

# Community Climate Action Plan & Greenhouse Gas Emissions Reduction Target 2022-2030

**Town of New Glasgow**



New Glasgow  
*flourish*



## LAND ACKNOWLEDGEMENT

We would like to acknowledge the Town of New Glasgow is in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaw People. This territory is covered by the "Treaties of Peace and Friendship" which Mi'kmaw and Wolastoqiyik Peoples first signed with the British Crown in 1725. The treaties did not deal with the surrender of lands and resources, but in fact, recognized Mi'kmaw and Wolastoqiyik titles and established the rules for what was to be an ongoing relationship between nations.

# ACKNOWLEDGEMENTS

This project was made possible thanks to funding from the Federation of Canadian Municipalities (FCM) - Municipal Climate Innovation Program, and the McConnell Foundation - Innoweave Program.

Support and guidance was provided through FCM, ICLEI Canada and the Global Covenant of Mayors - Canadian Showcase Cities Pilot Project, QUEST, and the Change Lab Action Research Initiative (CLARI) and StFX University.

This report was informed through the public engagement process, Green New Glasgow. We would like to thank the community for their contributions, as well as the team at Ethelo and the eDemocracy Network for facilitating the engagement process - Ben West, Saad Sab, Tarah Stafford, Meagan Blandizzi and Katharina Voss.

We would also like to thank the following for participating in the plan's consultation process; Jon DeCoste (Regional Emergency Management Organization), Omar Bhimji and Rob Kerr (QUEST), Jack Kyte (Pictou County Chamber of Commerce), Dr. Corinne Cash (Mount Allison University), Meghan Doucette (Bicycle Nova Scotia), Morgan Levison (Public Health), Jasmine Lum (FCM), Town of New Glasgow Staff; Veronica Deno, Earl MacKenzie, Jeffrey Turnbull, and Kelly Sloan, and the following staff from the Clean Foundation; Sarah Balloch, Erin Burbidge, Katie Giles and Sonia Smith.

Thank you to our 2021 Summer Students - Matthew Russell and Annie McMullon for their support.

---

## COMMITTEE MEMBERS

Nancy Dicks, Mayor  
Russell Borden Jr., Councillor Ward 1  
Dawn Peters, Councillor Ward 2  
Joe MacDonald, Councillor Ward 3  
Lisa MacDonald, Chief Administrative Officer  
Sasha Barnard, Regional Educator, Pictou County  
Solid Waste

Nancy MacRae, Ward 1 Citizen Representative  
Jim Ripoll, Ward 2 Citizen Representative  
Ana Luiza Rios Caldas-MacEachern, Ward 3  
Representative  
Timothy Kim, Youth Representative  
Carey Allan, Business Representative  
Cory Pinhey, Development Representative

---

## REPORT AUTHORS

Rachel Mitchell, Climate Change and Sustainability Manager  
Emily McIntosh, Climate Action Coordinator

---

© 2022, Town of New Glasgow. All Rights Reserved.

The preparation of this plan was carried out with assistance from the Government of Canada and the Federation of Canadian Municipalities. Notwithstanding this support, the views expressed are the personal views of the authors, and the Federation of Canadian Municipalities and the Government of Canada accept no responsibility for them.



FEDERATION OF CANADIAN MUNICIPALITIES

FÉDÉRATION CANADIENNE DES MUNICIPALITÉS



GLOBAL COVENANT of MAYORS for CLIMATE & ENERGY



Innoweave

ETHELO

QUEST 

Foundation Clean

I.C.L.E.I

Local Governments for Sustainability

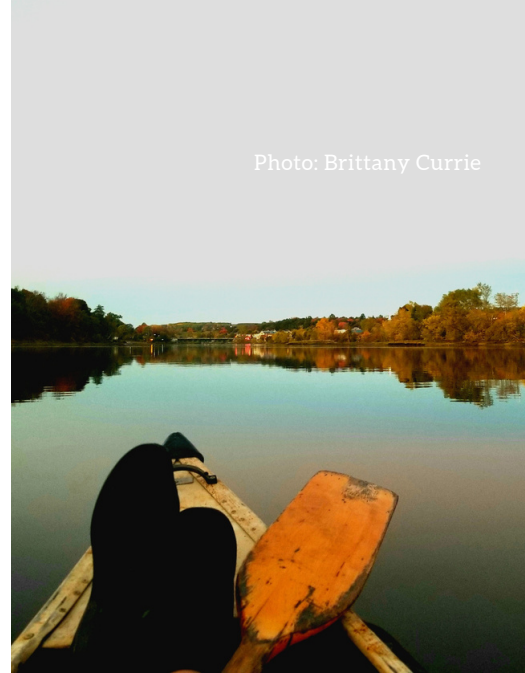


BICYCLE NOVA SCOTIA



FRIDAYS FOR FUTURE PICTOU COUNTY

Photo: Brittany Currie





# TABLE OF CONTENTS

<b>2</b>	Acknowledgments	
<b>5</b>	Message from the Mayor	
<b>6</b>	Executive Summary	
<b>7</b>	Introduction	
<b>11</b>	Milestone 1: Community GHG Emissions Inventory	
<b>13</b>	Milestone 2: Community Emissions Reduction Target	
<b>14</b>	Milestone 3: Community Climate Action Plan	
<b>15</b>	Summary of Actions	
<b>16</b>	Climate Action Alignment	
	Cities Race to Zero	
	Cities Race to Resilience	
	Sustainable Development Goals	
<b>18</b>	Buildings	
	Implementation Schedule .....	24
<b>25</b>	Transportation	
	Implementation Schedule .....	30
<b>31</b>	Waste	
	Implementation Schedule .....	36
<b>37</b>	Policy, Planning, & Procedures	
	Implementation Schedule .....	42
<b>43</b>	Collaboration, Adaptation, & Resilience	
	Implementation Schedule .....	47
<b>48</b>	Milestone 4: Implementation	
<b>49</b>	Milestone 5: Monitoring & Evaluation	
<b>50</b>	Looking Ahead	
<b>51</b>	References	

# MESSAGE FROM THE MAYOR

Over the last several years we have seen unpredictable weather and challenging storms hit our region. While Nova Scotians are no strangers to wild weather, climate change is leading to more frequent and severe storms, changes in precipitation, and more extreme heat events. As a long-time resident of New Glasgow, I can recall winters when I was younger, where our outdoor community rinks had ice for 3-4 months. In recent winters we have struggled to keep the ice for a couple of days, or we've been challenged with weekly winter storms featuring snow, rain, and ice. We've been seeing this change unfold for years now.



The Town of New Glasgow recognizes the need to act at the local level to prepare for climate impacts and support a low carbon future. Cities and Towns are on the frontlines of experiencing climate change impacts, and are leading the charge in adaptation and mitigation efforts. The Community Climate Action Plan is our roadmap to impactful and sustained action to improve energy efficiency, diversify our transportation, prioritize innovation, and ensure a healthy, natural environment for years to come. For many of the initiatives we're moving forward, there are benefits to our local economy, positive outcomes for health and wellbeing, and improved community resilience. The cost of not acting is greater than the cost of the actions we're proposing. This Plan aims to reduce barriers to adaptation and mitigation, to empower citizens to lead more sustainable lives.

The Community Climate Action Plan charts a course for action over the next decade. To realize these objectives, we need residents, businesses, Town Staff and Council, and community organizations to participate and face this issue together. In this plan, everyone has a role to play in our climate action and sustainability efforts. Together, we can inspire change and adopt bold and transformational action to foster a sustainable future here in New Glasgow.

The actions we take today can leave a lasting impact for years to come.

A handwritten signature in black ink that reads "Nancy Dicks". The signature is written in a cursive, flowing style.

Nancy Dicks  
Mayor  
Town of New Glasgow

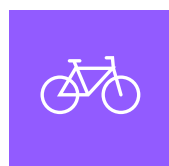
# EXECUTIVE SUMMARY

The impacts of climate change are widespread, intensifying, and happening in our own backyard. In towns and cities, factors such as aging infrastructure, degraded ecosystems, growing demand for service provision, and social inequities all increase a community's vulnerability to the impacts of climate change (Maxwell et al., 2018). Reducing greenhouse gas emissions and adaptation planning is essential to managing climate change risks and if done strategically, can generate a variety of environmental, social, individual, and economic benefits (Brown et al., 2021).

The Town of New Glasgow is committed to advancing local climate action through ambitious greenhouse gas (GHG) emission reductions. The Community Climate Action Plan (CCAP) establishes how the Town of New Glasgow will achieve its community GHG reduction target of 50% by 2030. The plan details 65 total climate actions across five sectors: Buildings; Transportation; Waste; Policy, Planning, & Procedures; and Collaboration, Adaptation, & Resilience. Each sector outlines key focus areas with both short-term and long-term goals, actions and targets. Each action is accompanied by a recommended implementation schedule to ensure timely implementation. Where applicable, the GHG reduction potential has been included. There will be an annual report presented to Council to track implementation progress and to identify new and emerging opportunities to integrate into the plan. Progress made towards the 2030 GHG reduction target will be measured against the baseline community inventory data, which captured community source emissions occurring within the Town's boundaries in 2018.

The Community Climate Action Plan has been informed by the Town's climate action public engagement, which gathered community feedback in July and August 2021. The targets and actions outlined in this document reflect the results of the public engagement, and where applicable, we quantify the support for the measures.

The plan is a living document and as circumstances change, both locally and provincially, the Town of New Glasgow's Community Climate Change Committee will assess emerging opportunities and re-evaluate actions. We recognize that the COVID-19 pandemic continues to evolve and may impact the implementation of actions. Advancing climate action and sustainability is integral to our recovery.



# INTRODUCTION

Human activities have generated unprecedented levels of greenhouse gas (GHG) emissions in the atmosphere causing significant changes in global weather and climate extremes such as more frequent and intense heatwaves, floods, droughts, fires, and coastal storms (IPCC, 2021).

Globally, the impacts of climate change have become more and more apparent and alarming: the extent of forest fires and annual droughts are harsher; extreme weather events are resulting in rapid biodiversity loss; and increased climate variability and new extremes are threatening food and water security.

In recent years, the Town of New Glasgow has been experiencing more summer days with higher average temperatures, more heatwaves, heavy rainfall, fewer winter days, milder average winter temperatures, later first fall frosts, and earlier spring thaws (Climate Atlas of Canada, 2019). In the coming years, these climate trends are expected to intensify and negatively impact our natural, social, and economic systems.

To prevent the worst effects of climate change, we need to dramatically reduce our emissions and prepare for climate impacts. Fortunately, many of the solutions we need will take place at the local level, by and for our community. According to the Federation of Canadian Municipalities, just over 50% of GHG emissions in Canada are generated in towns and cities. Municipal governments have a great deal of influence over these emissions and can drive emission reductions by embedding climate considerations into municipal operations such as service provision, infrastructure, and development. Municipalities can also drive community-wide emission reductions by providing infrastructure to support the electric vehicle transition; through community planning that mandates energy efficiency, walkability, and clean and green transit; through bylaws that promote emission reductions; and through the adoption of low-carbon and renewable energy options.

The Community Climate Action Plan is a key part of the Town of New Glasgow's commitment to local climate action. Guided by the Federation of Canadian Municipalities' Partners for Climate Protection 5-milestone framework and closely linked to the Corporate Climate Action Plan, this plan outlines how the Town will reduce community-wide emissions, increase resilience, and decrease vulnerability over the next decade. It details a total of 65 actions across five focus areas: Buildings; Transportation; Waste; Policy, Planning, & Procedures; and Collaboration, Adaptation, & Resilience. In addition to reducing emissions, the actions outlined in this plan will generate several co-benefits for the community such as improved air quality (reducing air pollutants such as nitrous dioxide, sulphur dioxide, and ozone), savings on energy consumption, reduced dependency on external energy supplies, positive health benefits, and green job creation in the renewable energy or energy efficiency sectors.



# PARTNERS FOR CLIMATE PROTECTION

## MILESTONE FRAMEWORK



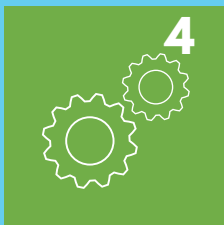
### INVENTORY



### TARGET



### ACTION PLAN



### IMPLEMENTATION



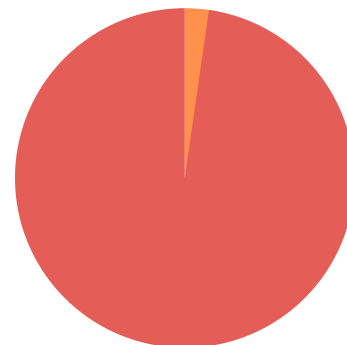
### MONITOR PROGRESS

In 1998, the Town of New Glasgow joined the Partners for Climate Protection (PCP) program, as an early adopter. Since then, this national network has grown to include over 490 Canadian municipalities, representing more than 70% of the population. Collectively, the members of the PCP program have committed to reducing 160 million tonnes of local greenhouse gas (GHG) emissions by 2050, protecting our environment and creating healthier, more resilient communities. The program has been operating for over 20 years as a joint effort between the Federation of Canadian Municipalities (FCM) and ICLEI Canada — Local Governments for Sustainability.

The PCP program outlines a 5-milestone framework that advances a municipality through climate action planning to implementation and monitoring. Milestone 1 builds the foundation through the creation of a baseline emissions inventory and business-as-usual (BAU) forecast. Milestone 2 involves setting an emission reduction target. Milestone 3 is the development of a local action plan to achieve emission reductions. Milestone 4 is the implementation of the local action plan, and lastly, Milestone 5 is the ongoing monitoring of progress and results reporting. The 5-milestone framework is individually done for both the municipality's corporate emissions (i.e. municipally-owned operations) and for community-wide emissions.

## NEW GLASGOW'S 2018-2019 GHG EMISSIONS INVENTORY

Corporate (Municipal) Emissions  
~3,004 tCO<sub>2</sub>e



Community Emissions  
~128,600 tCO<sub>2</sub>e

**77.3%**  
OF SURVEY  
RESPONDENTS ARE  
VERY TO EXTREMELY  
WORRIED ABOUT  
CLIMATE CHANGE



## COMMUNITY & STAKEHOLDER ENGAGEMENT

The development of this plan was informed through public engagement and stakeholder feedback from Municipal staff, Council, the Climate Change Steering Committee, the Community Climate Change Committee, community groups, businesses, environmental organizations, and industry experts.

From July 27th to September 13th, 2021, the Town of New Glasgow partnered with Ethelo, an online group decision-making platform, to run a carbon emission simulation engagement. The engagement process first provided residents and businesses with background information on the Town's greenhouse gas emission profile in the areas of homes and buildings, transportation, and waste. It then tasked residents with creating their own climate action plan to reduce these emissions. Each proposed solution had an associated difficulty score to inform participants about the feasibility of their choices. ETHELO used the results of the engagement to generate a particular set of actions that are predicted to have the most community support and lowest levels of conflict.

### TOP 5 CLIMATE CHANGE IMPACTS THAT WORRY RESIDENTS

- ✘ Extreme storms and hurricanes
- ✘ Food costs rising
- ✘ Quality of life for future generations
- ✘ Severe heat events
- ✘ Health impacts and emergencies

### TOP 5 CLIMATE ACTIONS BEING DONE BY THE COMMUNITY

- ✔ Composting and recycling
- ✔ Energy-saving practices
- ✔ Using reusable items
- ✔ Buying second hand
- ✔ Growing or buying local food

# MAKING THE CASE FOR CLIMATE ACTION

## CLIMATE AND HEALTH

Climate change is impacting the health of Pictou County residents and is expected to have a significant effect on public health in the coming years. It is effecting our health both directly (injury caused by floods, storms, and extreme weather events) and indirectly (decreased food yields and water quality, impacts on livelihoods, and stresses on infrastructure). While the impacts of climate change are happening across our country, it is important to understand our local context and how we can reduce climate-related health impacts in our communities. In New Glasgow, the impacts are varied and include:

### HEALTH IMPACTS OF CLIMATE CHANGE IN NEW GLASGOW

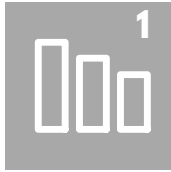
- ➔ Health impacts from heat stress
- ➔ Increases in the range and transmission of vector borne diseases
- ➔ Injuries from extreme weather events
- ➔ Food insecurity
- ➔ Mental health implications

## THE BUSINESS CASE

Transitioning to a low-carbon, sustainable economy presents both a challenge and an opportunity. As a system's problem, our solutions will need to be bold, transformative and urgent. Moreover, if we don't take action now, the costs in the future will be far higher than they are today. However, there is a sliver lining. Taking climate action now will not only prepare us for the impacts of climate change, it will generate many co-benefits for our environment, society, and economy. The many economic co-benefits of taking climate action include:

### CO-BENEFITS OF CLIMATE ACTION

- ➔ New jobs and green job creation
- ➔ Secure energy supplies
- ➔ Savings from energy efficiency
- ➔ New technologies
- ➔ Economic growth

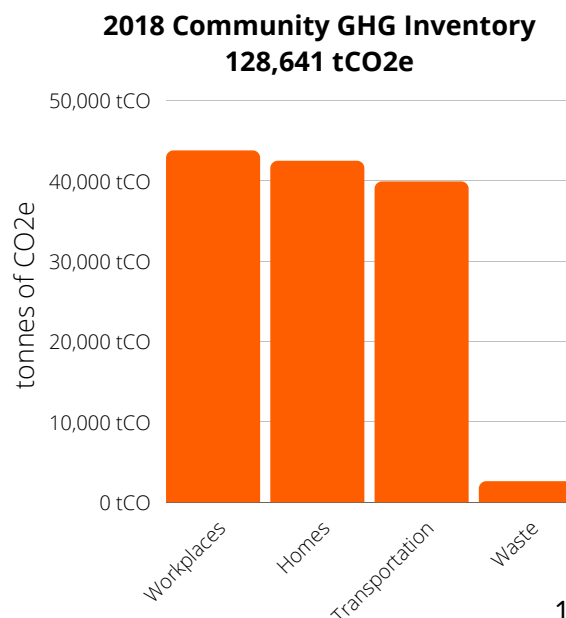
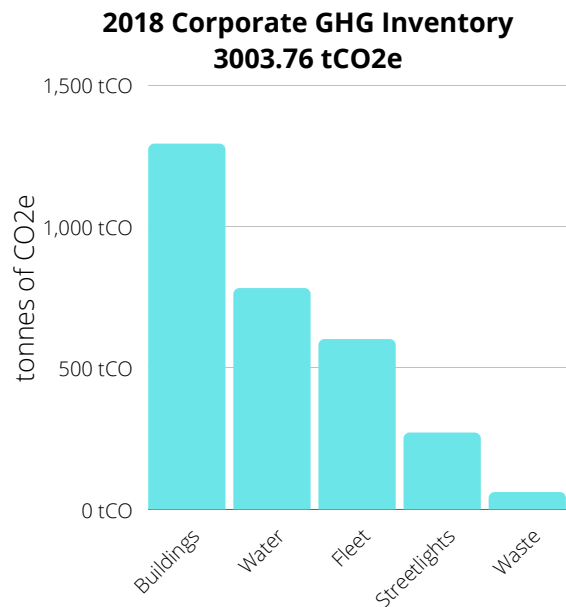


# MILESTONE 1: COMMUNITY GHG EMISSIONS INVENTORY

The first milestone of the Partners for Climate Protection (PCP) framework involves establishing a greenhouse gas (GHG) inventory. A GHG inventory provides a snapshot of how the Town uses energy and serves as a baseline against which future progress can be measured. Since joining the PCP program in 1998, the Town has completed five (5) corporate inventories and one (1) community inventory. The community inventory represents the community as a whole, of which the corporate inventory is a part of.

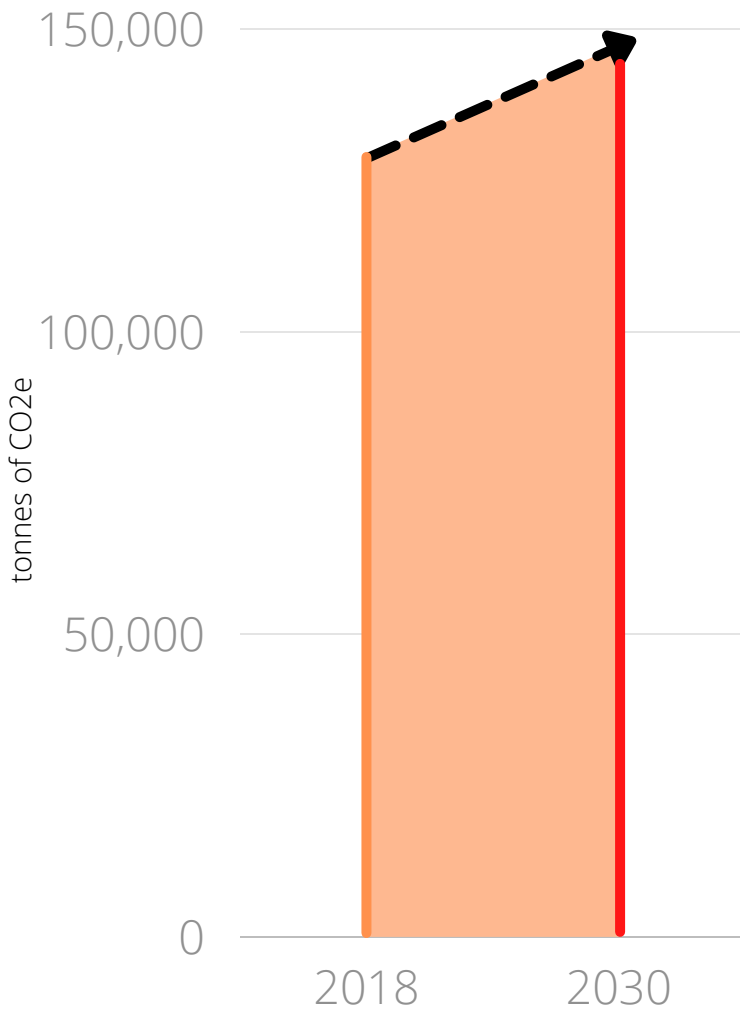
The corporate (or Municipal) inventory specifically measures emissions that the Town of New Glasgow is accountable for, such as municipal operations and service provision. The Town has corporate inventories for 1990, 1997, 2003, 2011, and fiscal year 2018-19. From 1990 to 2018, our emissions have increased by 5.5%, with a marginal decrease from 2003 to 2018 levels due to a shifting of Nova Scotia's electrical grid from coal to more renewable energy sources. For the fiscal year 2018-19, the inventory measured municipal operations to be equivalent to 3003.76 tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) across five sectors: Buildings; Water; Fleet; Streetlights & Traffic Signals; and Water & Wastewater; and Solid Waste. For a detailed breakdown of the Corporate Inventory, please refer to the document New Glasgow Corporate Greenhouse Gas Emissions Inventory.

The Town's first community inventory was completed for the fiscal year 2018-19. It estimates that 128,641 tonnes of CO<sub>2</sub>e were generated through electricity use, natural gas, fuel oil, diesel, gasoline, and propane. The community inventory measured emissions across four (4) sectors: Homes (42,438 tCO<sub>2</sub>e or 33%); Workplaces (43,724 tCO<sub>2</sub>e or 34%); Transportation (39,866 tCO<sub>2</sub>e or 31%); and Waste (2,572 tCO<sub>2</sub>e or 2%). For the detailed breakdown of the Community Inventory, please refer to the document New Glasgow Community Greenhouse Gas Emissions Inventory.



# BUSINESS AS USUAL FORECAST

The business-as-usual (BAU) projection shows what will happen to emissions without intervention, allowing the community to see what climate change actions could achieve compared to what will happen if no action is taken. The BAU projection assumes an annual population growth rate of 1.1%, which is aligned with the national population growth rate. Under this assumption, we expect New Glasgow's greenhouse gas emissions in 2030 to increase to 146,687 tCO<sub>2</sub>e. This projection will be updated following the release of the 2020 census.





## MILESTONE 2: COMMUNITY EMISSIONS REDUCTION TARGET

Milestone 2 of the Partners for Climate Protection 5-milestone framework involves setting two sets of GHG reduction targets: one for Municipal operations (corporate target) and the other for community emissions. Each set contains a midterm, locally achievable target and a long-term, scientifically imperative target (2050 target). Having both a midterm and long-term target helps us achieve a balance between realistic goal setting and ambitious action.

The Town of New Glasgow's reduction targets are in line with the most recent Federal and Provincial commitments to achieve net-zero emissions by 2050. Progress made towards these targets will be measured against the Town's 2018 corporate and community GHG inventories.

### CORPORATE TARGETS

The Town's corporate targets for 2025 and 2030 were approved by Council in October 2020. New Glasgow's Corporate Climate Action Plan outlines how the Town will achieve or exceed these targets.

#### 15% REDUCTION BY 2025

15% reduction in Municipal GHG emissions below 2018 levels by 2025.

#### 30% REDUCTION BY 2030

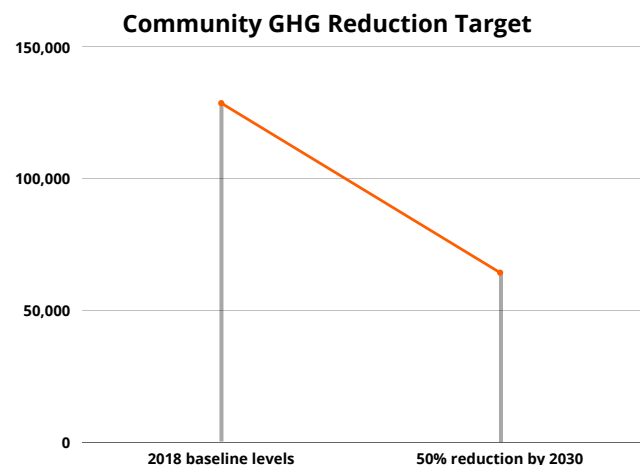
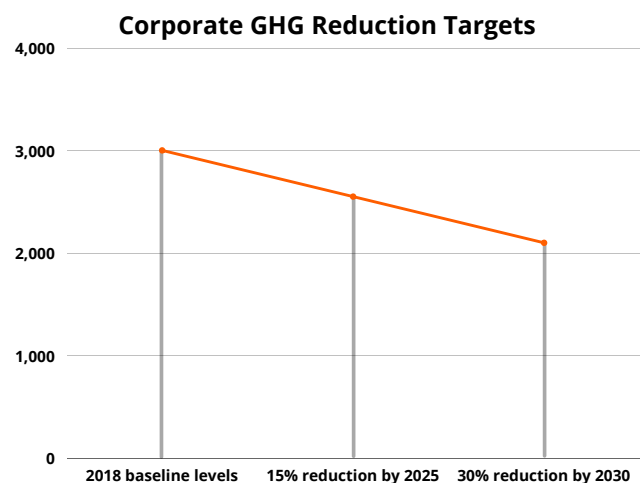
30% reduction in Municipal GHG emissions below 2018 levels by 2030.

### COMMUNITY TARGET

The Town's community target for 2030 was informed through public engagement and approved by Council in March 2022. This plan outlines how the Town will achieve or exceed this target.

#### 50% REDUCTION BY 2030

50% reduction in community GHG emissions below 2018 levels by 2030.





## MILESTONE 3: COMMUNITY CLIMATE ACTION PLAN

Milestone 3 of the Partner's for Climate Protection 5-milestone framework is the development of a climate action plan for reducing greenhouse gas (GHG) emissions.

The Community Climate Action Plan outlines the steps and actions the Town of New Glasgow will take to achieve the community GHG reduction target of 50% by 2030, demonstrating the Town's commitment to ambitious climate action. It includes both long-term and short-term goals for achieving significant greenhouse gas emission reductions across five sectors: Buildings; Transportation; Waste; Policy, Planning, & Procedures; and Collaboration, Adaptation, & Resilience.

Within each sector, key actions and targets have been organized by focus area. For example, actions in the Buildings sector have been organized across 5 focus areas: residential retrofits, home renewable energy generation, the Eco-Homes New Glasgow Program, the Green Business Program, and district energy systems. Each focus area includes an impact summary, policy recommendation, targets, and the GHG reduction potential, when applicable. At the end of each section, an implementation schedule has been included for each focus area assigning responsibility, identifying key partners, and providing a predicted timeline.

When implemented, this plan will generate many co-benefits for the environment, economy, and community at large by integrating opportunities for alternative energies and green job creation, and by creating a regulatory environment that fosters sustainability, and the efficient use of energy (FCM, 2012).



# SUMMARY OF ACTIONS

The actions in this plan are organized by sector (ex. buildings) and focus area (ex. residential retrofits).

## BUILDINGS

1. Residential Retrofits
2. Community Renewable Energy Generation
3. Eco-Homes New Glasgow
4. Green Business Program
5. District Energy

## TRANSPORTATION

1. Zero Emission Transportation
2. Anti-Idling Bylaw
3. Active Transportation
4. Public Transit & Connectivity With Other Municipalities
5. Car Sharing
6. Electric School Bus Fleet

## WASTE

1. Single-Use Items
2. Industrial, Commercial & Institutional Waste
3. Extended Producer Responsibility
4. Circular Economy
5. Low Emission Waste Collection
6. Education & Community Engagement

## POLICY, PLANNING, & PROCEDURES

1. Green Buildings
2. Sustainable Land-Use Planning
3. Green Infrastructure & Natural Areas
4. Climate Action Funding
5. Municipal Entities

## COLLABORATION, ADAPTATION & RESILIENCE

1. Emergency Planning & Disaster Risk Reduction
2. Social Equity
3. Community Capacity & Resilience



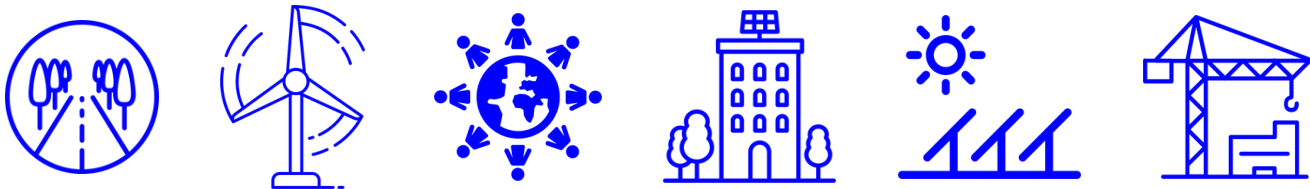
# CLIMATE ACTION ALIGNMENT

Given the wealth of information and expertise on local climate action available to municipalities, the goals and actions identified in this plan were reviewed to ensure alignment with national and international frameworks. The Town of New Glasgow Council approved joining the Cities Race to Zero and Race to Resilience in November 2021. These global campaigns were launched for COP26 to inspire leadership and commitments from Cities for a net-zero future. By joining the Cities Race to Zero, the Town of New Glasgow pledges to commit to doing our part in keeping global temperature increases below 1.5 degrees Celsius and putting inclusive and equitable climate action at the heart of decision-making. The Town of New Glasgow pledges to reach net zero-emission by mid-century and will report progress annually through the Partners for Climate Protection Program and through the Global Covenant of Mayors.

## CITIES RACE TO ZERO

There is at minimum one defined action in the New Glasgow Climate Action Plan that aligns with each of the following commitments.

- ✓ **CREATE A MORE INCLUSIVE SOCIETY**
- ✓ **CREATE GREEN AND HEALTHY STREETS**
- ✓ **REDUCE AIR POLLUTION & ENSURE CLEAN AIR**
- ✓ **DEVELOP ZERO-CARBON BUILDINGS**
- ✓ **MOVE TOWARDS RESILIENT & SUSTAINABLE ENERGY SYSTEMS**
- ✓ **MOVE TOWARDS RESILIENT & SUSTAINABLE CONSTRUCTION SYSTEMS**



## CITIES RACE TO RESILIENCE

The Cities Race to Resilience is a global campaign to build climate resilience and invest in a health resilient, zero carbon future. This is a UN-backed campaign to put people and nature first to ensure resilience to climate stresses. A main focus of this campaign is on the global scale, to build resilience for the most vulnerable groups and communities. Overall priority has been given to mitigation action over adaptation and resilience, but both action areas are important to our future.



- ✓ BUILDINGS
- ✓ ENERGY
- ✓ GOVERNANCE & COMMUNITY ENGAGEMENT
- ✓ NATURE-BASED SOLUTIONS
- ✓ WASTE
- ✓ SOCIAL EQUITY

## SUSTAINABLE DEVELOPMENT GOALS

The Sustainable Development Goals are a guide to advancing a better and more sustainable future for everyone. These 17 goals were adopted by the United Nations in 2015 and serve as a call to action on key global issues. By aligning our Community Climate Action Plan actions with 11 of the 17 goals, the Town of New Glasgow is leading progress at a local scale, and contributing to the collective global efforts to balance social, economic and environmental sustainability.





# BUILDINGS

7 AFFORDABLE AND CLEAN ENERGY



11 SUSTAINABLE CITIES AND COMMUNITIES



13 CLIMATE ACTION



Just like many communities in Canada, the greatest amount of GHG emissions in New Glasgow comes from our homes and workplaces. These emissions are generated through the energy used to heat, cool, and power our buildings, including the energy used for lighting, appliances, computers, and electronics. The primary energy sources used to power buildings in New Glasgow are electricity, fuel oil (heating), natural gas, propane, and wood.

In 2018, a large percentage of residential and workplace GHG emissions came from the use of electricity. Considering 58% of Nova Scotia's electricity is generated through coal, decreasing emissions generated from our buildings is a key focus area in this plan. This can be achieved in part through increasing the energy efficiency of our buildings, installing new insulation or weather stripping, and through energy switching to low-carbon sources.

- 
- 1. RESIDENTIAL RETROFITS**
  - 2. HOME RENEWABLE ENERGY GENERATION**
  - 3. ECO-HOMES NEW GLASGOW**
  - 4. GREEN BUSINESS PROGRAM**
  - 5. DISTRICT ENERGY SYSTEM**
- 

In addition to lowering emissions, energy efficiency upgrades generate many co-benefits, such as increasing home comfort, providing healthier environments for employees to work in, and decreasing energy costs. This is particularly important in Atlantic Canada where household expenditure on energy is highest in the country, with many households experiencing energy poverty. Other indirect co-benefits include improved air quality, strengthened energy security through diversification of the energy supply, and green job creation associated with home retrofit opportunities.

# FOCUS AREA 1: RESIDENTIAL RETROFITS

Many homeowners want to improve the energy efficiency of their homes or install clean energy options, but they struggle with the upfront costs of completing energy upgrades, and with knowing how and where to get started. With an aging housing stock and poorly insulated homes, energy efficiency upgrades can yield significant energy savings. These retrofits not only reduce energy usage and emissions, they also lower long-term costs and improve the comfort of our residents' homes.



**Targets:** Retrofit 50% of existing homes in New Glasgow by 2030.  
Retrofit 65% of homes built before 1980 by 2030.  
Retrofit 30% of homes built after 1980 by 2030.

## 1. Expand the Clean Energy Financing - Property Assessed Clean Energy program to fast track home retrofits.

The Town of New Glasgow has funding from the Federation of Municipalities, through our partnership with the Clean Foundation, to provide low-interest financing for home energy retrofits. The funding will be offered annually for four years, for a total of \$600,000 in home energy financing.

Following the first year of the program, the eligibility requirements will be reviewed to maximize homeowner participation in the program and accelerate retrofits. Additional funding sources will be explored to expand the reach of this program.

---

65.4%

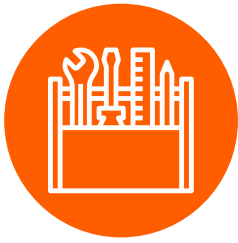
of the 2021 Climate Change Action Survey respondents indicated that New Glasgow should increase access to affordable home energy financing.

---



## 2. Increase participation in home energy efficiency programs

Work with Efficiency Nova Scotia and the Clean Foundation to increase awareness of energy efficiency programming through marketing, outreach, and community engagement activities. Programs include; home energy audits and upgrades, the Direct Install Program, the Affordable Multifamily Housing Program, and the Homewarming Program. Specific targets will be established by program, and progress will be measured against the baseline (to be determined in 2022).

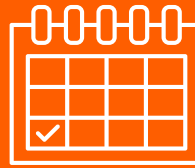


- Identify barriers to participation in these programs.
- Address barriers, obstacles, and concerns to support increased program uptake.
- Carry out annual information campaigns and engagement initiatives to promote energy efficiency programs, including door-to-door campaigns, info sessions, and mailouts.

## 3. Explore additional partnership opportunities with Efficiency Nova Scotia to improve education and awareness of available rebates, incentives and support programs for homeowners, tenants, and landlords.



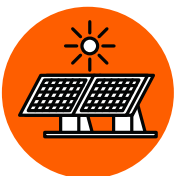
**GHG Reduction Potential:**  
Medium - High



**Implementation Schedule:**  
Medium → Long-term

# FOCUS AREA 2: COMMUNITY RENEWABLE ENERGY GENERATION

Renewable energy generation is an important part of our clean energy transition. To reduce community greenhouse gas emissions, innovative solar energy options need to be more affordable, convenient, and accessible. Home solar power can improve community air quality, increase energy autonomy, lower home energy bills, and reduce emissions. The Town of New Glasgow will work to increase home solar opportunities, advocate for greater access, and develop unique financing systems to accelerate the rate of adoption.



**Target:** 600 rooftop solar systems by 2030 (this represents approximately 15% of homes in New Glasgow).

**1. Develop and implement a community solar and/or wind program to enhance access to clean sustainable energy, to improve energy security, and to reduce energy poverty in New Glasgow.**

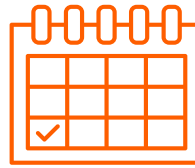
Amendments are being made to the Nova Scotia Electricity Act to create new opportunities for clean and renewable energy sources. Details of the new Shared Solar Program are not yet available. The program will be open to municipalities to create community solar gardens. The amendments will expand pathways for community-driven renewable energy projects.

**2. Expand the Clean Energy Financing program eligibility for rooftop solar systems for homes and multi-unit residential buildings.**

**3. Explore innovative renewable energy opportunities and partnerships to benefit residents and businesses.**



**GHG Reduction Potential:**  
Medium - High



**Implementation Schedule:**  
Medium → Long-term

## **FOCUS AREA 3: ECO-HOMES NEW GLASGOW**

There are many opportunities to make New Glasgow residences greener. The Eco-Homes New Glasgow program outlines actions and recommendations to reduce greenhouse gas emissions, promote biodiversity, support community engagement, and enhance community resilience.

**1. Develop and implement the Eco-Homes New Glasgow program to encourage environmental sustainability and home energy savings. The program will include a focus on the following actions:**

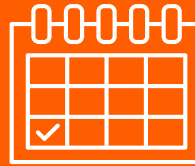
- Annual clothesline program to increase clothesline usage by at least 15%.
- Annual rain barrel program for home water conservation.
- Home composting opportunities.
- Backyard pollinator and natural habitat program to encourage native species planting and pollinator protection through minimizing the use of harmful herbicides and pesticides.
- Native plants and tree planting information and programming.
- Home energy challenge or neighbourhood carbon footprint initiatives to highlight GHG emissions and energy savings opportunities.

2. Explore EnerGuide ratings for homes in New Glasgow.

3. Seek partnership opportunities with Nova Scotia Power and Efficiency Nova Scotia to communicate CO2 equivalents on utility bills for New Glasgow residents and businesses.



GHG Reduction Potential:  
Low



Implementation Schedule:  
Short-term

## FOCUS AREA 4: GREEN BUSINESS PROGRAM

The Town of New Glasgow will develop and implement a Green Business Program that will support local organizations and businesses to increase their energy efficiency, reduce GHG emissions and prepare for climate impacts.



**Target:** 50% of existing businesses in New Glasgow retrofitted by 2030 through participation in energy efficiency programming.

1. Increase participation in Efficiency Nova Scotia and Nova Scotia Power energy efficiency and renewable energy programs for businesses and institutions.

Goal: Increase participation in business energy efficiency programs by 15% annually from the established baseline (to be determined in 2022). Specific targets will be refined based on the programs and eligibility criteria.

2. Develop financial support programs to incentivize the deployment of building-scale renewables and energy efficiency retrofits.



As an immediate action the Town will support businesses in navigating existing incentives and programs.

3. Encourage local organizations and businesses to set voluntary GHG reduction commitments.

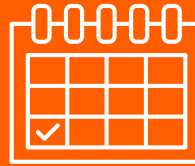
#### 4. Support businesses to set and achieve greenhouse gas emission reduction targets.

Help businesses understand and measure their carbon footprint. This action is expanded under the Community Capacity Action under the Collaboration, Adaptation, and Resilience section.

#### 5. Advocate through municipal networks and at the provincial level for improved efficiency programs and financing mechanisms to enable businesses and institutions of all sizes to complete retrofit upgrades, including businesses that rent work or retail space.



**GHG Reduction Potential:**  
Medium - High



**Implementation Schedule:**  
Short → Medium-term

## FOCUS AREA 5: DISTRICT ENERGY SYSTEM

District energy is particularly important in areas with a high-carbon intensity electricity grid, such as Nova Scotia. This infrastructure enables economical, equitable, and inclusive decarbonization of buildings.

District energy systems are systems that distribute thermal energy to multiple buildings through a heating and cooling centre and a thermal network of pipes connected to an array of buildings.

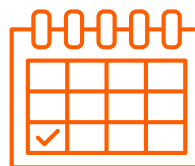
District energy increases the resilience of community energy by locating utility infrastructure underground and utilizing local energy resources such as low-grade wood fibre from Nova Scotia, and/or local wind generation.

#### 1. Complete a District Energy Feasibility Study by 2023

The Town of New Glasgow is in the process of applying for funding to the Federation of Canadian Municipalities Green Municipal Fund, which covers up to 50% of eligible study expenses to a maximum of \$175,000. The study will determine the feasibility of using a low carbon energy source, specifically low-grade wood fibers, to generate heat for homes and buildings in New Glasgow. Additional funding applications are being submitted to leverage grants to expand the scope of the study or explore renewable energy generation for electrification pathways.



**GHG Reduction Potential:**  
Medium - High



**Implementation Schedule:**  
Short → Medium-term



# IMPLEMENTATION



01

## RESIDENTIAL RETROFITS

**Departments:**

Climate Change and Sustainability  
Corporate Services  
Marketing & Communications

**Partners:**

Clean Foundation  
Efficiency NS  
Nova Scotia Power

**Timeline:**

2022-2025

**Funding:**

FCM Green Municipal Fund  
TNG Capital Budget

02

## COMMUNITY RENEWABLE ENERGY

**Departments:**

Climate Change and Sustainability

**Partners:**

Nova Scotia Power

**Timeline:**

2024-2030

03

## ECO-HOMES NEW GLASGOW

**Departments:**

Climate Change and Sustainability  
Community Development  
New Glasgow Horticulturalist  
Marketing & Communications

**Partners:**

Bee City Canada  
Efficiency NS  
Inclusive Communities Committee

**Timeline:**

2022-2030

04

## GREEN BUSINESS PROGRAM

**Departments:**

Climate Change and Sustainability  
Community Development  
Marketing & Communications

**Partners:**

Pictou County Chamber of  
Commerce  
Business Advisory Committee  
Efficiency NS

**Timeline:**

2022-2030

05

## DISTRICT ENERGY

**Departments:**

Climate Change and Sustainability  
Engineering and Public Works  
Chief Administrative Officer

**Partners:**

Torchlight Bioresources

**Timeline:**

2022-2025

# TRANSPORTATION

11 SUSTAINABLE CITIES AND COMMUNITIES

13 CLIMATE ACTION



Transportation is an essential part of everyday life. However, how we choose to move around often has a major impact on the environment. Globally, transportation is a major contributor to climate change, accounting for one-fifth of total greenhouse gas emissions (World Resource Institute, 2016). Provincially, transportation represents the highest end-use energy demand sector, accounting for 43% of total demand (Canada Energy Regulator, 2017).

In New Glasgow, transportation emissions account for 31% of local GHG emissions, or 39,082 tonnes of CO<sub>2</sub>e, and include all on-road vehicles: cars, SUVs, trucks, buses, etc. Emissions are largely dependent on the fuel efficiency of the vehicle; the more fuel a vehicle burns, the higher the CO<sub>2</sub> emissions.

Increasing access to and use of reliable transportation alternatives (public and active transportation), decreasing the daily average time spent idling, and supporting the electric vehicle transition are key actions to lowering our emissions in the transportation sector. These actions will also create many co-benefits for the community, including improving the physical and mental health of residents, improving air quality, reducing costs on vehicle maintenance, and decreasing congestion.

- 
1. **ZERO-EMISSION TRANSPORTATION**
  2. **ANTI-IDLING BYLAW**
  3. **ACTIVE TRANSPORTATION**
  4. **PUBLIC TRANSIT AND CONNECTIVITY**
  5. **CAR SHARING**
  6. **ELECTRIC SCHOOL BUS FLEET**
- 



**Target:**  
50% reduction of transportation-related GHG emissions by 2030

# FOCUS AREA 1: ZERO EMISSION TRANSPORTATION

Replacing gas-powered vehicles with electric vehicles can significantly reduce transportation related GHG emissions. To facilitate the shift from gasoline to electric vehicles, significant planning for EV charging infrastructure is required.

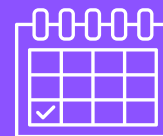
## 1. Develop an EV Infrastructure Plan by end of fiscal 2023.

The EV Infrastructure Plan will outline how the Town will build an EV charging infrastructure network to accelerate the uptake of electric vehicles in New Glasgow. Potential actions include:

- a) Install 50 public electric vehicle level 2 charging ports across New Glasgow by 2030. This includes EV charging stations that are owned and operated by the Town, in addition to private sector public charging stations. This goal will be refined based on the findings of the infrastructure plan.
- b) Collaborate with local organizations and businesses in the development of the plan.
- c) Encourage 5-10 local businesses to install electric vehicle charging infrastructure.



**GHG Reduction Potential:**  
Dependent on the greening of the NS grid



**Implementation Schedule:**  
Short → Medium-term, ongoing

## 2. Increase community uptake of electric vehicles and/or zero-emission vehicles.

- a) Work with local automotive companies to improve access to electric vehicles, plug-in hybrid electric vehicles, zero emission vehicles and low emission vehicles.
- b) Advocate for improved access to these vehicles at the provincial level and alongside Nova Scotia municipalities.
- c) Community Engagement: partner with organizations, including the Clean Foundation's Next Ride Program, to provide EV test drive opportunities and education on the benefits of EVs.

## FOCUS AREA 2: ANTI-IDLING BYLAW

Implementing an anti-idling bylaw and education campaign to reduce average idling time to 3 minutes per vehicle per day can lead to GHG reductions and air quality benefits for our health and wellbeing. Additional measures to reduce idling will be explored through Planning, Policies & Procedures to restrict new drive-throughs, and to explore partnerships with community organizations to restrict idling on their private land.

### 1. Approve an Anti-Idling Bylaw by the end of fiscal 2023.

To reduce idling to a maximum of 3 mins/day, the Idle-Free New Glasgow Campaign will include:

- The adoption of an anti-idling bylaw.
- Development of an education campaign and program rollout to include a grace period over several months.
- Installation of permanent anti-idling signs in public parking areas.



**Implementation  
Schedule:  
Short-term**



**61% of the climate survey respondents support the introduction of an anti-idling bylaw in our community**

## FOCUS AREA 3: ACTIVE TRANSPORTATION

The geographic size of New Glasgow, the urban density, and proximity between workplaces, homes, shops, restaurants, and entertainment makes active transportation options such as walking and cycling a viable alternative to traditional car usage. Developing active transportation routes and ensuring good maintenance of trails, sidewalks and bike lanes will increase the number of trips taken by walking or biking, therefore decreasing the number of trips taken by car.

The following actions outline how the Town of New Glasgow will expand and enhance active transportation options and infrastructure in New Glasgow, specifically through supporting the implementation of the Town's Active Living Strategy.

### 1. Implement all the recommended routes of the Blue Route Hubs Project by 2028

- Complete the primary route recommendations by 2024.
- Complete the secondary route recommendations by 2026.
- Complete the tertiary route recommendations by 2028.
- Establish a mode share target for 2025, 2030, and 2050.
  - % of trips under 5 km be active trips





**GHG Reduction  
Potential:**  
Medium



**Implementation  
Schedule:**  
Short → Medium-  
term

## 2. Install LED trail lighting on all New Glasgow Trails by 2024.

To improve trail user experience, new LED lighting will be installed on all Town of New Glasgow trails. These trails are important active transportation corridors and recreation spaces.

## 3. Implement the recommendations from the 2019 Active Transportation Trail Feasibility Study.

The Active Transportation Trail Feasibility Study outlines priority actions to improve trail safety and accessibility. This work will improve trail connectivity for active transportation.

## 4. Conduct a Bike Share Feasibility Study by 2025.

## 5. Develop and implement a Complete Streets and Active Transportation Policy by 2023.

This policy will outline requirements and recommendations to prioritize complete streets and active transportation infrastructure. This policy will require bike lane infrastructure needs to be considered, and implemented when necessary, during standard road repair or maintenance, upgrades to active transportation infrastructure, and complete street planning.

## 6. Identify potential areas for future zero-emissions zones by 2025.

In line with the Race to Zero, New Glasgow will identify areas to serve as potential future zero-emission zones, where car use will be prohibited to prioritize active transportation and clean air.

## 7. Explore speed limit reductions on residential streets.

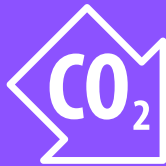
Lowering speed limits in residential areas and in key active transportation corridors will help ensure pedestrians feel safe.

# FOCUS AREA 4: PUBLIC TRANSIT & CONNECTIVITY WITH OTHER MUNICIPALITIES

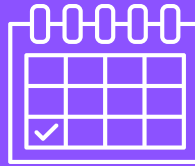
Expanding public transit options within New Glasgow and between neighbouring municipalities will give residents access to reliable and efficient low-carbon transportation options, decreasing GHG emissions, air pollution, and congestion.

## 1. Develop zero-emission public transportation options between key destinations within New Glasgow and to our neighbouring municipalities.

- a) By 2025, commit to the exclusive procurement of low or zero-emission public transit vehicle(s).
- b) Conduct a Zero-Emission Transit Feasibility Analysis to support the development of bus routes, locations for charging infrastructure, etc. The Town will seek funding from the Zero Emission Transit Fund to support this work.



GHG Reduction Potential:  
Medium



Implementation Schedule:  
Short → Medium-term,  
ongoing



# FOCUS AREA 5: CAR SHARING

Car sharing services provide an alternative to personal vehicle ownership while also reducing the number of vehicles on the road, overall car usage, energy consumption, greenhouse gas emissions, and other polluting emissions.

## 1. Assess the feasibility of car sharing and fleet sharing services.

Determine the feasibility of car sharing or fleet sharing services in New Glasgow.



**Implementation Schedule:**  
Short → Medium-term,  
ongoing



## What actions should our community take to reduce GHG emissions from Transportation?

Top Responses from the Community Climate Survey 2021

1. More Public Transit
2. Better Sidewalks
3. Bike lanes on roads



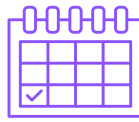
# FOCUS AREA 6: ELECTRIC SCHOOL BUS FLEET

The Chignecto-Central Regional Centre for Education has a fleet of over 200 buses that transport over 17,000 students across the region. Annually, the CCRCE fleet travels more than 1,000,000 kilometres.

## 1. Advocate for and provide support to the Chignecto-Central Regional Centre for Education (CCRCE) local New Glasgow schools to transition their school bus fleet to zero-emission school buses .

Youth in our community have expressed their concern on the climate crisis and the need to act locally to reduce GHG emissions. The Town of New Glasgow will work with the CCRCE to support funding applications, feasibility studies, and the transition to zero-emission school buses in our community.

# IMPLEMENTATION



01

## ZERO EMISSION TRANSPORTATION

**Departments:**  
Climate Change and Sustainability

**Partners:**  
Next Ride  
Clean Foundation  
Pictou County Chamber  
of Commerce

**Timeline:**  
2022-2030

**Potential Funding:**  
EV Boost

02

## ANTI-IDLING BYLAW

**Departments:**  
Climate Change and Sustainability  
New Glasgow Regional Police  
Marketing & Communications

**Partners:**  
Downtown Businesses  
NSHA

**Timeline:**  
2022-2025

03

## ACTIVE TRANSPORTATION

**Departments:**  
Active Living  
Engineering & Public Works  
Climate Change and Sustainability  
New Glasgow Regional Police

**Partners:**  
Bicycle Nova Scotia  
NS Dept of Public Works

**Timeline:**  
2022-2030

**Potential Funding:**  
Low Carbon Communities  
Sustainability Fund

04

## PUBLIC TRANSIT & CONNECTIVITY WITH OTHER MUNICIPALITIES

**Departments:**  
Climate Change and Sustainability  
Chief Administrative Officer

**Partners:**  
Pictou County Transit  
Authority

**Timeline:**  
2024-2030

05

## CAR SHARING

**Departments:**  
Climate Change and Sustainability

**Partners:**  
Pictou County Chamber  
of Commerce

**Timeline:**  
2025-2030

06

## ELECTRIC SCHOOL BUS FLEET

**Departments:**  
Climate Change and Sustainability

**Partners:**  
CCRCE  
Youth Climate Council  
NSHA

**Timeline:**  
2024-2026



# WASTE



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



The waste sector accounts for emissions from the disposal of waste produced within the Town of New Glasgow. In 2018-19, residential waste generated 844.2 tonnes of CO<sub>2</sub>e, and commercial waste generated 1,825.2 tonnes of CO<sub>2</sub>e, equivalent to 2% of community-wide emissions. This calculation does not include emissions generated from waste that is diverted, such as organics and recycling, nor fleet emissions generated during waste collection.

For most of us, recycling or composting is the main way we reduce our waste production. However, recycling is an end-of-use solution and not everything can be recycled. In 2017-2018, Nova Scotians produced an average of 432 kg of waste per person. In order to reduce our total waste after diversion, we need to change the ways in which we produce, consume and dispose of goods.

- 
1. **SINGLE-USE ITEMS**
  2. **INDUSTRIAL, COMMERCIAL & INSTITUTIONAL WASTE**
  3. **EXTENDED PRODUCER RESPONSIBILITY**
  4. **CIRCULAR ECONOMY**
  5. **LOW EMISSION WASTE COLLECTION**
  6. **EDUCATION & COMMUNITY ENGAGEMENT**
- 

Fortunately, there are many actions that can help us achieve this goal, such as circular development. Circular development integrates principles of the circular economy. It calls for the closing of material loops and the maximization of the value and utility of products through five steps: Rethinking, Regenerating, Reducing, Reusing, and Recovering. Integrating circular economy principles and advocating for the provincial implementation of extended producer responsibility (EPR) will help our community reduce its consumption, waste production, and waste-related emissions.

# PICTOU COUNTY SOLID WASTE

Pictou County Solid Waste (PCSW) is dedicated to reducing waste in Pictou County. The Waste Sector actions have been drafted in consultation with PCSW to ensure alignment and to identify opportunities to elevate existing programming. The implementation of these actions will be lead by the staff at PCSW with support from the Town of New Glasgow.

## GHG REDUCTION POTENTIAL



When it comes to the GHG reduction potential of waste, it is difficult to accurately quantify. The inventory captures emissions generated based on waste diversion. When we look at the big picture and consider where goods originate; the production, transportation, and disposal, the GHG emissions are significantly higher. These emissions are generated outside of New Glasgow and therefore are not captured in our calculations. The actions in this section are focused on local measures while addressing broader considerations, particularly the circular economy and extended producer responsibility.

## FOCUS AREA 1: SINGLE-USE ITEMS

Canadians discard approximately 3.3 million tonnes of plastic annually, of which only a small fraction is recycled (ECCC, 2019). Moreover, 47% of Canada’s plastic waste comes from single-use plastic items and packaging (ECCC, 2019). At the federal level, Canada has set the target of zero plastic waste by 2030. At the provincial level, Nova Scotia has set the target to reduce waste disposal to 300 kg per person per year by 2030. At the Municipal level, there are many actions New Glasgow can take to reduce waste and the use of single-use items.

### 1. Promote the reduction of single use items and plastics in New Glasgow

Plastic bags and single-use items have a major impact on the environment. Eliminating plastic production and use from our societies will decrease our waste production and pollution, decrease GHG emissions, and promote resource conservation.

- a) Education campaign in anticipation of the Federal ban on single-use plastics, which could be introduced in 2022.
- b) Provide incentives for businesses that voluntarily commit to using zero-waste or compostable packaging that is accepted by Pictou County Solid Waste.
- c) Introduce a single-use plastics and Styrofoam ban in all Municipal buildings.
- d) Explore the feasibility of a New Glasgow wide single-use plastics ban.



**Implementation Schedule:**  
Immediate

# FOCUS AREA 2: INDUSTRIAL, COMMERCIAL & INSTITUTIONAL WASTE

Statistics Canada estimates that the Industrial, Commercial and Institutional (ICI) sector produces 65% of Canada’s annual waste, while only diverting 19% of it.

Provincial Bill No. 57 Environmental Goals and Climate Change Reduction Act has set the target of reducing waste to 300 kg per person per year by 2030. In order to meet this target, institutions will need to look into their own supply chain and find areas to reduce or eliminate waste. In New Glasgow, education on waste reduction will be key to helping the ICI sector develop waste reduction strategies.

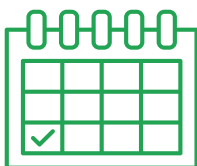
ICI waste is a challenging sector and requires further exploration to identify realistic measures to yield significant reductions. The Town of New Glasgow recognizes its role in this, but further acknowledges the partnerships with the Province and PCSW to achieve these necessary reductions.



New Glasgow  
*flourish*

The Town of New Glasgow Corporate Climate Action Plan outlines the recommended actions to reduce emissions and improve the sustainability of Town operations. One of the key actions in the Corporate Waste Sector is to ensure all municipal buildings are set up for proper waste sorting (including composting where necessary).

1. Undertake planning sessions with members of the ICI sector to provide support in the development of ICI waste reduction strategies.
2. Work collaboratively with waste haulers to help improve ICI waste reduction.
3. Create a call to action for the public to help hold businesses accountable.

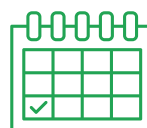


Implementation Schedule:  
Short-term

# FOCUS AREA 3: EXTENDED PRODUCER RESPONSIBILITY

Extended Producer Responsibility (EPR) or product stewardship describes the responsibility of producers and manufacturers for the end-of-life of their products and packaging, shifting responsibility away from the taxpayer. This includes the collection, transportation, reuse, and recycling of their products. Consequently, EPR regulations and programs incentivize producers and manufacturers to create better-designed, environmentally friendly products that produce little to no waste or that can be disposed of easily and responsibly. EPR programs will ultimately lead to a reduction in the amount of garbage in landfills. Many Nova Scotia industries already take part in EPR programs including dairy, paint, electronics, tires, and used oil.

**1. Support the further expansion of EPR programs in addition to PPP (printed paper and packaging).**



**Implementation Schedule:**  
Immediate, ongoing

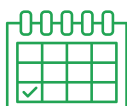
# FOCUS AREA 4: CIRCULAR ECONOMY

Our economy follows a linear pathway from resource extraction to waste disposal. The circular economy proposes redesigning this linear pathway into a circular pathway, turning waste itself into a resource through reuse, repairs, refurbishing, remanufacturing, repurposing, and recycling. The circular economy is based on the principle of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems.

**1. Develop a Circular Economy Roadmap for New Glasgow and implement recommended actions.**

As a participating municipality in the Circular Cities and Regions Initiative (CCRI), the Town of New Glasgow will develop a community roadmap for the Town's circular economy transition in 2022.

Studies have estimated that up to two-thirds of global GHG emissions come from material management, which includes the production, consumption, and disposal of materials, products, and infrastructure (UNDP, 2017).



**Implementation Schedule:**  
Immediate, ongoing

# FOCUS AREA 5: LOW EMISSION WASTE COLLECTION

In Canada, the heavy-duty vehicle sector is the second-largest contributor to GHG emissions in the transportation sector (ECCC, 2020). Transitioning fleets of medium-duty and heavy-duty vehicles to low and zero-emission options is essential to reducing our emissions in this sector.

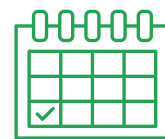
## 1. Advocate for low to zero-emission waste collection fleet.

The Pictou County Solid Waste Management System is responsible for the management of solid-waste resources across the jurisdiction of Pictou County, which includes the Towns of New Glasgow, Stellarton, Pictou, Westville, Trenton, and the Municipality of the County of Pictou.

- a) Conduct a Fleet Conversion Study for the Pictou County Solid Waste fleet. PCSW will be the lead partner in charge of this action (short-term action).
- b) PCSW's collection contract is set to expire in 2023. As a municipal partner in the Shared Services Authority, the Town of New Glasgow will specify that preference be given to zero-emission vehicles under the new contract.
- c) Advocate for PCSW's local hauling partner(s) to transition their fleet to low or zero-emission vehicles, when possible, based on market availability.



**PCSW Fleet - Approximate Annual Fuel purchases:**  
20,000L gasoline, and 53,000L diesel



**Implementation Schedule:**  
Long-term

# FOCUS AREA 6: EDUCATION AND COMMUNITY ENGAGEMENT

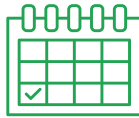
## 1. Create a formal plan for education and community engagement with Pictou County Solid Waste, to be renewed annually.

Potential activities could include participation in:

- Go Clean-Get Green
- Community meetings
- Fix-it workshops
- Waste Reduction Week
- Programs for businesses to minimize food-related carbon emissions



# IMPLEMENTATION



01

## SINGLE-USE ITEMS

**Departments:**

PCSW  
Communications & Marketing

**Partners:**

PC Chamber of Commerce  
Business Advisory Committee

**Timeline:**

2022-2025

02

## ICI WASTE

**Departments:**

PCSW  
Climate Change and Sustainability

**Partners:**

PC Chamber of Commerce  
Waste Haulers

**Timeline:**

2024-2027

03

## EXTENDED PRODUCER RESPONSIBILITY

**Departments:**

Mayor and Council  
Chief Administrative Officer  
Climate Change and Sustainability

**Partners:**

Nova Scotia Federation of  
Municipalities

**Timeline:**

2022 - ongoing

04

## CIRCULAR ECONOMY

**Departments:**

Climate Change and Sustainability  
Community Development

**Partners:**

Circular Cities & Regions  
Initiative  
PCSW

**Timeline:**

2022-2025  
(immediate)

05

## LOW EMISSION WASTE COLLECTION

**Departments:**

PCSW  
Chief Administrative Officer

**Partners:**

PC Chamber of Commerce  
Waste Haulers

**Timeline:**

2023-2030

06

## EDUCATION AND COMMUNITY ENGAGEMENT

**Departments:**

PCSW  
Climate Change and Sustainability  
Communications & Marketing  
Community Development

**Partners:**

Fridays for Future Youth  
Climate Council

**Timeline:**

2022-2030

# POLICY, PLANNING AND PROCEDURES

6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



Policy, Planning, and Procedures is a foundational sector. The focus areas outlined in this section concentrate on enabling long-term solutions that promote sustainability and encourage GHG reductions in planning. These actions are forward-thinking, and allow our community to be better positioned for a low carbon transition and future. It is important that development in our community supports our overarching sustainability and climate objectives. We will prioritize solutions that are positive for the environment, climate, sustainability, and biodiversity.

Land-use planning is one of the most effective ways to facilitate local climate change adaptation (Davoudi et al., 2012). Tools in land-use planning - official plans, zoning, development permits, standards, and others - can be used to encourage densification, increase green spaces and urban forests, minimize the risk of natural hazards such as floods and wildfires, promote efficient use of land, energy, and transportation, and limit GHG emissions associated with new residential, commercial, and institutional developments.

In order to achieve the true intentions of this plan, annual funding will be available to ensure timely implementation of the CCAP actions, and to leverage external funding. By dedicating funds and resources to this work, we can demonstrate our leadership in climate action, and accelerate the advancement of meaningful change.

- 
1. **GREEN BUILDINGS**
  2. **SUSTAINABLE LAND-USE PLANNING**
  3. **GREEN INFRASTRUCTURE & NATURAL AREAS**
  4. **CLIMATE ACTION FUNDING**
  5. **MUNICIPAL ENTITIES**
-

# FOCUS AREA 1: GREEN BUILDINGS

## 1. Develop, adopt, and implement a Green Building Incentive Program for new buildings and major retrofits by 2030.

- a) **Solar-ready building design:** Ensure new residential and commercial developments, including street layout, are designed and constructed in a way that facilitates orientation for the future installation of a rooftop solar photovoltaic system. Explore incentives for residential solar installations.
- b) **EV ready/capable building design:** Ensure new residential and commercial developments are designed and constructed with energized electrical outlets capable of charging an EV when a charging station is installed in the future.
- c) **District energy ready building policy:** Ensure new residential and commercial developments are designed and constructed with the necessary connections for district energy or microgrid systems.
- d) **Sustainable Building Design Tax Incentive Policy:** Buildings that meet energy efficiency standards can waive development charges or receive a potential exemption on their annual Municipal tax contributions for a set period of time, depending on the level of certification achieved.

## 2. Develop an energy efficiency requirement and incentive plan for the East River Business Park.



Recognizing many businesses have already started construction, this will be a graduated or tiered system, in line with the Green Building Incentive Program. The additional measures or requirements for the Business Park will encourage energy efficient development within the business park.



**Implementation Schedule:**  
Short → Medium-term

How much GHG reductions should the community achieve through home and workplace energy efficiency upgrades by 2030?

2021 Community Climate Survey Results

A graphic showing a white outline of a house with "CO<sub>2</sub>" inside, followed by "50%".

CO<sub>2</sub> 50%



### 3. Develop a Roadmap to achieve net-zero emission new buildings by 2030.

As a member of the Race to Zero and Race to Resilience campaigns, the Town of New Glasgow is also committed to ensuring the above policies and actions follow the rule of ‘existing assets’ first to optimize, repurpose and retrofit existing buildings and infrastructure before building new ones.

As well, the Town of New Glasgow is currently developing a Green Building Policy that will establish standards for any new corporate (Municipal) buildings to optimize both economic and environmental performance and to comply with LEED standards.



**Implementation Schedule:**  
Short →  
Medium-term

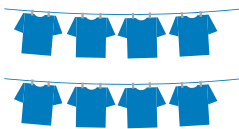
## FOCUS AREA 2: SUSTAINABLE LAND-USE PLANNING

Where enabled through legislation, the Town of New Glasgow will ascertain to what degree climate change & sustainability requirements or incentives can be incorporated into policies, plans, and bylaws. There may be many synergies between land-use planning and green building actions.

### 1. Integrate Climate and Sustainability into land-use planning policies and bylaws.

A review will be completed to identify opportunities to integrate climate and sustainability into land-use planning policies, strategies and bylaws. The addition of climate and sustainability requirements or considerations may be included in, but not limited to the following:

- Secondary Planning Strategy
- Common Land-Use Bylaw
- Integrated Municipal Planning Strategy
- Subdivision Bylaw



**Restrictive Covenants:** Remove restrictive covenants that prevent environmentally conscious behaviours such as clothesline usage.



**EV ready/capable parking lots and active transportation infrastructure:** 25% of new parking spaces are EV ready or capable. Require new parking lots to consider active transportation, for example include bike racks.



**Adopt tree planting/protection requirements or recommendations for new developments:** Ensure new development protects existing trees, as per the conditions set out in the actionable Tree Protection Bylaw. For example, if one tree needs to be taken down, two will be replanted in its place. Where no trees are required to be protected, the new development will plant and protect trees based on the Tree Protection Bylaw.

## **2. Increase nature conservation on private and public lands.**

- a) Private Tree Protection Bylaw: outlines which trees are protected under the bylaw and requires residents to apply for a permit in order to remove approved trees from their property.
- b) Draft a Pollinator-Friendly Lawn Bylaw.
- c) Promote biodiversity protection within our municipal boundary.

## **3. Restrict development in areas at risk of climate impacts.**

These restrictions will make reference to the Statement of Provincial Interest for the East River. Regulations are currently being drafted for the Coastal Protection Act, which will include tidal areas of the East River, this legislation will support development restrictions in these at risk areas.

## **4. Encourage and incentivize the use of zero emission power tools in our community, including lawn mowers, leaf blowers and snow blowers.**

# **FOCUS AREA 3: GREEN INFRASTRUCTURE & NATURAL AREAS**

Where enabled through legislation, the Town of New Glasgow will ascertain to what degree climate change & sustainability requirements or incentives can be incorporated into policies, plans, and bylaws. There may be many synergies between land-use planning and green building actions.

## **1. Conduct an Urban Tree Canopy Assessment.**

## **2. Complete a Natural Assets Inventory.**

This will include an urban forest management plan.

## **3. Create a Natural Asset Management Plan.**

## **4. Develop Green Infrastructure Requirements or incentives for local development.**

## **5. Develop and implement a tree planting and naturalization program and commit to tree planting targets by 2025.**

# FOCUS AREA 4: CLIMATE ACTION FUNDING

The implementation of the Community Climate Action Plan may require internal and external funding. Annual funding will be allocated to ensure timely implementation of the actions based on the implementation schedule. The establishment of the Sustainability Fund will ensure reliable access to annual funding is available to maintain progress on these initiatives, to support access to external grants, and enable New Glasgow to participate in new and emerging opportunities.

## 1. Sustainability Fund

Create a Sustainability Fund to support the ongoing financing of the Community Climate Action Plan.

- a) Allocate 50% of annual revenue generated from parking meters and tickets to the Sustainability Fund.
- b) Direct all revenue generated from idling tickets, following anti idling bylaw implementation, to the Sustainability Fund.
- c) Allocate 40% of the annual Canada Community Building Fund contribution for New Glasgow to the Sustainability Fund to be used for clean energy projections, active transportation infrastructure and programming, and climate action initiatives, including the implementation of the Local Climate Action Plan.
- d) Explore additional annual funding for the implementation of the Community Climate Action Plan, through the Sustainability Fund, including directing a percentage of annual operating reserves and a percentage of the annual Town of New Glasgow budget to the fund.



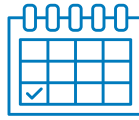
# FOCUS AREA 5: MUNICIPAL ENTITIES

The Town of New Glasgow is interested in working with its municipal entities to explore options for reducing the GHG emissions associated with the delivery of municipal services, including services provided by the Pictou County Wellness Centre, the Shared Services Authority (East River Environmental Control Centre, and Pictou County Solid Waste), Glen Haven Manor Corporation, and Riverview Home Corporation.

**1. Support municipal entities in Pictou County to reduce their GHG emissions.**

**2. Install solar photovoltaic systems at each of the municipal entity facilities by 2030, for onsite renewable energy generation.**

# IMPLEMENTATION



01

## GREEN BUILDINGS

**Departments:**

Building Inspector  
Planning  
Climate Change and Sustainability  
Chief Administrative Officer

**Partners:**

Province of Nova Scotia

**Timeline:**

2023-2027

02

## SUSTAINABLE LAND-USE PLANNING

**Departments:**

Planning  
Climate Change and Sustainability  
Chief Administrative Officer

**Partners:**

Pictou County  
Municipalities

**Timeline:**

2022-2025

03

## GREEN INFRASTRUCTURE & NATURAL AREAS

**Departments:**

Climate Change and Sustainability  
Public Works & Engineering  
Planning  
Water Utility

**Partners:**

Municipal Natural Assets  
Initiative

**Timeline:**

2022-2030

04

## CLIMATE ACTION FUNDING

**Departments:**

Corporate Services  
Climate Change and Sustainability

**Partners:**

Active Living  
Engineering & Public Works

**Timeline:**

2022-2030

05

## MUNICIPAL ENTITIES

**Departments:**

Chief Administrative Officer  
Mayor & Council  
Climate Change and Sustainability

**Partners:**

Pictou County Wellness Centre  
Shared Services Authority  
Glen Haven Manor Corporation  
Riverview Home Corporation

**Timeline:**

2025-2030

# COLLABORATION, ADAPTATION, AND RESILIENCE

10 REDUCED  
INEQUALITIES



11 SUSTAINABLE CITIES  
AND COMMUNITIES



13 CLIMATE  
ACTION



16 PEACE, JUSTICE  
AND STRONG  
INSTITUTIONS



17 PARTNERSHIPS  
FOR THE GOALS



The Collaboration, Adaptation, and Resilience section highlights actions focused on understanding our vulnerability to climate change impacts. Communities across Canada are experiencing the negative impacts of climate change on their infrastructure, health, wellbeing, culture, and economies (Warren and Lulham, 2021). Preparing for the unavoidable impacts of climate change will require both mitigation (GHG emission reductions) and adaptation actions.

Adaptation is an equally necessary component to climate action as mitigation. Adaptation ensures that measures are in place to protect individuals and the community, through infrastructure, policies, and programs building our collective resilience (Levison et al., 2017). There are many local and regional actors involved with climate adaptation, and through this collaboration, we can lead a more effective and robust climate response.

- 
- 1. EMERGENCY PLANNING & DISASTER RISK REDUCTION**
  - 2. SOCIAL EQUITY**
  - 3. COMMUNITY CAPACITY & RESILIENCE**
- 

This section of the plan is focused on actions that will build community resilience, increasing New Glasgow's capacity to prepare for, respond to, and recover from the adverse impacts of climate change. Additionally, this section of the plan recognizes that everyone will experience the impacts of climate change, but some individuals are more susceptible to climate-related hazards based on exposure, sensitivity, and adaptive capacity (access to resources). Therefore, actions within this section are intended to engage individuals and groups who will be most affected by a changing climate. The actions will be further refined over the course of the implementation schedule to determine corresponding work plans and timelines.



January 2022

# FOCUS AREA 1: EMERGENCY PLANNING & DISASTER RISK REDUCTION

To ensure a safe and resilient New Glasgow, actions will be taken to strengthen the capacity of the Town to prepare for, respond to, and recover from future natural disasters and extreme weather events.

**1. Strengthen emergency management response to weather-related emergencies.**

**2. Develop pre-approved contracts for emergency interventions or reconstruction.**

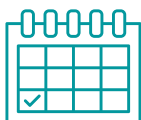
**3. Strengthen emergency management communication and regional coordination across REMO agencies and organizations.**

**4. Create Community Resilience Hubs.**

To support increased community resilience to climate impacts, community resilience hubs will be formed. These community-serving facilities will be augmented to support residents and coordinate resource distribution and services before, during, or after a natural hazard event. We will work with local organizations to explore locations and collaboration opportunities.

**5. Make emergency management training widely available to residents and businesses.**

This will be facilitated in partnership with the Pictou County Chamber of Commerce and the Regional Emergency Management Organization.



**Implementation**

**Schedule:**

Short-term, ongoing

# FOCUS AREA 2: SOCIAL EQUITY

The Town of New Glasgow recognizes the disproportionate impacts of climate change on members of vulnerable, marginalized, and/or racialized groups, and therefore the importance of including considerations of social equity and climate justice at all stages of municipal climate action planning.



**Implementation Schedule:**  
Immediate, ongoing

## 1. Training

Provide gender and racial sensitivity training for all civil servants engaged in the development and implementation of resilience strategies, including Town Staff, Council, Committee Representatives, and Volunteers, promoting values of care, empathy, and respect.

## 2. Equity Assessments

Conduct at least 2 equity assessments for priority Town-wide transformation climate actions. This will demonstrate how actions contribute to delivering social and economic benefits, reducing inequality, and driving a just transition for workers.

## 3. Engagement

Work to meaningfully engage with equity- and reconciliation-seeking groups, particularly with the Mi'kmaw and African Nova Scotian community, as well as vulnerable populations. We will endeavour to ensure that no one is left behind in our adaptation efforts.

## 4. Vulnerable Populations

Raise awareness about vulnerable populations and climate impacts, and the need for collaboration, equity, and a just transition. This is linked to the completion of a vulnerability assessment, so we can better understand who our vulnerable populations are and where they are located. Education and awareness initiatives will support increased community resilience through risk reduction and preparedness strategies, particularly among those most vulnerable to the impacts of climate change.



# FOCUS AREA 3: COMMUNITY CAPACITY & RESILIENCE

The Town of New Glasgow acknowledges the need to future-proof our assets and critical infrastructure in line with climate projections to ensure our ability to provide sustainable service delivery. In doing so, we will be able to reduce our risk of negative outcomes caused by weather extremes and climate disasters.



**Implementation Schedule:**  
Medium-term

## 1. Conduct a Climate Change Vulnerability Assessment by 2025.

- a) We will endeavour to achieve this action at the regional level. However, we will proceed with a municipal level assessment if needed to ensure timely completion of the project.
- b) We will partner with Public Health to assess climate-related health vulnerability and apply a health equity lens in adaptation planning. We will seek input from other groups that can support this work including; Mental Health & Addictions, Emergency Preparedness, and Continuing Care.
- c) We will collect information on the needs of frontline communities with respect to climate planning and implementation.

## 2. Local Climate Planning - Organizations & Businesses

- a) Undertake climate planning sessions with local organizations and businesses to develop local climate plans and coordinate mitigation and adaptation efforts.
- b) Establish and improve mechanisms for community-based organizations and community members to contribute to city-scale resilience plans and actions from the beginning to end of processes.

## 3. Support local food security through the promotion of local food production and the New Glasgow Farmers Market.

## 4. Staff Resources

Designate staff resources to ensure the timely coordination and implementation of the Town of New Glasgow's resilience and mitigation actions.

## 5. Volunteer Program

Establish a community volunteer program to mobilize citizens and stakeholders to be part of our local climate action, and transform our community. Enable organizations and citizens to participate in climate action and spearhead initiatives to drive GHG reductions.

## 6. Networks

Continuously explore opportunities to join programs and collaboratives to build capacity to undertake community climate action, i.e., the Global Covenant of Mayors, the Cities Race to Zero, etc.



# IMPLEMENTATION



01

## EMERGENCY PLANNING & DISASTER RISK REDUCTION

**Departments:**

Climate Change and Sustainability  
Public Works & Engineering  
Fire, Inspection & Emergency Services  
New Glasgow Regional Police

**Partners:**

Pictou County Regional  
Emergency Management  
Organization

**Timeline:**

2023

02

## SOCIAL EQUITY

**Departments:**

Mayor & Council  
Chief Administrative Officer  
Climate Change and Sustainability

**Partners:**

TBD

**Timeline:**

Immediate and ongoing

03

## COMMUNITY CAPACITY & RESILIENCE

**Departments:**

Climate Change and Sustainability

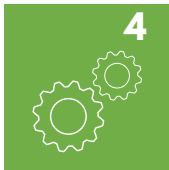
**Partners:**

Nova Scotia Health Authority  
Pictou County Chamber of  
Commerce  
Local Businesses

**Timeline:**

2025-2030





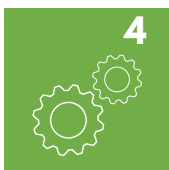
# MILESTONE 4: IMPLEMENTATION

Milestone 4 of the Partners for Climate Protection Program is focused on the implementation of the Community Climate Action Plan. The Town of New Glasgow recognizes that climate action is a core part of our operations. Implementation of this plan will be a key priority in the coming years, to ensure the timely and efficient completion of the outlined goals and objectives. Municipal staff will lead the implementation of the actions in this plan, with support from community organizations and the private sector for specific projects. The Climate Change Steering Committee and the Community Climate Change Committee will be responsible for overseeing implementation.

This plan will be revised annually to incorporate new opportunities and to reflect changing circumstances. Town Staff, alongside the Climate Change Committees, will continue to engage with key organizations and stakeholders from different sectors to continually expand project involvement, and to ensure actions and efforts are grounded in our community needs and interests. With co-benefits from this work, it is imperative that there is equitable distribution of benefits and access to participation.

The implementation schedules will be combined into one main master implementation document to detail timelines, partners, and resources for efficient implementation. Progress will be reported annually through the Community Climate Change Committee to Council. Milestone 4 will be submitted to FCM for approval a year following the approval of the Community Climate Action Plan.

Communications, education, and engagement activities will be central to community participation and the timely uptake of actions. Citizen and business participation is also crucial to achieving our climate goals and objectives. Engagement activities are woven into all the key focus areas, and engagement programming will be launched in the near term to mobilize community participation. The development of a volunteer program will be a key piece to the ongoing implementation of the plan. The focus of the volunteer program will be to enable citizen participation and mobilize climate action within the community. By empowering citizens to participate in this work, we anticipate accelerated adoption of key behaviour changes, and the necessary uptake in programming to achieve our community GHG reduction target.



## IMPLEMENTATION

- Develop a detailed and fulsome implementation schedule
- Submit Milestone 4 to FCM - March 2023
- Annual progress reporting to Council
- Ongoing communications and engagement to staff, residents, businesses, and stakeholders



## MILESTONE 5: MONITORING & REPORTING RESULTS

The Community Climate Action Plan will be revised annually as circumstances change and new ideas emerge. Ongoing monitoring of initiatives, GHG emissions inventory tracking, and annual reporting will help determine if we are on track to achieve our targets.

01

### GHG EMISSIONS INVENTORY TRACKING

The community GHG emissions inventory will be updated annually to ensure accurate reporting. The current state of community emissions will be communicated to Council, Town Staff, and the public through the Town website.

02

### ANNUAL REVIEW AND COUNCIL REPORT

The Community Climate Action Plan will be reviewed annually by the Climate Change Steering Committee. As circumstances evolve and new information or funding becomes available, actions will be reevaluated and activities adjusted. The Climate Change Steering Committee will present the results of the annual review to Council.

03

### EVALUATION

Performance indicators will be used to measure changes in GHG emissions in the Buildings, Transportation, and Waste sector. For certain actions, it may be difficult to quantify the emission reduction impact (for example, within the Policy, Planning, & Procedures sector and the Collaboration, Adaption, & Resilience sector. These actions will still be reported with relevant qualitative information.

04

### MIDPOINT REVIEW

The Community Climate Action Plan outlines actions until 2030. Midway through the implementation time period (2022-2030), the plan will be reviewed in full to identify new opportunities for emission reductions from 2026-2030.



# LOOKING AHEAD



New Glasgow  
*flourish*

Over the next few years, the Town of New Glasgow will focus its efforts on the implementation of the Community and Corporate Climate Action Plans. This work cannot be done alone! The Town of New Glasgow is committed to meaningfully engaging residents, businesses, organizations, and particularly young people in our climate work to mobilize citizen participation and to increase climate literacy. Climate action and adaptation planning must be a collaborative effort.

Looking ahead, we believe we are at a critical point to bring people in and build momentum on the foundation these plans offer.

Thank you for your support, together we will ensure a sustainable future for New Glasgow!

# REFERENCES

Brown, C., Jackson, E., Harford, D. and Bristow, D. (2021). Cities and Towns; Chapter 2 in Canada in a Changing Climate: National Issues Report, (ed.) F.J. Warren and N. Lulham; Government of Canada, Ottawa, Ontario.

Climate Atlas of Canada, version 2 (July 10, 2019) using BCCAQv2 climate model data. <https://climateatlas.ca/>

Canada Energy Regulator. (2017). Provincial and Territorial Energy Profiles – Nova Scotia. <https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/provincial-territorial-energy-profiles-nova-scotia.html#:~:text=Nova%20Scotia's%20GHG%20emissions%20in,of%2019.6%20tonnes%20per%20capita.>

Davoudi, S., Crawford, J., & Mehmood, A. (2009). Planning for Climate Change: Strategies for Mitigation and Adaptation for Spatial Planners. Sterling, Va.: Earthscan.

ECCC - Environment and Climate Change Canada. (2019). Economic Study of the Canadian Plastic Industry, Markets, and Waste. [https://publications.gc.ca/collections/collection\\_2019/eccc/En4-366-1-2019-eng.pdf](https://publications.gc.ca/collections/collection_2019/eccc/En4-366-1-2019-eng.pdf)

ECCC - Environment and Climate Change Canada. (2020). A Healthy Environment A Healthy Economy Plan. [https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/climate-plan/healthy\\_environment\\_healthy\\_economy\\_plan.pdf\\_pg.18](https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/climate-plan/healthy_environment_healthy_economy_plan.pdf_pg.18).

FCM – Federation of Canadian Municipalities. (2012). Reaching Milestone 3: How to Create a Local Climate Action Plan to Manage Energy and Emissions. [https://assets-global.website-files.com/6022ab403a6b2126c03ebf95/604a4a4111601a25d120cdb7\\_reaching-milestone-3-how-to-create-a-local-action-plan-to-manage-energy-and-emissions-av-pcp.pdf](https://assets-global.website-files.com/6022ab403a6b2126c03ebf95/604a4a4111601a25d120cdb7_reaching-milestone-3-how-to-create-a-local-action-plan-to-manage-energy-and-emissions-av-pcp.pdf)

IPCC. (2021). Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [MassonDelmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J. B. R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press. In Press.

Levison, M., Whelan, M., and A. Butler. (2017). A Changing Climate – Assessing health impacts and vulnerabilities due to climate change within Simcoe Muskoka. <https://www.simcoemuskokahealth.org/docs/default-source/topic-environment/smdhu-vulnerability-assessment-2017-finale1e3e25f97be6bc38c2dff0000a8dfd8.pdf?sfvrsn=0>

Maxwell, K., S. Julius, A. Grambsch, A. Kosmal, L. Larson, and N. Sonti, (2018). Built Environment, Urban Systems, and Cities. In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 438–478. doi: 10.7930/NCA4.2018.CH11

UNDP. (2017). Circular Economy Strategies for Lao PDR. <https://www.undp.org/publications/circular-economy-strategies-lao-pdr>

Warren, F. and Lulham, N., editors (2021). Canada in a Changing Climate: National Issues Report; Government of Canada, Ottawa, ON.

World Resource Institute, (2016) using Climate Data Explorer CAIT data on the breakdown of emissions by sector. In 2016, global CO2 emissions were 36.7 billion tCO2 and transportation emissions were 7.9 billion tCO2, accounting for 21% (7.9 / 36.7) of global emissions. <https://www.climatewatchdata.org/>