Local Climate Change Action Plan

REGIONAL GHG SUMMARY

Sustainable Severn Sound

This preparation of this plan was carried out with assistance from the Municipalities for Climate Innovation Program (MCIP), a fund financed by the Government of Canada and administered by the Federation of Canadian Municipalities (FCM). Funding was also received from the Ontario Trillium Foundation (OTF) an agency of the Government of Ontario. Notwithstanding this support, the views expressed are the personal views of the authors, FCM, the Government of Canada and OTF accept no responsibility for them. This plan was prepared by Tracy Roxborough and Victoria Ervick of SSS.

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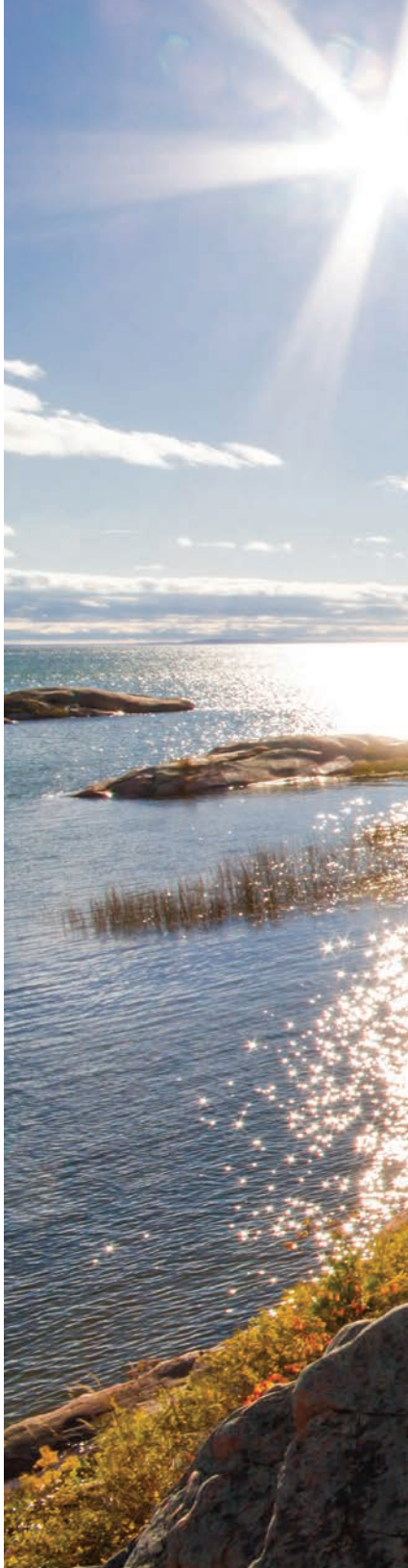


Foreward

On behalf of our seven partner municipalities and three partner organizations, Sustainable Severn Sound (SSS) is pleased to present the first greenhouse gas (GHG) report under our Local Climate Change Action Plan (LCCAP). Over the past eight months, the Towns of Midland and Penetanguishene and the Townships of Tiny, Tay, Severn, Georgian Bay and Oro-Medonte, as well the North Simcoe Community Futures Development Corporation (NSCFDC), the Simcoe Muskoka District Health Unit (SMDHU) and the Severn Sound Environmental Association (SSEA) have been working together with community stakeholders to understand the impacts associated with climate change and what contribution we are making locally to this defining issue of our time. This partnership amongst the seven municipalities and three community agencies builds upon the past efforts of creating the Sustainability Plan, and is an example of the power of collective action in motion. Through this process, five of our seven municipalities have joined the Partners for Climate Protection (PCP) program, further demonstrating their commitment to taking action on climate change. These municipalities join over 350 municipalities across Canada in applying a proven, five -milestone performance based framework to reducing carbon emissions. Over the past four years, SSS and the Sustainability Committee have grown in knowledge and in strength, and we look forward to continuing to build momentum through our collective action to address climate change.

CAO Doug Luker, Sustainability Committee Chairperson and staff designate to the PCP program

Township of Tiny's Deputy Mayor Steffen Walma (L), Sustainability Committee member and Council designate to the PCP program; Mayor George Cornell (C); and CAO Doug Luker (R), Sustainability Committee Chairperson, and staff designate to the PCP program

"Reducing the amount of GHG emissions produced in our region will not happen overnight. But by working together, by supporting and encouraging each other, and by spreading the word about ways to reduce carbon emissions, we can make a significant difference both to people living in our region today and for generations to come. There are lots of simple steps that municipalities and their communities can take to help tackle climate change – individually they may or may not make a significant difference in the quantity of GHGs, but added together across the area and over time, they will result in a reduction of our carbon emissions, and successfully help to reduce our collective impact on the environment."

Tracy Roxborough, Sustainability Coordinator SSS

Acknowledgements

Role of Sustainable Severn Sound and the Sustainability Committee

The Sustainability Committee serves as an advisory committee to SSS by supporting the objectives to:

1. **Educate** municipalities on best practices in climate change planning and connect them to resources (i.e., guides, case studies, and funding),
2. **Encourage** the adoption of practices/policies within local municipal operations to support climate change action and sustainable communities, and
3. **Advocate** for sustainable environmental, social and economic practices/policies within our service area.

List of Sustainability Committee members and PCP (PCP) representatives per municipality:

Municipality or Agency	Representative(s)
The Town of Midland	Councillor Jonathan Main; Councillor Jack Contin
The Town of Penetanguishene	Deputy Mayor Anita Dubeau[PCP]; Councillor Mike Lauder; Andrea Betty, Director of Planning and Community Development[PCP]
The Township of Georgian Bay	Councillor Paul Wiancko[PCP]; Nicholas Popovich, Director of Development Services[PCP]
Township of Severn	Councillor Ron Stevens[PCP]; W. Henry Sander, Chief Administrative Officer[PCP]
Township of Oro-Medonte	Councillor Barbara Coutanche
Township of Tay	Councillor Catherine Root[PCP]; Robert Lamb, Chief Administrative Officer[PCP]
Township of Tiny	Deputy Mayor Steffen Walma[PCP]; Doug Luker, Chief Administrative Officer[PCP]
Simcoe Muskoka District	Brenda Armstrong, Program Manager, Health Hazards and Vector Borne Health Unit Disease, Environmental Health Department; Morgan Levison, Public Health Promoter, Health Promotion and Communications
Severn Sound Environmental Association	Julie Cayley, General Manager
North Simcoe Community Futures Development Corporation	Chris McLaughlin, General Manager/President

[PCP] To date, five of SSS's seven partner municipalities have joined the Partners for Climate Protection (PCP) program developed by the Federation of Canadian Municipalities (FCM) and I.C.L.E.I – Local Governments for Sustainability. These five local governments have designated both a staff member and a Council member to represent their municipality and community in the PCP program.

Sources of support

The North Simcoe Community Futures Development Corporation is the host of the SSS project, and provides immeasurable in-kind support to SSS staff and the Sustainability Committee. Each municipality provides an equal financial contribution to the SSS project to support the Sustainability Coordinator position. SSS secured funding to support this project from OTF, FCM and the Government of Canada.

Introduction

Climate change is being experienced by communities throughout the province. Flooding, extreme heat, changing water levels and stronger storms are only a few of the impacts which confront municipalities in Ontario and throughout Canada.

Local municipalities will most likely be challenged with more precipitation and higher temperatures which could result in lower water levels in Georgian Bay due to the increased evaporation and transpiration of surface water. Hotter temperatures will cause more heat-waves that would put our residents and guests at risk, not only through the temperature itself, but the area could see a decrease in air quality, and the warmer weather could result in the increase and intensity of algal blooms in our lakes and rivers. Additionally, increased intensity, duration, and frequency of rainfall will have the potential to overtake storm water networks, and cause localized flooding in our communities. Winter storms will be more intense, and the variability in temperature could increase the chance for more ice and hail storms which could damage built infrastructure. Overall, think warmer, wetter and wilder.

Although we cannot exactly define our future climate, work completed in the area of climate science allows us to project the likely climatic conditions in the coming years. By looking at projections to 2050 for our region prepared by climate scientists, utilizing data generated by the Intergovernmental Panel on Climate Change (IPCC CMIP5 Project)[1], the typical year at mid-century is likely to be 3-4 degrees Celsius warmer each month than at present, and about 10

per cent wetter. The majority of precipitation will likely occur in the winter and spring, and we will experience much drier summers and falls than now. These conditions will produce drier soils, and the amount of water flowing in rivers and streams will be reduced, which could impact the ability of wetlands to remain saturated. With reduced precipitation and hotter temperatures in the summer and fall, our forests and greenspace will be at a greater risk of fire.

The good news is – we can make a difference. By mitigating, or reducing GHGs through a change in our behaviours and an adjustment to practices at work and at home, we can begin to reduce our carbon footprint. The GHG producing activities by our society up to now will continue to impact us into the future. The changes that we make now will only serve to better the conditions for those in the future, such as our children, and their grandchildren.

The actions suggested in this plan are actions we can take today. Not only will these actions help to protect our natural assets, green our communities, support healthy people, and save money; they will help to limit the potential for catastrophic climate changes in the future. And although we may not be here – someone will, so let's try to leave it better than we found it!

2016

Hottest year on record for the planet.[3]

The rate of global warming over the last 50 years is almost double the rate of warming over the last 100 years. Worldwide, 14 of the 15 hottest years on record have occurred since 2000[2]

GHG's

GHG emissions are a result of what we do on a daily basis, and most of these emissions are due to energy use, such as electricity, natural gas, gasoline and diesel. But, GHGs are also produced from how we dispose of our waste, where we live and how we choose to build upon the landscape.

Fast facts

1. **The 'Toronto Ice Storm' (December 2013), resulted in $200 million of property damage and approximately 20 per cent loss of the city's tree canopy.**

2. **Intact Financial is raising premiums by as much as 15-20 per cent to deal with the added costs of weather-related property damage.**

3. **Thunder Bay declared a state of emergency in May 2012 after being hit by a series of thunderstorms, flooding basements of homes and businesses due to overwhelmed sewer and storm water systems.**[4]

What is the Local Climate Change Action Plan (LCCAP)?

The LCCAP includes the development of a community-wide greenhouse (GHG) inventory, the setting of corporate and community GHG reduction targets, and the creation of an action plan to reduce GHG emissions in order to meet the identified GHG reduction targets. For the purpose of this report, the GHG inventory is aggregated to represent the total emissions of the seven municipalities, and also individually for each Town or Township. Initiatives arising from the implementation of the LCCAP will work to reduce the overall GHG emissions within our seven municipalities.

During the plan development phase, SSS took into consideration existing municipal plans and strategies of our seven partner municipalities in order to align with and contribute to the larger objectives of each local government. As SSS develops each respective municipal LCCAP, staff will work with our partner municipalities to integrate those GHG inventories, GHG reduction targets and climate change actions from the LCCAP into internal municipal documents where possible (i.e., conservation and demand management plan, council and/or community-based strategic plan, official plan, asset management plans, etc.).

Why develop a LCCAP?

1. Demonstrates leadership among small rural municipalities
2. Acts as a valuable planning tool in reducing GHG emissions
3. Alignment with policy and legislation
4. Realization of numerous co-benefits
5. Increased access to funding
6. Streamlined approach to the utilization of resources
7. Collaborative projects allow for improved implementation

How does the LCCAP relate to other policy and plans?

Ontario's Climate Change Action Plan, 2016

In 2014, Ontario committed to reducing GHG emissions that cause climate change by 6 per cent below 1990 levels by 2014, 15 per cent below 1990 levels by 2020, and 80 per cent below 1990 levels by 2050. In June 2016, the Province released its five year Ontario Climate Change Action Plan to fight climate change, reduce GHG emissions to meet their targets, and transition to a low-carbon economy. The plan identifies a series of specific actions across a number of different themes and is a significant step forward in addressing climate change across the province.

Community Emissions Reduction Planning: A Guide for Municipalities

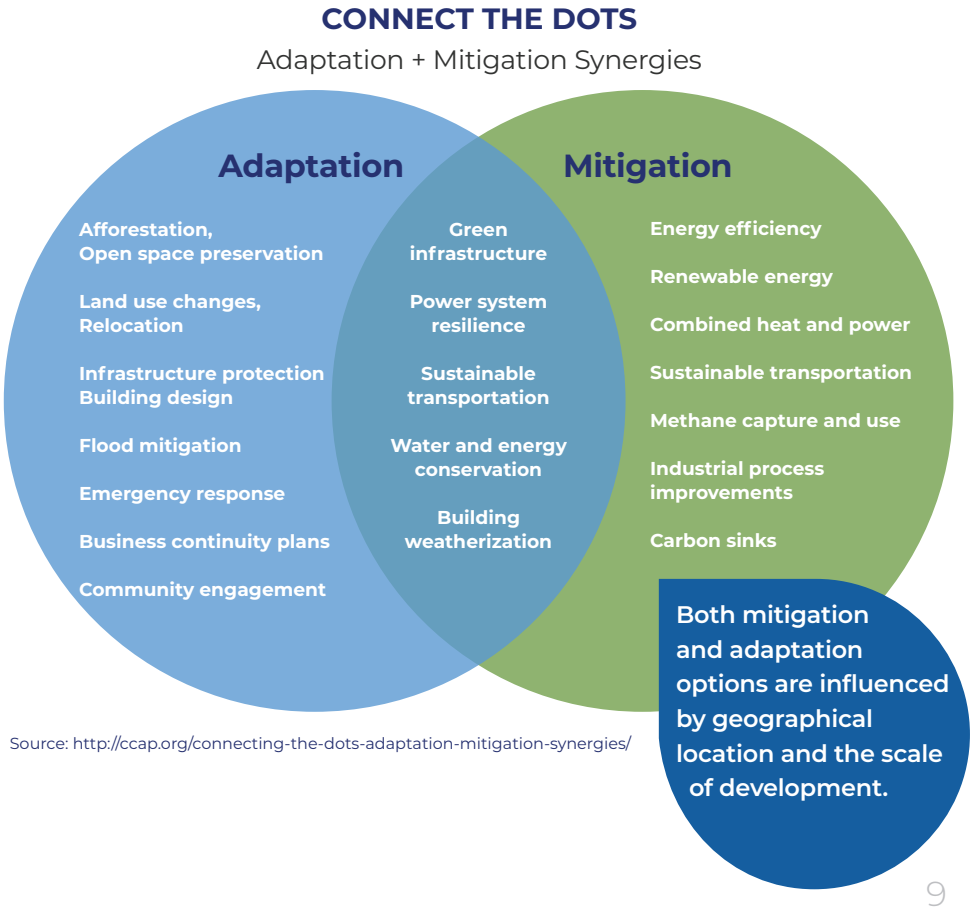
To help meet commitments made under Ontario's Five-Year Climate Change Action Plan and to support implementation of the provincial land use planning framework related to climate change, the Ministry of Environment and Climate Change (MOECC) recently finalized and released this Guide to support municipalities and other practitioners in completing GHG inventories and developing community emissions reduction plans. It should be noted, that the PCP program is recognized as a tool within the Guide for municipalities to utilize in undertaking GHG emission planning, with the LCCAP aligning with the Guide.

O. Reg. 397/11: Energy Conservation and Demand Management Plans

Municipalities are required to prepare Energy Conservation and Demand Management Plans (CDM Plan) that include the following, (1) a clear corporate vision and policy that includes goals, objectives and strategic priorities for managing energy use, (2) details about the municipality's energy baseline and a summary of past successes and present initiatives, and (3) a list of energy conservation and demand management actions as well as the estimated cost and energy savings information. The municipality is required to update this Plan every five years, with the next update required in 2019. The GHG inventories, targets and actions within the LCCAP will be integrated into each municipal CDM Plan.

Growth Plan, 2017

In 2017, the province released the new Growth Plan. Charting a course to 2041 policy objectives, this policy framework connects land use decision to climate action, which will influence municipalities and other local government agencies over the long-term. The Growth Plan includes a requirement for upper and single-tier municipalities to set climate policies and actions in their Official Plans -- encouraging all municipalities to set emission reduction targets that support the provincial goals, and develop GHG inventories.

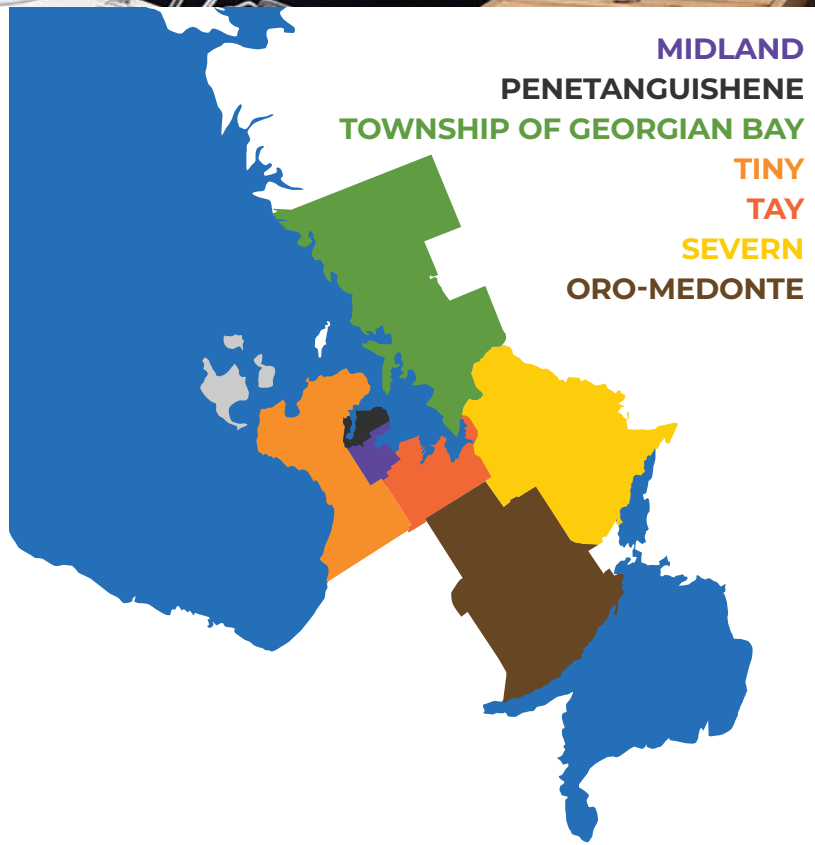


Source: http://ccap.org/connecting-the-dots-adaptation-mitigation-synergies/

Service area and area profile

SSS operates as a not-for-profit as a sub-program of the North Simcoe Community Futures Development Corporation (NSCFDC). SSS provides services to six municipalities and their communities in central and north Simcoe County, and one in the District Municipality of Muskoka. The residents of these municipalities represent 37 per cent of the County's population, and 4 per cent of the population of the District Municipality of Muskoka, and include the Towns of Midland and Penetanguishene, and the Townships of Tiny, Tay, Severn, Georgian Bay and Oro-Medonte. These municipalities are primarily rural and range from 2,499 to 21,500 residents, representing a total permanent resident population of approximately 85,000, with that number growing to almost 200,000 with the return of the area's seasonal residents.

The areas main industries include tourism, agriculture and healthcare.
The area has a rich history, as well as a connection to nature and the outdoors that make the location a great place to live and visit.



Greenhouse gas (GHG) inventory

A GHG inventory brings together data on community and municipal sources of GHG emissions to estimate emissions for a given year. The inventory year of 2015 was chosen for both corporate and community GHG inventories. GHG emissions presented in the LCCAP are a combination of the inventories for the seven municipalities. As a result, each municipality inventory constitutes a subset of the total GHG emission inventory for 2015.

Two separate GHG inventories and forecasts have been created for our municipal partners: one for regional municipal corporate operations and one for regional community sources. As per the PCP protocol, the inventories consist of the following sources of GHG emissions:

CORPORATE

Buildings, street lighting, water and sewage treatment, municipal fleet and solid waste

COMMUNITY

Residential, commercial and institutional, industrial, transportation and solid waste

Partners for Climate Protection (PCP) Protocol

The LCCAP is guided by the Partners for Climate Protection (PCP) program.[5] The PCP program is managed and delivered by the Federation of Canadian Municipalities (FCM) and ICLEI - Local Governments for Sustainability.[6] The PCP program is a network of Canadian municipal governments that have committed to reducing GHGs and to acting on climate change. Since the program's inception in 1994, over 350 municipalities have joined the PCP program, making a public commitment to reduce GHG emissions. PCP program membership covers all provinces and territories and accounts for more than 65 per cent of the Canadian population. The program empowers municipalities to take action against climate change through a five-milestone process:

Milestone 1 – Creating a greenhouse gas emissions inventory and forecast;
Milestone 2 – Setting an emissions reductions target;
Milestone 3 – Developing a local action plan;
Milestone 4 – Implementing the local action plan; and
Milestone 5 – Monitoring progress and reporting results.

FCM and ICLEI Canada form the PCP Secretariat, providing administrative and technical support to support municipalities in reducing GHG emissions. The Secretariat also provides national recognition for member achievements. In 2018, the Town of Penetanguishene, and the Townships of Tiny, Tay, Severn and Georgian Bay signed onto the PCP program, recognizing SSS as their Associate Member responsible for assisting them in advancing through the milestone program.

"As a rural community, one of the ways we support our urban neighbours is through the care of our natural and ecological resources that benefit the population as a whole. Although our influence over carbon emissions may be less than in urban areas, smaller communities play an important role in responding to a changing climate, and in joining the PCP program, we are demonstrating that climate action is important to our municipality, and sending that message to our community and to our guests."

Nicholas Popovich,
Director of Development Services,
The Township of Georgian Bay,
Sustainability Committee
representative

CLICK HERE

To learn more about the national PCP program, please visit: https://fcm.ca/home/programs/partners-for-climate-protection.htm

Baseline year

In order to effectively manage GHG emissions, local governments must first measure and report. FCM recommends the selection of a baseline year that is current, to ensure complete and reliable data. SSS has chosen a baseline year of 2015 due to the fact that this was the earliest year that contained a sufficient amount of accessible information that could be used to create the inventory. Establishing a baseline is a useful tool to identify areas for improvement, inform development of a GHG reduction action plan, estimate cost savings from reductions, and serve as a reference point to track improvements.

Energy and emissions quantities and expenditures were collected for all seven municipalities as well utilities per municipality for the years 2014, 2015, and 2016 and inputted into both the PCP Tool and SSS's internal data analysis aid. In the event that actual amounts for 2015 (baseline year) could not be collected, assumptions were applied from prior years or the next most relevant data sources. Details on the energy and emissions data collected, their sources and their level of quality are outlined in the methodology document available at www.sustainablesevernsound.ca.

In line with the PCP methodology, provincial and utility specific emission factors for stationary fuel combustion and electricity combustion were derived from Environment Canada's National Inventory Report 1990-2015: Greenhouse Gas Sources and Sinks in Canada.[7]

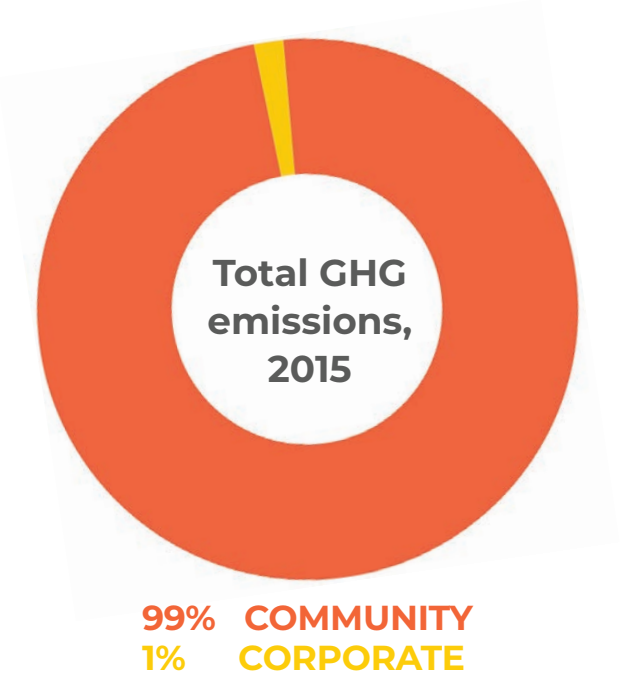
Business-as-usual (BAU) projections

A BAU forecast is used to estimate future GHG emission levels in the absence of local government action on climate change based on projected population growth. Based on data taken from Statistics Canada's Focus on Geography Series, 2016[8], annual population growth rates for all seven municipalities were averaged to accurately represent a general BAU projection across the seven municipalities. Using the PCP tool and SSS's internal data analysis aid, BAU emissions were extrapolated based upon 3.1 per cent average annual population growth rate. This assumes emissions will increase at the same rate as population growth. Both the corporate and community BAU projections are presented in Figures 1 (p. 15) and 2 (p. 17).

Overview of total regional GHG emissions

In 2015, total GHG emissions for all seven municipalities (Midland, Penetanguishene, Tiny, Tay, Severn, Georgian Bay and Oro-Medonte), was 522,417 tonnes of CO2 equivalent (tCO2e). Approximately 1 per cent of total GHG emissions (5,994 tCO2e) can be attributed to municipal operations with the remaining 516,423 tCO2e generated by the community. A breakdown of these emissions is provided in Table 1.

	Tonnes of CO_2e
CORPORATE	5,994
COMMUNITY	516,423



Total GHG emissions by municipality (baseline, 2015)

Municipality	Corporate GHG emissions - tCO_2e	Community GHG emissions - tCO_2e
Town of Midland	1,677	133,825
Town of Penetanguishene	779	67,139
Township of Tiny	929	72,210
Township of Tay	912	39,347
Township of Severn	787	62,291
Township of Georgian Bay	522	33,840
Township of Oro-Medonte	388*	107,771
Total	**5,994**	**516,423**

*Township of Oro-Medonte's corporate inventory does not include electricity consumption from streetlights, or total fuel consumption (gasoline or diesel).

Table 1

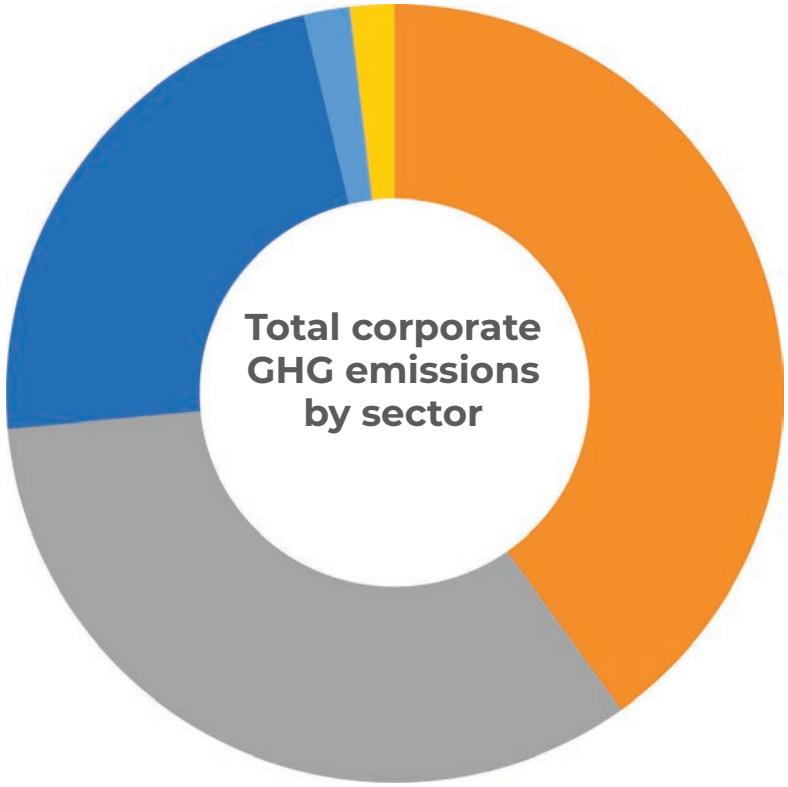
Corporate inventory

Corporate climate change considerations were calculated from the perspective of the internal operations of each municipality within SSS's jurisdiction for 2015 and reported by sector. GHG emissions were reported from heating and electricity used by sector (building and facilities, fleet vehicles, streetlights, water and wastewater, and corporate waste) as well as by emission source (electricity, natural gas, propane, heating oil, gasoline, diesel, waste, and wastewater).

Energy consumption for building and facilities, water and wastewater and streetlights was determined using the open data catalogue for Energy use and greenhouse gas emissions for the Broader Public Sector (BPS) [9], under O. Reg. 397/11 which requires BPS organizations to:

1. Report annually to the Ministry of Energy on their energy use and GHG emission and publish the reports on their websites (as of July 1, 2013)
2. Develop a five-year consecutive plan and publish the plan on their websites. Plans must be updated every five-years (as of July 1, 2014).

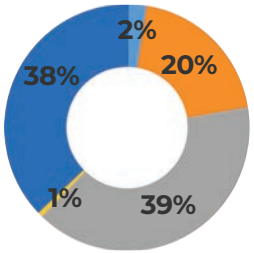
Energy consumption for building and facilities, water and wastewater and streetlights that were not reported for 2015 under O. Reg. 397/11, was determined using actual billed electricity and natural gas consumption for those sectors provided by respective municipalities. Fleet vehicle emissions were calculated using actual fuel consumption data derived from municipal records. No significant assumptions were required to complete the corporate inventory as actual consumption data was available for all sectors and fuel types.



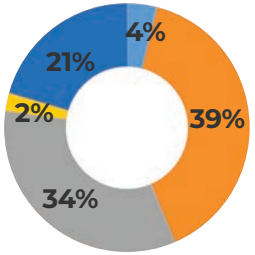
GHG emissions from solid waste is unique among emission sources typically quantified by local governments and presented unique reporting challenges. These emissions reflect the impact of methane released through the decomposition of organic matter in landfills, and can be calculated based on total waste deposited in landfill. With actual waste generation data unavailable at the time of publication, SSS used the PCP Tool's 'methane commitment' model to estimate the downstream methane emissions attributable to solid waste generated at corporate facilities based on approximations of the size of garbage bins used, their average fullness, and the frequency of their pickup.

Corporate GHG emissions by sector (per municipality)

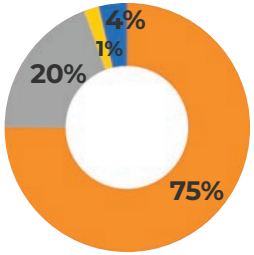
STREETLIGHTS FLEET BUILDINGS & FACILITIES WASTE WATER & SEWAGE



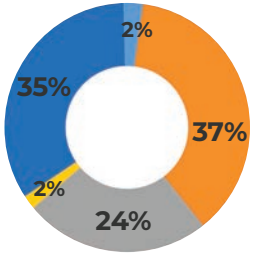
Town of Midland



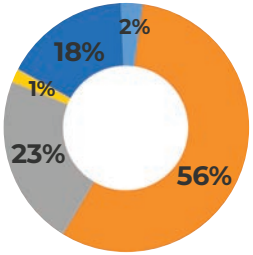
Town of Penetanguishene



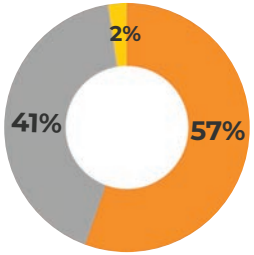
Township of Tiny



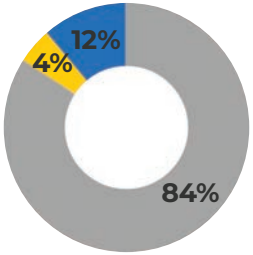
Township of Tay



Township of Severn



Township of Georgian Bay



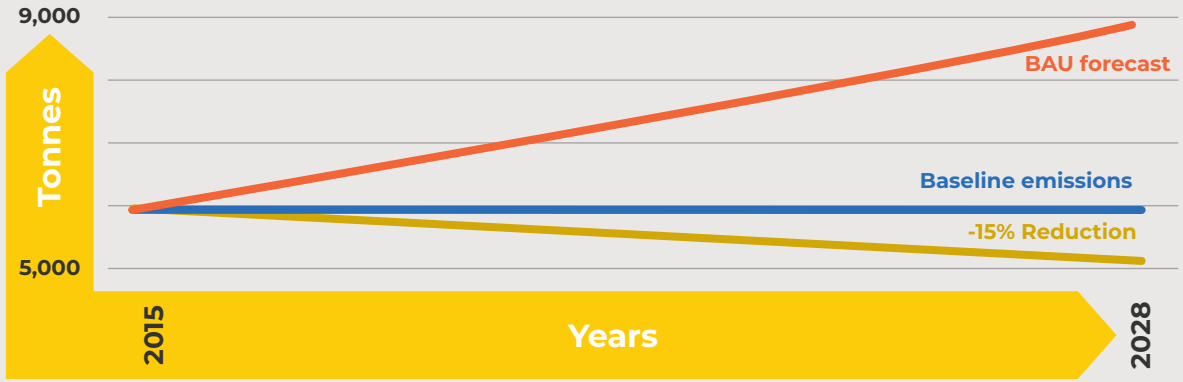
Township of Oro-Medonte

*Township of Oro-Medonte's corporate inventory does not include electricity consumption from streetlights, or total fuel consumption (gasoline or diesel).

Corporate BAU forecast

In 2015, our seven municipalities contributed 5,994 tonnes of CO2e from their day-to-day municipal operations. Based on the average projected growth for our area (3.1 per cent), corporate emissions are expected to grow to 8,913 tonnes CO2e by 2028 if no significant changes are made.

CORPORATE GHG EMISSIONS FORECAST, 2015-2028



Total GHG emissions	Baseline emissions (2015)	Baseline emissions (BAU, 2028)	Target emissions (2028, -15% reduction)
	5,994	8,913	5,095

Figure 1

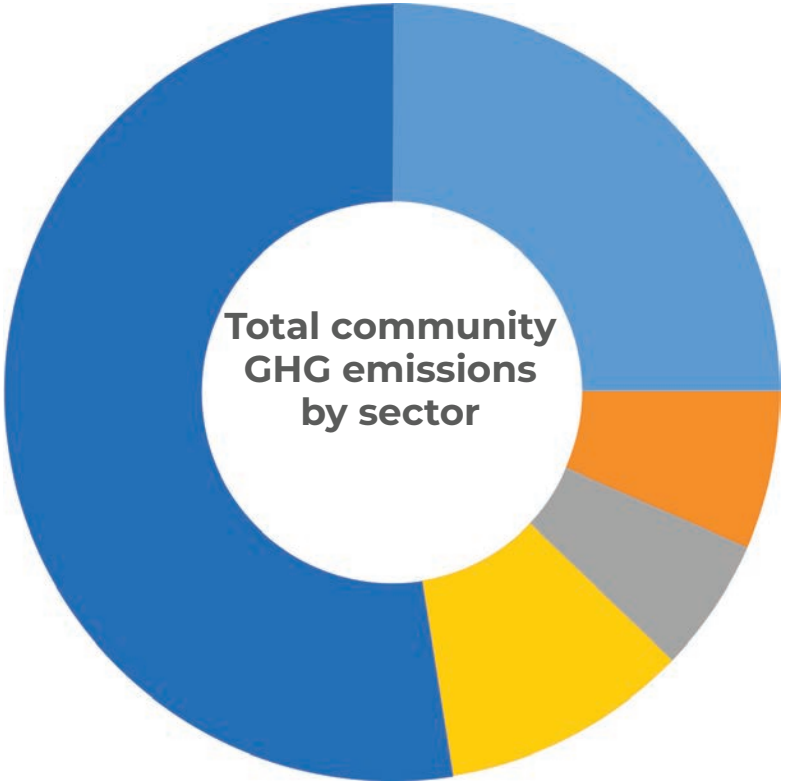
Community inventory

The community GHG inventory includes climate change considerations from the perspective of the communities that SSS services. Community energy usage and emissions were calculated for 2015 and reported by sector (residential, institutional, commercial and industrial buildings, transportation, and community solid waste) as well as by emission source (electricity, natural gas, propane, fuel oil, and waste).

Where possible, emissions from stationary energy (residential, commercial and institutional, and industrial), was based on actual metered energy consumption data provided by local utilities depending on the community. Hydro One, Alectra Utilities, Newmarket-Tay Hydro and Midland PUC provided electricity consumption data for their respective communities, and Enbridge and Union Gas provided natural gas data. For this report, no actual consumption data for fuel oil and propane could be acquired.

GHG emission estimates for community transportation were calculated based on annual vehicle kilometers travelled (VKT) as recommended by the PCP Protocol (p. 43). VKT was calculated by multiplying total number of dwellings by usual residents, the number of vehicles per household and the average annual distance traveled per vehicle.

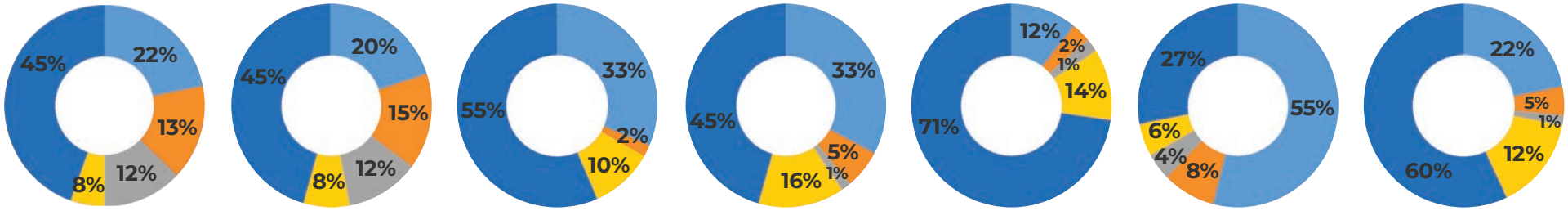
With six of our municipalities serviced by the County of Simcoe, community solid waste emissions were estimated by taking the County's waste per capita (475 kg/capita) as outlined in the Solid Waste Management, 2015 Annual Report[10] and multiplying it by the total population. Waste emissions for the Township of Georgian Bay, located within the District Municipality of Muskoka, were calculated by downscaling provincial data as recommended by the PCP Protocol.



52% TRANSPORTATION
25% RESIDENTIAL
10% WASTE
8% COMMERCIAL & INSTITUTIONAL
5% INDUSTRIAL

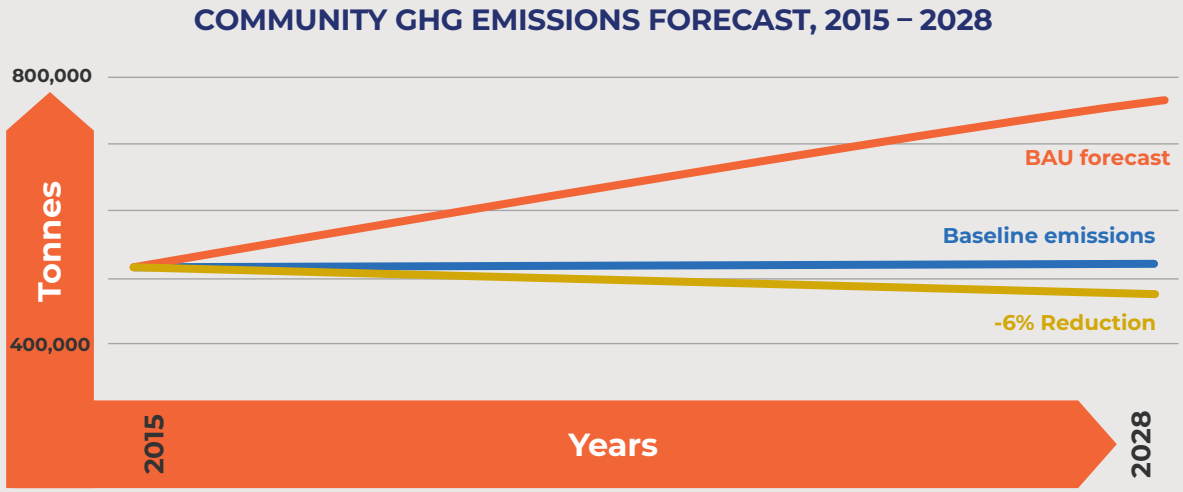
Community GHG emissions by sector (per municipality)

TRANSPORTATION RESIDENTIAL COMMERCIAL & INSTITUTIONAL INDUSTRIAL WASTE



Community BAU forecast

In 2015, 516,423 tonnes of CO2e were emitted overall by the seven communities. With an average projected population growth of 3.1 per cent, community emissions are expected to reach 768,013 tonnes CO2e by 2028 if no actions are taken to reduce our GHG emissions.



Total GHG emissions	Baseline emissions (2015)	Baseline emissions (BAU, 2028)	Target emissions (2028, -6% Reduction)
	516,423	768,013	485,439

Figure 2

Proposed GHG targets

Setting emission reduction targets is essential to spur action on climate change and to track progress. GHG reduction targets show a public statement about a community's commitment to climate change action. The PCP program recommends a 20 per cent reduction in emissions from municipal operations and a 6 per cent reduction in emissions from community operations, within 10 years of joining the program. To ensure the reduction targets are met, it is important to take into consideration the context of our local municipalities and their communities. Therefore, SSS and the members of the Sustainability Committee recommend a corporate operations GHG emissions target of 15 per cent below 2015 levels by 2028, and a community GHG emissions target of 6 per cent below 2015 levels by 2028*.

2015

Corporate GHG emission target

It is recommended that our seven municipalities collectively achieve a 15 per cent reduction in corporate GHG emissions from the 2015 baseline of 5,994 tCO2e by 2028. This is equivalent to 899 less tonnes of CO2e emitted by 2028, or 89.9 less tonnes of CO2e per year over the next 10 years.

* These GHG reduction targets reflect our current level of understanding of the GHG reduction potential of recommended initiatives. As additional actions are identified, SSS and the Sustainability Committee may revise these targets.

"This collaborative effort among municipalities in our area will strengthen the capacity of our communities to be more resilient to climate change, while providing Severn with the tools to find opportunities to reduce GHG emissions – setting the foundation for future climate planning."

Councillor Ron Stevens,
Township of Severn,
Sustainability Committee representative

2028

6%
REDUCTION

2015 2028

Community GHG emission target

With community GHG emissions contributing the vast majority of total GHG emissions, there are a lot of opportunities for action. It is recommended that the communities of Midland, Penentanguishene, Tiny, Tay, Severn, Georgian Bay and Oro-Medonte collectively achieve a 6 per cent reduction in community GHG emissions by 2028 from the 2015 baseline emissions of 516,423 tCO2e. This is equivalent to 30,985 less tonnes of CO2e emitted by 2028, or 3,098.5 less tonnes of CO2e per year over the next 10 years.

Stakeholder engagement

What key stakeholder groups provided input into the development of the plan?

People and health

Public health may be affected by changes in climate. These include increased respiratory and cardiovascular disease, changes in the frequency and location of food- and water-borne illnesses, fluctuations in the availability and the price of food, and the accelerated spread of disease caused by insects.

Ecological assets and water

The projected rise in global temperatures is expected to result in intensification of the water cycle, causing more severe dry seasons and wetter rainy seasons, along with the possibility of more frequent extreme weather events. Rising GHGs, higher temperatures, changes in precipitation, flooding, drought duration and frequency will all have significant effects on tree and plant growth, as well as on water resources.

Economy and employment

Action on climate change has the potential to create jobs. Resources and tools are becoming less expensive and more available to help businesses and individuals become more energy-efficient and quicken the shift to a low-carbon society. As a tourist-friendly area which depends on that influx of guests for a strong, local economy, a changing climate and altered weather patterns throughout our communities could impact the success and viability of this industry in the future.

Transportation

More than a third of Ontario's GHG emissions are caused by the transportation sector, with cars and trucks contributing for more than 70 per cent of the total GHGs produced per the sector. In the majority of our local communities, public transit is not readily available with personal vehicle usage a daily necessity. As our communities grow, further transit initiatives such as carpooling, electric vehicle incentives, and green fleet programs can reduce the impact the transportation sector has on the environment.

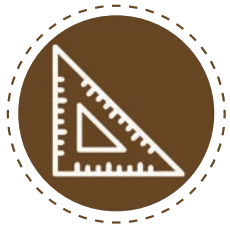
The area of all the Great Lakes covered in ice has declined between 1970 and 2013, with the greatest decline on Lake Superior (by 42 per cent), followed by Lake Ontario (by 32 per cent), Erie (by 25 per cent), Michigan (by 21 per cent) and Huron (by 19 per cent)[11]

Fast Facts

A 1 degree rise in temperature and frequent extreme weather events can reduce global production of corn, wheat, rice, and soy by 9 per cent in 2030s, and up to 23 per cent by 2050.[12]

Energy

Ontario's municipal governments own more infrastructure than any other level of government. Local decisions about buildings, land-use and transportation have significant impacts on how people consume energy and produce GHGs. Many opportunities still remain untapped in the residential and business sectors for conservation and energy reduction, including the consideration of net-metering and renewable energy alternatives such as solar, wind and geothermal.



Land use planning

Climate change is linked to key policy areas in all levels of government. Land-use decisions, active transportation, community energy planning, green infrastructure and stormwater management techniques can all impact the quantity of GHGs produced. Development plans, secondary plans and municipal zoning by-laws are all tools to help prepare for a variety of anticipated climate change impacts.

Agriculture and local food

Where our food comes from and how it is made plays an important role in reducing our environmental impact and mitigating climate change. The average meal travels 1,200 kilometres from the farm to your plate. Climate change will likely increase the cost of food, as more extreme weather and shortage of resources could put pressure on the industry. Local food security can be enhanced by supporting local producers and establishing a strong, local processing and distribution system.

Waste

Our waste contributes to GHGs, not only by the relation to production and transportation, but also because of methane gas when organic waste is disposed of in landfills. Methane recovery systems can be explored for use in municipal landfills, and programs which support composting, organics and blue/grey bin recycling, and personal and corporate waste reduction practices can reduce GHG emissions.

Methane is 25 times more potent than carbon dioxide in terms of its global warming potential (GWP), with emissions from Canadian landfills accounting for 20 per cent of national methane emissions.[13]

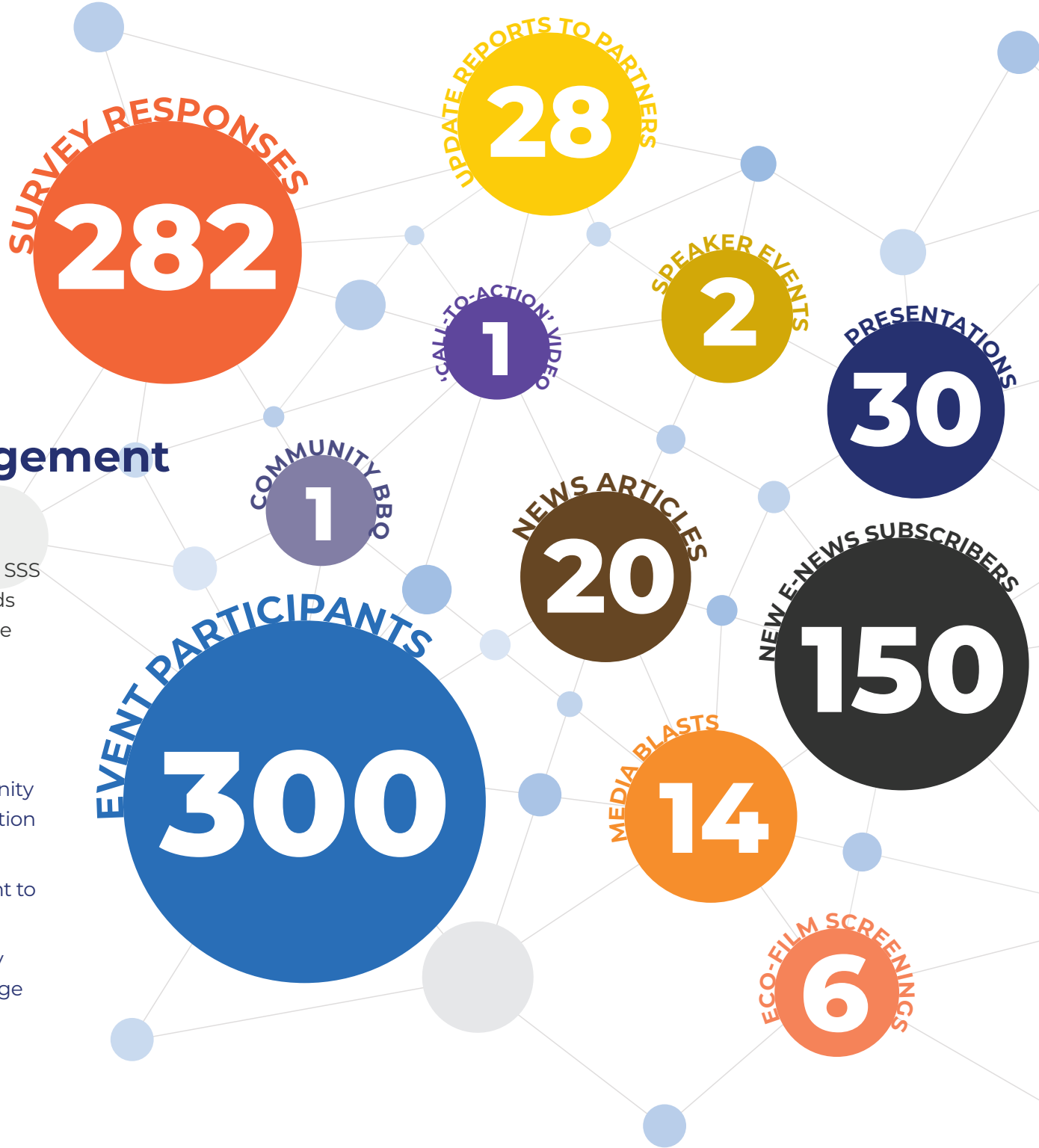
Stakeholder engagement

Summary of activities

Community engagement and outreach by SSS offered multiple opportunities and methods for the public to share their ideas on climate change and how we can reduce GHGs.

The purpose of this engagement and outreach was to:

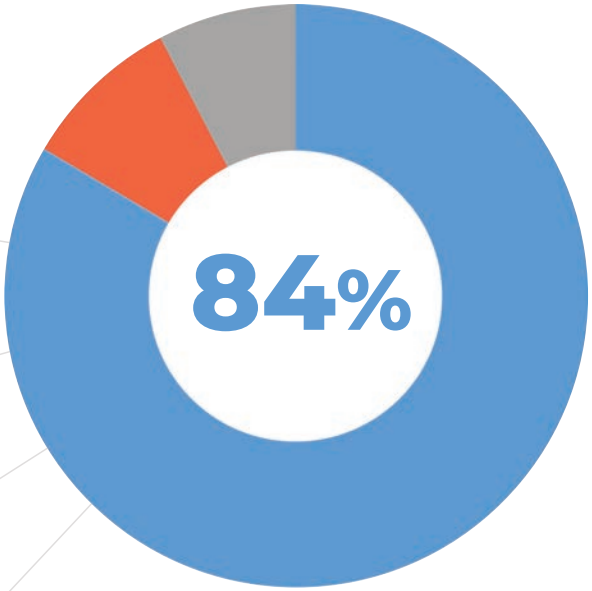
1. Offer our communities the opportunity to provide their ideas for GHG reduction initiatives,
2. Prioritize actions that were important to our municipal partners, and
3. Promote municipal and community awareness of the local climate change action plan initiative.



EXPERT SPEAKERS
5

COMMUNITY 'CLIMATE-TALKS'
6

E-NEWS ISSUES
8



What we learned

Q: Is climate change as an important issue to you and one that requires action by municipalities and our communities to reduce current and future impacts?

84% YES
8% SOMEWHAT
8% NO

Q: What climate change impact are you most concerned about?

West Nile Virus
Drought
Tornadoes
Emergencies
Forest Fires
Vector-borne Disease
Heatwaves
Poor Air Quality
Soil Erosion
Ecosystems
Reduced Snowmelt
Natural Areas
Extreme Weather
High Wind
Ice Storms
Flooding
Public Health
Native Species
Increased Precipitation
Ticks
Lyme Disease
change

18 key recommendations

Understanding our carbon footprint and greening our community

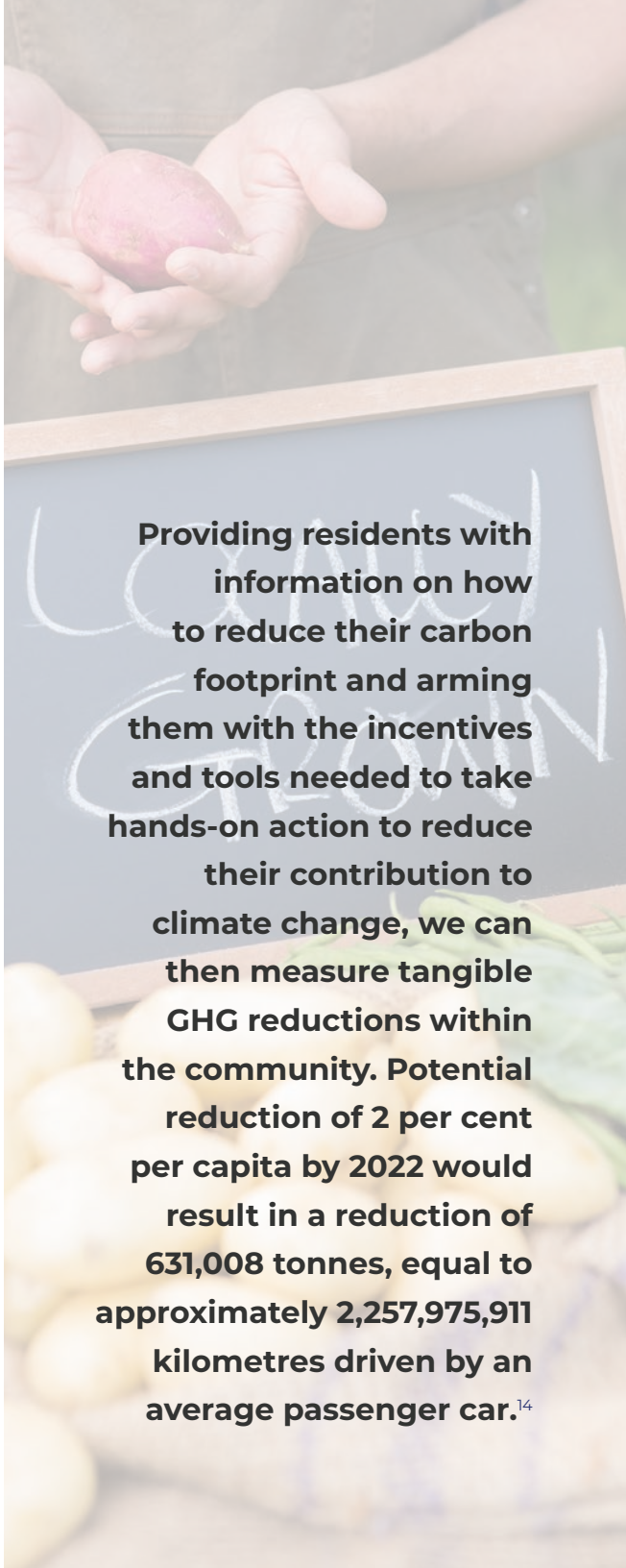
1. Deliver a collaborative environmental education program that will offer programs to educate and inform residents on why and how to reduce the GHG contributions of their community, household and themselves.

2. Develop a program to advocate for seasonal and local eating to reduce the demand for out of season produce, reducing GHGs associated with growing and transportation, and to support growth of the local food economy.

3. Establish a community-based water education program to increase water conservation, encouraging and incentivizing practices such as low-flow toilets and shower-heads, rainwater collection (i.e., barrels and cisterns) and xeriscaping (drought-resistant plantings).

4. Prepare information for municipal land managers and landowners on methods for maintaining and enhancing their treed areas in response to projected weather and climate impacts, promoting tree protection on municipal and residential properties by developing an ecological services evaluation standard.

5. Produce a regional pollinator strategy with a goal to identify what additional actions can be taken by municipalities to better manage roadsides and municipal properties to protect, enhance and create habitat for pollinators, such as bees and butterflies.



Providing residents with information on how to reduce their carbon footprint and arming them with the incentives and tools needed to take hands-on action to reduce their contribution to climate change, we can then measure tangible GHG reductions within the community. Potential reduction of 2 per cent per capita by 2022 would result in a reduction of 631,008 tonnes, equal to approximately 2,257,975,911 kilometres driven by an average passenger car.[14]

Engaging externally to support long-term climate action

1. Develop supportive relationships with energy service providers to explore renewable energy development, to expand customer access to utility data, and to improve customer access to available incentives and rebates.

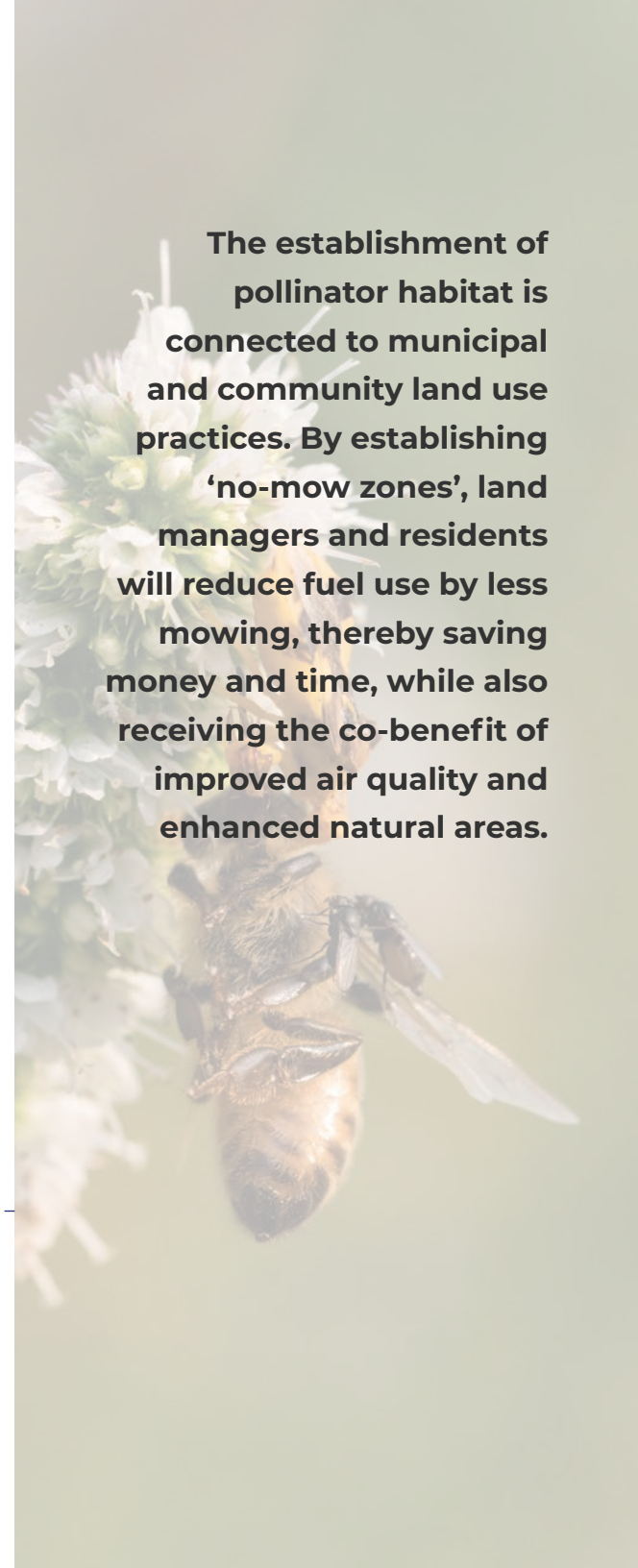
2. Identify partners for a pilot project to explore low-impact development techniques (using nature as a model to manage rainfall at the source) into new developments and infrastructure upgrades to better manage water run-off and to help moderate warmer local temperatures.

3. Explore opportunities to increase municipal use of low-carbon and renewable energy technologies, and investigate the opportunity for net-metering to allow municipalities to offset electricity charges by using municipal assets to generate power.

4. Create a multidisciplinary working group to advise on the development of a climate change adaptation strategy complementary to the LCCAP.

"Municipalities are on the front lines of responding to climate change as we must plan for unexpected weather events and manage climate-related impacts to our community. The LCCAP will help Penetanguishene plan, build and maintain facilities, greenspace and infrastructure strategically, while creating a safe and sustainable future."

Andrea Betty,
Director of Planning and Community Development, Town of Penetanguishene,
Sustainability Committee representative



The establishment of pollinator habitat is connected to municipal and community land use practices. By establishing 'no-mow zones', land managers and residents will reduce fuel use by less mowing, thereby saving money and time, while also receiving the co-benefit of improved air quality and enhanced natural areas.

Building capacity for local climate action

1. Integrate each respective municipal and community GHG inventory and GHG reduction targets and any projected impact to GHGs, into the planning process for construction, retrofitting or enhancement of any municipal facilities or infrastructure projects.

2. Review and update emergency planning and preparedness for floods, wildfire, extreme heat and other extreme weather as a result of climate change impacts.

3. Integrate provincial policy recommendations for climate change planning into municipal operations by including GHG inventories and GHG reduction targets into asset management plans, conservation and demand management plans, strategic plans and official plans.

4. Continue to monitor, measure and report on municipal and community GHG emissions and the impact of any GHG reduction initiatives in relation to the regional and each respective municipal GHG reduction target.

Municipalities have a key role to play in both mitigating and adapting to climate change. Local governments influence up to half of Canada's GHG emissions through land use management and planning. They also invest in infrastructure that can increase communities' resilience to climate change.

Reducing GHG emissions

1. Improve the availability of GHG data to municipalities and their stakeholders, and prioritize GHG emissions reductions by modelling the potential of the respective action per municipality to reduce GHG emissions.

2. Identify and maintain a database of opportunities for energy retrofits at municipal facilities by reviewing energy conservation and demand management plans, and creating a resource hub to support municipalities in updating their required plans to reduce energy conservation and implement GHG reduction initiatives.

3. Prepare a comprehensive strategy involving a transportation demand management plan and cleaner vehicle plan to reduce GHGs by reducing unnecessary travel and switching to more efficient or alternative fuel vehicles where feasible.

4. Undertake a municipal waste audit in each respective municipal facility to identify opportunities for reduced GHGs contributions through improved recycling and green-bin/organics participation at these facilities and during municipally-led events and festivals.

5. Work to support the increase of electric vehicles (EVs) ownership by developing policies and programs for EV use by municipal staff and the community by introducing employee incentives, supporting increased access to charging stations and implementing priority parking policies.

Food and organic wastes makes up approximately 1/3 of Ontario's waste stream. Approximately 6 per cent of Ontario's total GHG emissions come from the waste sector, with 90 per cent of these emissions mostly from organic solid waste disposal in landfills. When food and organic materials are landfilled, they break down and emit methane, a GHG that is 25 times more harmful to our climate than carbon dioxide.[15]

Next steps

"The support of SSS has been invaluable to our municipalities. The LCCAP provides the Township of Tay with a roadmap to reduce our overall GHG emissions, while meeting our energy needs. The implementation of this plan will put Tay on track to support and deliver on our GHG emission reduction targets."

Councillor Catherine Root,
Township of Tay,
Sustainability Committee
representative

Implementation plan

In mid-2018, SSS will begin preparation of an implementation plan to complement the LCCAP. For each action identified, a clear timeframe and agencies or representatives essential for implementation will be identified. The Implementation Plan will identify the possible impact associated with implementation of the action within municipal operations and the community.

The time frame associated with each action will be identified as being short, medium or long-term, and will be adhere to the PCP program's suggested timeline of ten years, being 2018 to 2028. The 18 actions to be included in the Implementation Plan will serve as a guide to reduce energy consumption and GHG emissions in municipal operations and in the community, while also building the capacity and foundation for successful local climate action to 2028.

Final thought

Climate change is one the greatest challenges of our time – affecting every aspect of our daily lives, from the food we eat to the extracurricular activities we enjoy.

We all have a role to play. Actions that we take today can have a significant impact on our environment and the sustainability of our area for generations to come. Conserving energy and becoming less reliant on fossil fuels reduces several types of pollutants which in turn improves overall public health, encourages innovation and saves money. Reducing our daily water intake protects our water sources and the bodies of water that we enjoy. And last but certainly not least, practicing the four R's, Reduce, Reuse, Recycle and Rethink our waste, has the potential to cut methane emissions and GHG emissions, and contribute to an overall healthier economy and environment.

Over time, fighting climate change requires a shift in how we live, work and move. It will require the involvement of everyone from individuals, businesses, diverse communities to governments – separately and collectively, both short and long-term. There is strength in numbers, and this collaborative approach to climate change planning has the opportunity to lead a movement that will result in a healthier, more prosperous and sustainable future!

"My generation and generations after me were born into a world where climate change is an indisputable fact. It is not a theory to deny or accept, but rather a global threat, of which the effects we can already see. I have faith that we can make this the issue we collectively tackle and overcome."

Victoria Ervick, Climate Change Coordinator

Overview of the services of Sustainable Severn Sound

Responsibilities of SSS and the Sustainability Committee include:

1. Prepare and submit reports to meet membership requirements and advance municipalities through the PCP program's 5-milestone framework,
2. Promote, communicate and educate municipalities and the community about SSS's role and the progress of the LCCAP, further defining SSS and the Sustainability Committee as the area's climate change and sustainability 'head-quarters,'
3. Collaborate with municipalities and the community to create and implement projects that deliver on the LCCAP recommendations,
4. Provide research and information as requested by member municipalities (i.e., best practices, funding and grant information, and data analysis), and;
5. Seek funding opportunities, prepare applications and administer grants to fund municipal and community-based climate action projects.

Sustainable Severn Sound

Local Climate Change Action Plan

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References and endnotes

1 Science and Research Branch, Ontario Ministry of Natural Resources and Forestry. Natural Resource Information Section, Climate Change Office, 2015. Climate change projections for Ontario: An updated synthesis for policymakers and planners. McDermid J., Fera S., and Hogg, A. Queen's Printer for Ontario. Printed in Ontario, Canada. Available from http://www.climateontario.ca/MNR_Publications/CCRR-44.pdf. Accessed May 12, 2018.

2 Ministry of Environment and Climate Change, Government of Ontario, 2018. Why we need to fight climate change. Queen's Printer for Ontario. Printed in Ontario, Canada. Available from https://www.ontario.ca/page/ministry-environment-and-climate-change. Accessed April 4, 2018.

3 Ministry of Environment and Climate Change, 2017. Developing Ontario's Next Adaptation Plan, Ontario Climate Symposium 2017. Aavailable from http://cleanairpartnership.org/cac/wp-content/uploads/2017/05/OCC-Symposium-Presentation-Karen-Clark-05-09-2017-Final.pdf. Accessed May 15, 2018.

4 Report on the Symposium on Extreme Weather: Impacts, Challenges and Adaptations, Available from: http://www.climateforum.ca/wp-content/uploads/2014/12/Extreme-Weather-Symposium-REPORT.pdf. Accessed April 11, 2018.

5 The Federation of Canadian Municipalities, 2016. PCP Protocol: Canadian supplement to the international emissions analysis protocol. Available from: https://fcm.ca/Documents/reports/PCP/PCP_Protocol_Canadian_Supplement_EN.pdf. Accessed November 8, 2017.

6 ICELI - Local Governments for Sustainability, 2016. http://www.icleicanada.org/. Accessed November 8, 2017.

7 United Nations, Climate Change, 2018. National emissions inventory, 2015. Available from: https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories/submissions-of-a annual-greenhouse-gas-inventories-for-2017/submissions-of-annual-ghg-inventories-2015. Accessed December 7, 2017.

8 Statistics Canada, 2018. Statistics Canada's focus on geography series, 2016. Available from: http://www12.statcan.gc.ca/census-recensement/2016/as-sa/fogs-spg/Index-eng.cfm Accessed December 11, 2017.

9 Province of Ontario, 2018. Energy use and greenhouse gas emissions for the broader public sector. Available from: https://www.ontario.ca/data/energy-use-and-greenhouse-gas-emissions-broader-public-sector. Accessed December, 2017.

10 The County of Simcoe, 2015. Annual report, solid waste management strategy. Available from: https://www.simcoe.ca/SolidWasteManagement/Documents/Strategyper cent20Reportper cent20Finalper cent20(forper cent20Website).pdf. Accessed January 5, 2018.

11 Ministry of Environment and Climate Change, Government of Ontario, 2018. Why we need to fight climate change. Queen's Printer for Ontario. Printed in Ontario, Canada. Available from https://www.ontario.ca/page/ministry-environment-and-climate-change. Accessed April 4, 2018.

12 Impact of climate change, weather extremes, and price risk on global food supply. Haile, M.G., Wossen, T., Tesfaye, K. et al. EconDisCliCha (2017) 1: 55. https://doi.org/10.1007/s41885-017-0005-2

13 Government of Canada, 2017. Municipal solid waste and greenhouse gases. Available from https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/municipal-solid/greenhouse-gases.html Accessed December 12, 2018.

14 Unites States Environmental Protection Agency, 2018. Energy and the environment, greenhouse gas equivalencies calculator. Available from: https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator. Accessed May 15, 2018.

15 Ministry of Environment and Climate Change, Government of Ontario, 2017. Strategy for a Waste-Free Ontario: Building the Circular Economy. Available from https://files.ontario.ca/finalstrategywastefreeont_eng_aoda1_final-s.pdf. Accessed April 6, 2018.

Local Climate Change Action Plan