipal Leadership

Objective 10: Develop internal knowledge and capacity to advance climate action.

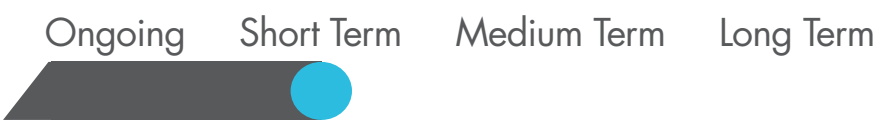
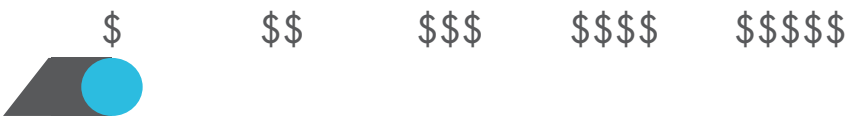
Action 10.1 Hire a Climate & Energy Manager to lead the implementation of climate action and support departments in their efforts.

Hiring a Climate & Energy Manager is an effective way to manage energy consumption and emissions within the organization. This individual can serve as a subject matter expert, providing leadership and project management support to staff as they undertake climate action efforts in their respective departments. This individual can action the Township's climate action plans, guiding it towards its emission reduction targets.

Lead Department	Strategic Initiatives
Potential Partners	Treasury
Launch	< 1 Year
Duration	Ongoing · Short Term · Medium Term · Long Term
GHG Reduction Potential	Low · Medium · High
Anticipated Cost	$ · $$ · $$$ · $$$$ · $$$$$

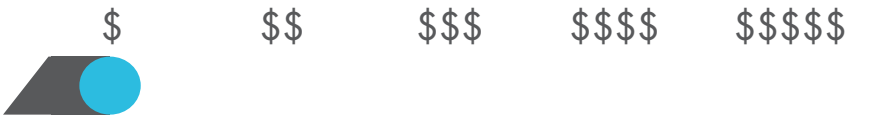
Action 10.2 Create an Energy Management Committee.

Through interdepartmental discussions, action can be coordinated to ensure that staff efforts are aligned and the supporting mechanisms they require to carry out this work are in place. This can be achieved by creating an Energy Management Committee or by including it is a recurring discussion item for the Township's Senior Management Team.

Lead Department	Strategic Initiatives
Potential Partners	All Departments
Launch	< 1 Year
Duration	
GHG Reduction Potential	
Anticipated Cost	

Action 10.3 Develop education and training materials for staff to build climate and energy knowledge and capacity.

Effective corporate climate action requires the buy-in, support, and participation from all staff members. For this to occur, climate action must also be embedded into the organization's culture. To support this organizational shift, education and training materials are required to build climate change and energy knowledge and capacity of each staff member.

Lead Department	Strategic Initiatives
Potential Partners	Treasury Seguin Public Libraries
Launch	3 Years
Duration	
GHG Reduction Potential	
Anticipated Cost	

Municipal Leadership

Objective 11: Integrate climate action principles into municipal decision making.

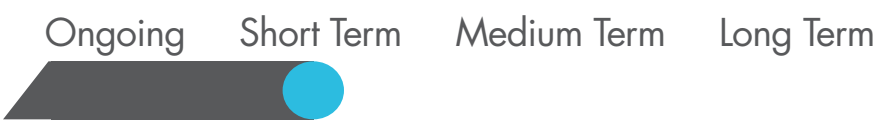
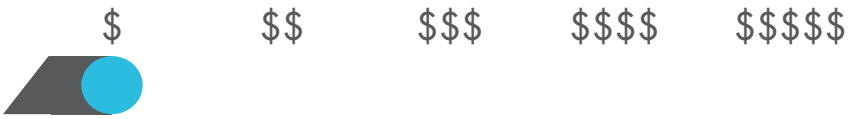
Action 11.1 Integrate a sustainability criterion into procurement processes.

Although not considered in the Corporate Climate Action Plan, the Township of Seguin recognizes that its suppliers and contractors produce GHG emissions as they provide services. Known as Scope 3 emissions, the Township of Seguin can influence the reduction of these emissions by rewarding suppliers and contractors by exercising and demonstrating practices that align with this plan and other environmental objectives established by the Township of Seguin.

Lead Department	Treasury
Potential Partners	Strategic Initiatives
Launch	5 years
Duration	Ongoing · Short Term · Medium Term · Long Term
GHG Reduction Potential	Low · Medium · High
Anticipated Cost	$ · $$ · $$$ · $$$$ · $$$$$

Action 11.2 Incorporate a climate lens into operations and decision-making processes.

A climate lens is designed to provide a preliminary, qualitative or quantitative understanding of whether a municipal decision will affect climate change through the production of GHG emissions, or be affected by climate change through increased exposure to climate impacts (i.e. temperature, precipitation, etc.). By evaluating climate considerations, municipalities can incent internal behavioural change by identifying the harm, risk, or benefits of projects and decisions.

Lead Department	Strategic Initiatives
Potential Partners	Administration
Launch	5 years
Duration	
GHG Reduction Potential	
Anticipated Cost	

Thank You, Miigwech

This plan has been developed in partnership with the Georgian Bay Mnidoo Gamii Biosphere (GBB), with input from ICECAP members & partners.

The GBB is an inclusive and dynamic organization that builds capacity for regional sustainability in eastern Georgian Bay.

The GBB is a non-profit registered Canadian charity governed by a Board of Directors.

For more information, please visit: gbbr.ca