

Municipal Climate Change Action Plan 2025 – 2029

Final, May 5th, 2025

Municipality of the County of Pictou





1. Executive Summary

Background

Recognizing the implications of climate change, in 2019 the Municipality of Pictou County Council formed a Climate Change Advisory Committee (Advisory Committee) composed of County Councillors and citizen representatives (see Appendix 1 for members). In February 2022, the County Council declared a Climate Change Emergency and committed to reducing its carbon footprint to net-zero by 2031 and to assist its citizens, businesses, and community organizations in reducing fossil fuel consumption by at least 50 percent in the next 10 years. To follow through on this commitment, the Council commissioned the preparation of this Municipal Climate Change Action Plan (MCCAP) by the Climate Change Action Planning Sub-Committee, with the assistance of the Tree Planting and Education Sub-Committees.

The purpose of the MCCAP is to document the impacts of climate change on the Municipality of Pictou County and to provide a road map for a few key mitigation and adaptation actions to initially address those impacts. Future editions of the MCCAP will provide updates on climate change impacts and additional actions that the Municipality will take.

Public Education and Stakeholder Engagement

The MCCAP development team used a variety of research methods to find and document the key climate change impacts on Pictou County and developed flyers and social media posts for education of the public. This information was made available throughout the month of October 2024 on the MOPC Website and social media platforms, and flyers were posted in public buildings around the county. Descriptions of the key impacts in the table below are available in Appendix 4.

•	Coastal Erosion and Flooding	•	Property Insurance
•	Wildfires	•	Droughts
•	Severe Winds	•	Unpredictable Growing Seasons and Food Shortages
•	Sea Level Rise and Warming	•	Ticks and Lyme Disease
•	Climate Refugees	•	Human Health

In February 2024 the team released an online survey to identify the public's views on climate change action priorities, which would help to inform the development of the MCCAP. Following the Fall 2024 public education phase, the team organized eight community engagement

meetings across the County in the month of January 2025. The team made presentations that covered the key climate impacts and proposed climate actions. The following table illustrates the feedback received on the level of importance of the proposed actions that were presented.

Proposed Climate Change Actions	Percentage of Participants Who Viewed the Action to be of High Importance
Creating measures for ensuring the safety of citizens that are impacted by climate disaster events	91%
Enhancing the annual MOPC Tree Planting Program	87%
Developing an online tool to analyse the risk of damage from impending storm surge and flooding events	86%
Developing an online tool to analyse the risk of damage from wildfire events	86%
Assessing and modifying the MOPC infrastructure that is vulnerable to climate change impacts	86%
Replacing emission-generating energy sources within MOPC buildings with zero- emission sources by 2035	74%
Replacing MOPC transportation fleet with zero-emission vehicles by 2035	62%

While not all the participants' ideas can be included in the initial MCCAP, the plan will be a living document, with ongoing assessments and additional action recommendations to the Council annually. Climate change education and engagement will continue to be a principal component of MOPC climate change action planning.

Climate Actions

The first following table provides an overview of the main categories and climate actions of the Action Plan. The second table below provides an explanation of the Cost and Timeline columns.

Maiı	Main Categories and Actions						
Miti	Mitigation Action: Greenhouse Gas Reduction						
Category 1: Replacing the MOPC transportation fleet with zero-emission vehicles by 2035							
1.1	Develop annual EV procurement strategies and targets and purchase vehicles	\$\$\$	Ongoing				
1.2	Install EV charging stations at the MOPC Administrative Building	\$\$	Now				
Category 2: Replacing emission-generating energy sources within the MOPC buildings with zero-emission sources by 2035							
2.1	Evaluate energy consumption reduction opportunities (e.g., doors, windows, insulation and heating options) and use of new energy sources (e.g. solar, geothermal)	\$	Now				

Mai	n Categories and Actions	Cost	Timeline				
2.2	Purchase and install retrofit or new facilities	\$\$\$	Later				
Miti	Mitigation Action: Carbon Capture						
Cate	gory 3: Enhancing the Annual MOPC Tree Planting Program						
3.1	Increase planting capacity by growing the volunteer group, working with partner organizations and employing planting contractors	\$\$\$	Ongoing				
3.2	Assess the need for replacement of existing boreal species with more climate adapted tree species	\$\$	Now				
Ada	ptation Action: Erosion and Flooding Protection						
Cate	gory 4: Developing a tool to analyse the risk of damage from storm surge and flooding ϵ	events					
4.1	Complete a database of flood mapping, coastal topography, and predicted coastal erosion in the County	\$\$	Now				
4.2	Enhance the NSCC user-friendly online Emergency Coastal Flooding tool (https://agrgims.cogs.nscc.ca/CoastalFlooding) that landowners and emergency professionals can use to predict damage from severe weather events	\$\$	Later				
Ada	Adaptation Action: Wildfire Protection						
Cate	gory 5: Mitigating Wildfire Risk in Pictou County						
5.1	Complete a wildland fire hazard assessment with a FireSmart Coordinator to support wildfire mitigation efforts	\$\$\$	Now				
5.2	Develop an implementation strategy based on the assessment findings	\$\$\$	Later				
Ada	otation Action: Emergency Measures						
Cate flood	gory 6: Creating measures for ensuring the safety of citizens impacted by climate disast ds, hurricanes, wildfires)	er even	ts (e.g.,				
6.1	Encourage citizens to develop emergency and evacuation plans	\$	Now				
Ada	Adaptation Action: Infrastructure Modification						
Cate	gory 7: Assessing and modifying the MOPC infrastructure that is vulnerable to climate c	hange ir	mpacts				
7.1	Develop an inventory of County structures (e.g., buildings, wastewater treatment plants, culverts, etc.) that need to be adapted	\$	Now				
7.2	Plan for the replacement or modification of vulnerable structures and purchase and install retrofit or new facilities	\$\$	Later				

	Timeline Key	Cost Key		
Now	Actions that will be initiated/implemented in 2025-2026	\$	Less than \$10,000	
Later	Actions that will be initiated/implemented in 2026-2030	\$\$	Between \$10,000 - \$100,000	
Ongoing	Actions that have already been initiated and will continue through the MCCAP	\$\$\$	More than \$100,000	

Implementation and Financial Plan

The MCCAP is a 'living document'. One component of implementation involves a requirement to renew and update the MCCAP on an annual basis. The MOPC will monitor the indicators in the table below to measure the performance of the MCCAP's climate actions.

Actions	KPIs
	Number of EV chargers installed (#)
1. Replacing the MOPC Transportation Fleet	Number of EVs purchased (#)
	Reduction in GHG emissions (tCO2e)
2. Depleting Emission generating Energy Sources	Reduction in annual electricity consumption (kWh)
2. Replacing Emission-generating Energy sources	Reduction in GHG emissions (tCO2e)
3. Enhancing the MOPC Tree Planting Program	Number of seedlings planted (#)
4. Developing a Storm Surge and Flooding Risk Analysis	Number of users of the risk analysis tool (#)
Tool	Number of users of the fisk analysis tool (#)
5. Developing a Wildfire Risk Analysis Tool	Number of users of the risk analysis tool (#)
6. Emergency and Evacuation Preparedness Education	Number of users of guidelines (#)
7. Assessing and Modifying Vulnerable MOPC Infrastructure	Number of facilities adapted to climate change (#)

List of Key Performance Indicators (KPIs)

The five-year financial plan (2025-2029) in the following table provides high-level cost estimates for implementing the MCCAP's actions. With the support of the Community Climate Capacity Program team, MOPC will have the opportunity to access funding from a range of climate action funding programs. Work is underway to access external funding and support for some actions in the table, and estimated contributions from external funding programs are shown in **bold** red text.

Five-Year Financial Plan (2025-2029)

Actions	Budget	Туре	Budget Year				
ACTIONS	Operating	Capital	2025/26	2026/27	2027/28	2028/29	2029/30
Replacing the MOPC Transportation Fleet Exterior funding from Sustainable Communities Challenge Fund		1	\$50,000 \$40,000	\$125,000	\$125,000	\$125,000	\$125,000
Replacing Emission-generating							
Energy Sources Exterior funding to be determined		~	<mark>\$</mark>	\$			
Enhancing the MOPC Tree Planting Program Exterior funding from Thriving Forests Program	V		\$10,000 \$4,100	\$10,000 <mark>\$8,000</mark>	\$10,000 \$12,000	\$10,000 \$16,000	\$10,000 \$20,000
Developing a Storm Surge and Flooding Risk Analysis Tool Exterior funding from Sustainable Communities Challenge Fund	√		\$16,500 \$12,000	\$80,000	\$40,000		
Mitigating Wildfire Risk in Pictou County Exterior funding from Sustainable Communities Challenge Fund or	√		\$100,000	\$60,000 \$240,000	\$60,000 \$240,000		
Emergency and Evacuation Preparedness Education	√		\$10,000				
Assessing and Modifying Vulnerable MOPC Infrastructure		~		\$60,000	\$20,000	\$20,000	
MOPC Funding			\$186,500	\$255,000	\$215,000	\$155,000	\$135,000
Exterior Funding			\$56,100	\$328,000	\$292,000	\$16,000	\$20,000
Total Annual Budget			\$242,600	\$583,000	\$507,000	\$171,000	\$155,000

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2. Land Acknowledgement

The Municipality of Pictou County is located in Mi'kma'ki, the unceded and ancestral territory of the Mi'kmaq people. These lands and waters are the traditional territory of the Mi'kmaq people who have called this land home since time immemorial, and who to this day, still call it home. This territory is covered by the "Treaties of Peace and Friendship" which Mi'kmaq and Maliseet people first signed with the British Crown in 1725.

We also recognize that African Nova Scotians are a distinct people whose histories, legacies and contributions have enriched that part of Mi'kma'ki known as Nova Scotia for over 400 years. For generations, African Nova Scotians have experienced inequalities due to systemic racism and still do today.

Our work does not start and stop with a land acknowledgement but is one important action to highlight the commitment of continual work. We recognize the need to ensure that our acknowledgement and support of these peoples, including those who are staff and residents of our community, is a year-round commitment. We commit to the mindful discomfort required for reconciliation and strive to uplift diverse voices and joy.

3. Introduction

This Municipal Climate Change Action Plan (MCCAP) describes a strategy to mitigate and adapt to the impacts of climate change on the Municipality of Pictou County and its home and business owners. In the context of the MCCAP, "climate change" refers to long-term shifts in

temperatures and weather patterns, primarily driven by greenhouse gas emissions that are generated by human activities. "Mitigation" of climate change refers to promotion of policy, regulatory and project-based measures that contribute to the stabilization or reduction of greenhouse gas concentrations in the atmosphere. "Adaptation" to climate change refers to initiatives or actions in response to actual or projected climate



change impacts and which reduce the effects of climate change on built, natural, and social systems.

For many people, "climate change" is a phenomenon that seems to be in the distant future, about which individuals can do little. While people have different views on the reality of climate change, evidence of its existence, growth and impacts is mounting. Nova Scotia is particularly vulnerable, as severe precipitation, high wind and damaging storm surge events increase in intensity and frequency.

The MCCAP documents these impacts and presents practical mitigation and adaptation actions that can be implemented by the Municipality and its homeowners. Since dealing with climate change can be overwhelming, to increase the probability of success this plan limits those initial actions to a few top priorities during the next five years. The Municipality intends to learn from that experience as it renews the MCCAP to deal with the next tier of priorities over the next five-year period, 2030 – 2034.

4. MCCAP Purpose and Development Process

Background

Recognizing the implications of climate change, in 2019 the Municipality of Pictou County Council formed a Climate Change Advisory Committee (Advisory Committee) composed of County Councillors and citizen representatives (see Appendix 1 for members). In February 2022, the County Council declared a Climate Change Emergency and committed to reducing its carbon footprint to net-zero by 2031 and to assist its citizens, businesses, and community organizations in reducing fossil fuel consumption by at least 50 percent in the next 10 years. To follow through on this commitment, the Council commissioned the preparation of this Municipal Climate Change Action Plan (MCCAP).

The purpose of the MCCAP is to document the impacts of climate change on the Municipality of Pictou County and to provide a road map for a few key mitigation and adaptation actions to initially address those impacts. Future editions of the MCCAP will provide updates on climate change impacts and additional actions that the Municipality will take.

Development Team

The Advisory Committee created a Climate Change Action Planning Sub-Committee to oversee

the development of the MCCAP. This team conducted background research, organized the collection of ideas and views from stakeholders, and drafted the Plan report.

Two other Sub-Committees were also formed by the Advisory Committee to undertake climate change activities and provide input to the Action Plan. The Tree Planting Sub-Committee developed projects for spring mass planting of coniferous seedlings on abandoned fields and for distribution of deciduous seedlings to homeowners for fall planting on their properties. The Education Sub-Committee provided information to the public and to County schools on Advisory Committee activities, and developed tree planting and action planning flyers and posters, social media posts, etc.

The Sub-Committees made regular reports on progress to the Advisory Committee, which reports progress to the Municipal Council. See Appendix 1 for committee and sub-committee membership. Figure 4.1 below illustrates the Action Planning reporting structure.





In early 2024, the MOPC was selected as one of 19 municipalities in Nova Scotia to participate in the Clean Foundation's Community Climate Capacity (CCC) Program, which provides communities with a dedicated staff of specialists who can help guide them through climate and sustainability initiatives at the local level. The Community Climate Lead assigned to the MOPC, Sydney Griffiths, provided direct and customized support along with a team that consists of climate specialists in a variety of areas such as policy and planning, energy, mitigation, adaptation, funding and engagement. The CCC Team is helping to identify climate challenges, develop policy and planning initiatives, and will help implement local adaptation and mitigation actions over the three-year period of the program.

5. Context for Climate Change Action in Pictou County

The MCCAP Team researched a wide range of information sources to provide context for the development of a suitable action plan for Pictou County.

Legislative, Regulatory and Policy Landscape

At all three levels of government (i.e., municipal, provincial and federal), there exist governance documents such as laws/by-laws, regulations, policies and rules/guidelines that may impact the design and implementation of climate change mitigation and adaptation actions in Pictou County. Appendix 2 provides a summary of the relevant "public policies" (a phrase often used to encompass these documents) and their impacts. Appendix 3 identifies recent changes to MOPC Policies to better align them with climate change action. As illustrated in the table in Appendix 2, there is little specific legislation in force that pertains directly to climate change. The impact of the identified legislation on the MOPC moving forward with its climate change action plan is extremely limited.

Climate Change Impacts

The direct and indirect impacts of climate change such as flooding, wildfires, and coastal erosion will be felt most acutely at the municipal level. Citizens often turn to their municipal government when these problems arise, even though most of the needed actions are not within municipal control but fall under either the provincial or federal jurisdictions.

The attention of Pictou County residents has been focused on recent impacts of climate change such as the coastal erosion and forest destruction of Hurricane Fiona in 2022, along with the large-scale wildfires in Halifax and Shelburne Counties and the flash flooding events in the Municipalities of Halifax, East Hants and West Hants, and the Counties of Lunenburg and Queens in 2023. However, citizens of the County were no strangers to dangers posed by wind, rain, snow, wildfire, and drought in the past. Appendix 4 provides a summary of the impacts of climate change on Pictou County.

Action Planning Mechanisms

The development and implementation of a climate change action plan in Nova Scotia can be facilitated with a range of available mechanisms. Support mechanisms include:

- government and not-for-profit organization programs that help municipalities develop and implement climate action plans and access funding;
- organizations that provide climate data, action guidelines and kits; and
- networks of people working on climate change action that provide opportunities for information exchange and access to good practices.

Funding mechanisms include:

- government and not-for-profit organization grants that support community efforts to reduce or remove greenhouse gas emissions, or to prepare for and respond to the impacts of a changing climate;
- funding for climate workforce development;
- funding for environmental education and green space programs;
- funding for tree planting to capture carbon; and
- support of projects that aim to increase awareness, knowledge and public confidence in zero-emission vehicles.

Appendix 5 provides information about nine support programs and 10 funding programs.

6. Public Education and Stakeholder Engagement

An important part of the MCCAP development process was to educate the public about specific impacts of climate change on Pictou County and to seek input from County stakeholders.

Education on Climate Impacts

The development team used a variety of research methods to find and document the key climate change impacts on Pictou County and developed flyers and social media posts for education of the public. This information was made available throughout the month of October 2024 on the MOPC Website and social media platforms, and flyers were posted in public buildings around the county. A table in Appendix 6 briefly describes the key impacts.

Community Engagement

In February 2024 the team released an online survey to solicit views on climate change. The purpose of this survey was to identify the public's views on climate change action priorities,

which would help to inform the development of the MCCAP. Following the Fall 2024 public education phase, the team organized eight community engagement meetings across the County in the month of January 2025. The team made presentations that covered the key climate impacts and proposed climate actions. A table in Appendix 6 shows the proposed actions that were discussed. A total of 175 participants in these meetings asked relevant questions and suggested good climate action ideas. Many participants used feedback forms to indicate their views on action priorities.



While not all the ideas can be included in the initial MCCAP, the plan will be a living document, with ongoing assessments and additional action recommendations to the Council annually. Climate change education and engagement will continue to be a principal component of MOPC climate change action planning. More detailed information about the climate impacts and proposed climate actions, as well as the results of the online survey and community engagements, is available on the MOPC Website at <u>Climate Change » Municipality of Pictou</u> <u>County</u>.

7. Climate Actions

This chapter describes the priority MOPC programs that are being developed and implemented to mitigate the impacts of and adapt to climate change. An estimated total budget is provided in each of the seven proposed actions in this chapter, including a breakdown between MOPC and exterior funding. Table 7-1 provides an overview of the main categories and climate actions of the Plan, and details follow. At the bottom of this table there is a key explaining the Cost and Timeline columns.

Mai	Cost	Timeline					
Miti	Mitigation Action: Greenhouse Gas Reduction						
Category 1: Replacing the MOPC transportation fleet with zero-emission vehicles by 2035							
1.1	Develop annual EV procurement strategies and targets and purchase vehicles	\$\$\$	Ongoing				
1.2 Install EV charging stations at the MOPC Administrative Building \$\$ Now							
Category 2: Replacing emission-generating energy sources within the MOPC buildings with zero-emission							

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Mai	n Categories and Actions	Cost	Timeline
sour	ces by 2035		
2.1	Evaluate energy consumption reduction opportunities (e.g., doors, windows, insulation and heating options) and use of new energy sources (e.g. solar, geothermal)	\$	Now
2.2	Purchase and install retrofit or new facilities	\$\$\$	Later
Miti	gation Action: Carbon Capture		
Cate	gory 3: Enhancing the Annual MOPC Tree Planting Program		
3.1	Increase planting capacity by growing the volunteer group, working with partner organizations and employing planting contractors	\$\$\$	Ongoing
3.2	Assess the need for replacement of existing boreal species with more climate adapted tree species	\$\$	Now
Ada	ptation Action: Erosion and Flooding Protection		
Cate	gory 4: Developing a tool to analyse the risk of damage from storm surge and flooding e	events	
4.1	Complete a database of flood mapping, coastal topography, and predicted coastal erosion in the County	\$\$	Now
4.2	Enhance the NSCC user-friendly online Emergency Coastal Flooding tool (https://agrgims.cogs.nscc.ca/CoastalFlooding) that landowners and emergency professionals can use to predict damage from severe weather events	\$\$	Later
Ada	ptation Action: Wildfire Protection		
Cate	gory 5: Mitigating Wildfire Risk in Pictou County		
5.1	Complete a wildland fire hazard assessment with a FireSmart Coordinator to support wildfire mitigation efforts	\$\$\$	Now
5.2	Develop an implementation strategy based on the assessment findings	\$\$\$	Later
Ada	ptation Action: Emergency Measures		
Cate floo	gory 6: Creating measures for ensuring the safety of citizens impacted by climate disast ds, hurricanes, wildfires)	er event	ts (e.g.,
6.1	Encourage citizens to develop emergency and evacuation plans	\$	Now
Ada	ptation Action: Infrastructure Modification		
Cate	gory 7: Assessing and modifying the MOPC infrastructure that is vulnerable to climate c	hange ir	npacts
7.1	Develop an inventory of County structures (e.g., buildings, wastewater treatment plants, culverts, etc.) that need to be adapted	\$	Now
7.2	Plan for the replacement or modification of vulnerable structures and purchase and install retrofit or new facilities	\$\$	Later

	Timeline Key	Cost Key		
Now	Actions that will be initiated/implemented in 2025-2026	\$	Less than \$10,000	
Later	Actions that will be initiated/implemented in 2026-2030	\$\$	Between \$10,000 - \$100,000	
Ongoing	Actions that have already been initiated and will continue through the MCCAP	\$\$\$	More than \$100,000	

Greenhouse Gas Reduction

Category 1: Replacing the MOPC Transportation Fleet

The MOPC plans to reduce greenhouse gas emissions by purchasing electric vehicles (EVs) or plug-in hybrid vehicles (PHEVs) to replace old gas-powered vehicles as they reach their useability limit. In addition, electrical charging stations will be installed on the MOPC Administration property. The stations will primarily be used by staff to charge the new vehicles, but they will also be accessible for County residents to use while conducting business with the MOPC staff.

Developing Annual EV Procurement Strategies and Targets and Purchasing Vehicles

The MOPC staff will create a strategy, including research on suppliers of EVs and PHEVs, the annual vehicle purchasing quantities, the costs to be included in annual budgets, and the possible rebate opportunities. The staff will apply for annual rebates that cover EV and PHEV purchasing, which are applied at the time of purchase. The **Electrify Nova Scotia Rebate Program** currently provides rebates of \$3,000 for EVs and long-range (50 km or more) PHEVs and \$2,000 for short-range (under 50 km) PHEVs. The federal **Incentives for Zero-Emission Vehicles (iZEV) Program** is currently paused due to funds being fully committed.

While the MOPC has so far replaced two vehicles in the fleet with PHEVs, difficulties in procuring these and EV vehicles have been experienced due to a critical supply shortage in Nova Scotia. Unlike provinces like Quebec and British Columbia, which require auto manufacturers by law to sell a certain percentage of electric vehicles every year, our province does not have such a policy. If the shortage continues in Nova Scotia, the MOPC may need to go beyond NS to procure the required vehicles.

Installing EV Charging Stations at the MOPC Administrative Building

The MOPC staff will create a strategy, including research on suppliers of charging stations, and develop a plan for installation of stations that are accessible for the MOPC staff and the public's use. The MOPC plans to install two Level 2 charging stations with two plugins on each. Level 2 chargers can be attached to a pedestal as part of public charging stations.

Budget

The estimated budget for the *Replacing the MOPC Transportation Fleet* action is \$590,000. The MOPC will apply to the Nova Scotia Federation of Municipalities' (NSFM) Sustainable Communities Challenge Fund (the SCC Fund) and the Federation of Canadian Municipalities' (FCM) Municipal Fleet Electrification (the MFE Fund) for grants to help finance this climate action. The MFE Fund offers combined loan and grant funding for up to 80% of



eligible costs for capital projects that achieve a partial or complete transition of municipal and/or transit fleet to zero-emission vehicles The SCC Fund supports community efforts to reduce or remove greenhouse gas (GHG) emissions (Mitigation Stream), or to prepare for and respond to the impacts of a changing climate (Adaptation Stream). Projects in the Mitigation Stream seek to slow the rate of climate change by avoiding and reducing GHG emissions or by removing carbon from the atmosphere. The SCC Fund supports Transportation projects, including 80% of the cost of installation of electric vehicle charging infrastructure.

Category 2: Replacing Emission-generating Energy Sources

The MOPC also plans to reduce greenhouse gas emissions by exploring energy consumption reduction opportunities. The primary focus is on the Municipal Office in Pictou, which is heated with oil.

Evaluating Energy Consumption Reduction Opportunities

The MOPC has enrolled in EfficiencyOne's Roving Municipal Energy Manager (RMEM) program, which is free to municipalities and provides support in areas such as: conducting energy



reviews, benchmarking energy use, conducting energy audits, and developing shovel-ready Energy Management Plans. The RMEM program will generate energy consumption reduction opportunities (e.g., improved doors, windows, insulation and heating options, solar power, etc.). Energy managers can also identify opportunities for green energy projects and provide recommendations for funding opportunities to make such upgrades.

Purchasing and Installing Retrofit or New Facilities

Once the Energy Manager completes the energy assessment and delivers his recommendations, the MOPC staff will create a strategy, including research on suppliers of systems and materials, for procurement and installation of the new facilities.

Budget

The estimated budget for the *Replacing Emission-generating Energy Sources* action is (to be determined when the Energy Manager's report is received). Using the Energy Manager's recommendations, the MOPC staff will examine the following available funding options:

- NSFM Sustainable Communities Challenge Fund The Mitigation Stream supports building projects such as retrofitting community buildings or recreation centers with deep energy upgrades, electrifying heating, cooling, and ventilation (HVAC) systems and switching to cleaner fuels; and implementing energy efficiency technologies.
- FCM Sustainable Municipal Buildings Offer Provides funding for retrofits of municipal buildings, including outlining the design of a proposed retrofit of an existing municipal building, and retrofitting a municipal building or portfolio of municipal buildings for higher energy performance and significant GHG emissions reduction.

Carbon Capture

Category 3: Enhancing the Annual MOPC Tree Planting Program

In seeking an early mitigation action that would provide visible evidence of progress and opportunities for individual landowners to take climate action, in early 2022 the Advisory Committee decided to develop a Tree Planting Program as a means of carbon capture. The Program was designed around two types of carbon capture:

- Afforestation: planting large quantities of softwood tree seedlings on marginal crop and pastureland sites by groups of volunteers to incorporate carbon from atmospheric CO₂ into biomass.
- 2. Property Beautification: planting hardwood trees by individual landowners to enhance their properties while, at the same time, contributing to carbon capture.



Between Spring 2022 and Fall 2024, approximately 15,000 trees were planted in Pictou County under the Tree Planting Program. The objective of this mitigation action is to grow the Program, including the identification and integration of other organizations and volunteer groups that have interest in tree planting, to gain a much larger scale of carbon capture.

Increasing Planting Capacity

Through participation in the CCC Program, the MOPC has been introduced to the Clean Foundation's Thriving Forests program, which is using federal and provincial funding to develop tree planting initiatives across the province. The Clean Foundation forestry experts support the development and implementation of tree planting projects, including assessing proposed



planting sites, identifying tree species that are best suited to soil conditions, purchasing seedlings, and engaging tree planting contractors.

Offers of planting sites from some 15 County landowners have been sent to the Thriving Forests team. One site has been approved for planting of approximately 2,040 seedlings in Fall 2025 and the other sites will be surveyed to determine suitability for future planting (funded by the Thriving Forests Program). An application has been submitted for additional tree planting projects in 2026. Clean Foundation's ambition is to scale up fully funded planting projects year by year.

The Tree Planting Sub-Committee is exploring means of expanding

volunteer planting, through partnering with organizations and volunteer groups that have interest in tree planting (e.g., County schools, United Way of Pictou County, New Glasgow Gyro Club) and plans to continue to provide hardwood trees for individual landowners to plant on their properties.

Assessing Sustainability of Tree Species

As the risks of climate change impacts (e.g., warming temperatures, high winds, torrential precipitation) increase over time, the tree species that have been favored in the past may not be sustainable in the future. The MOPC plans to assess the need for replacement of existing boreal species with more climate adapted tree species. In future carbon capture projects, trees that have been native to Nova Scotia for centuries may be replaced with species that are native to the New England states in the USA. Collaboration with tree nurseries will be necessary to ensure that new tree species are available.

Budget

The estimated budget for the *Enhancing the Annual MOPC Tree Planting Program* action is \$110,100. The annual budget will be mostly covered by the financial support provided by the Thriving Forests program. The approved budget for the Tree Planting Program in 2025 is \$10,000 and is expected to continue at that level. These MOPC funds will be primarily used for purchase of softwood seedings for volunteer spring school plantings, and hardwood seedlings and grow tubes for volunteer fall plantings by homeowners.

Erosion and Flooding Protection

Category 4: Developing a Storm Surge and Flooding Risk Analysis Tool

Climate change is increasing the risk of erosion and flooding along the Pictou County segment of the Northumberland Strait and in the flood prone areas along the County's major rivers. The focus in this MCCAP will be on coastal risks, with attention on overland flood risks along rivers in future versions of the MCCAP. The foremost impacts are hurricanes and other high wind events, torrential downpours, and sea level rise. The MOPC plans to access existing data and create new data on high-risk erosion and flood zones. This data will be accessible to property owners in these areas and emergency management organizations, for taking action to adapt to these climate change impacts. The MOPC also plans to provide access to a user-friendly online tool on the MOPC Website that can be used to assess erosion and flooding risks. This tool will be an enhanced version of the Nova Scotia Community College's (NSCC) Maritime Real Time Coastal Flood Risk Mapping Application.



Completing a Database of Coastal Flooding and Erosion Mapping

The MOPC plans to procure the services of NSCC erosion and flooding experts to identify the Northumberland Strait coastline areas vulnerable to erosion and flooding, and develop an online database of the results, which will be integrated with the MOPC Geographic Information System (GIS). The methods to be employed include the examination of historical aerial photos to assess the erosion rates over time, and the use of airborne LiDAR technology for development of high-resolution topographic data to identify flood risk areas.

Enhancing the NSCC Maritime Real Time Coastal Flood Risk Mapping Application

The MOPC also plans to procure the services of NSCC to enhance their existing online Flood Risk Mapping Application tool to include the flood mapping, coastal topography, and predicted coastal erosion data for the County. The tool will be accessible to the public via integration of the application with the MOPC GIS system. A social media plan will be developed to communicate the availability of the new online tool that landowners and emergency professionals can use to predict damage from severe weather events.

Budget

The estimated budget for the Erosion and Flooding Protection action is \$165,000. With the support of the MOPC, NSCC will apply to the Nova Scotia Federation of Municipalities' Sustainable Communities Challenge Fund (the Fund) for a grant to finance 80% of the cost of this climate action. If the application is successful, the MOPC funding contribution to the budget will be \$16,500 and the NSCC in-kind contribution is valued at \$16,500. The Fund supports community efforts to reduce or remove greenhouse gas emissions (Mitigation Stream), or to prepare for and respond to the impacts of a changing climate (Adaptation Stream). Projects in the Adaptation Stream help communities to proactively prepare and respond to climate change, with the goal of reducing vulnerability and exposure of human and natural systems. This project contributes to adaptive capacity, which is a requirement of the Fund.

A core objective of the Fund is to "improve community capacity to adapt in an ongoing way to the changing climate and implement projects that help reduce vulnerability and exposure of human and natural systems". The Erosion and Flooding Protection project is similar to the following types of projects that are eligible for the Fund support:

- Mapping vulnerable and at-risk community infrastructure and services.
- Developing plans to minimize storm damage in coastal areas and manage debris.
- Implementing flood mapping, preparation, and prevention strategies.
- Adapting to sea level rise and managing retreat from shorelines.

Wildfire Protection

Category 5: Mitigating Wildfire Risk in Pictou County

The 2022 publication *Weathering What's Ahead: Climate Change Risk and Nova Scotia's Wellbeing* identified that by the 2050s Pictou County is expected to be the third most vulnerable to wildfires of all NS counties. However, the damage in Pictou County to forested areas caused by Hurricane Fiona in 2023 has increased wildfire vulnerability in the 2020s.

Completing a Wildland Fire Hazard Assessment

The MOPC proposes a project for mitigating wildfire risk in Pictou County, which seeks to hire a FireSmart Coordinator to support wildfire mitigation efforts. The Coordinator will work with municipal staff, academic experts, and community champions to complete a Wildland Fire Hazard Assessment, assessing wildfire risks, gathering data, and engaging the public. By fostering collaboration and prioritizing proactive risk reduction, the proposed initiative will help participating municipalities transition from reactive wildfire response to proactive and long-term resilience and preparedness, ensuring communities are better equipped to address the growing threat of wildfires.

Developing an Implementation Strategy to Reduce Wildfire Risk

Based on the assessment findings, the MOPC will develop a mitigation plan for participating municipalities. By completing wildfire hazard assessments, the project will establish a baseline understanding of wildfire risk across participating municipalities. The results will inform planning, asset management, engagement, and targeted mitigation efforts.



Using a data-driven approach, the municipality can prioritize high-risk areas for FireSmart implementation, including public education, infrastructure upgrades, and vegetation management strategies.

Key solutions include:

• Mapping Fire Risk Zones: Highlighting risk zones within the municipality which can be used

by emergency management and municipal staff to develop plans and mitigation projects.

- *Project Development*: Using data analysis to identify locations for large-scale wildfire mitigation projects, including dry hydrants, fire breaks, and other fire suppression infrastructure.
- Education and Outreach: Enhancing municipal and public awareness by providing accessible information on wildfire risks and mitigation strategies. Valuable information on protection of wildfires is available from FireSmart[™] Canada (<u>Resources | FireSmart Canada</u>).
- Asset Management: Assessing critical infrastructure for FireSmart principles and integrating recommendations into municipal asset management plans to improve resilience.

The MOPC Emergency Services Department is already taking wildfire protection measures. At a meeting in March at the Little Harbour Community Centre, the new MOPC's alert system and the FireSmart program were introduced, and attendees were encouraged to sign up for individual / neighborhood wildfire risk assessments. The Director of Emergency Services has also reached out to fishermen about possible support for people on coastal properties in need of emergency evacuation.

Budget

The estimated budget for the Wildfire Protection action is \$ 700,000. Clean Foundation has identified funding sources for development of wildland fire hazard assessments and mitigation plans, but no applications have been submitted yet for MOPC climate action on wildfire protection.

Emergency Measures

Category 6: Emergency and Evacuation Preparedness Education

The impacts of climate change on Pictou County (see Appendix 4) are increasing the vulnerability of residents to emergency events. For those people that are living or working within flood plain or coastal erosion areas, there is a growing risk of hurricanes, and severe wind and torrential downpour events doing significant damage to properties. Those living in or very near deep evergreen forests have increased risk of wildfires because of the damage done by Fiona and the unpredictability of prolonged dry spells.

Encouraging Citizens to Develop Emergency and Evacuation Plans

The MOPC plans to develop a public education program in two areas to help residents be more

aware of and prepared for emergency events, taking advantage of the resources provided by <u>FireSmart Canada</u>:

 Emergency Preparedness – Development of guidelines that will help County citizens to be ready for and survive emergency events (e.g., disaster supplies kit, graband-go bag, evacuation routes and designated meeting places on the property, etc.).



2. Evacuation Preparedness – Development of guidelines that will help County citizens to create their own evacuation plans for high-risk floods and wildfires (e.g., assessing transportation route options, involving Northumberland fishers in a plan for emergency evacuation by water).

The MOPC may also consider the provision of generators for critical infrastructure such as gas stations and comfort centres.

Budget

The estimated budget for the Emergency Measures action is \$10,000.

Infrastructure Modification Program

Category 7: Assessing and Modifying Vulnerable MOPC Infrastructure

Although the MOPC is only responsible for a limited amount of infrastructure, the Municipality owns facilities that may be vulnerable to climate change impacts in the future (e.g., flooding, erosion, and wildfires). The most significant infrastructure is the MOPC Administration Office, and additional facilities include:

- Wastewater treatment plants Located in Hopewell, River John and Thorburn, where the plant facilities include buildings and settling ponds.
- Lift stations MOPC operates 39 lift stations across the county, systems designed to pump wastewater from lower to higher elevations
- Roads and sidewalks MOPC-owned roads are in Abercrombie, Granton, Lyons Brook,

Pictou Landing, Plymouth and Sylvester, and MOPC-owned sidewalks are in Abercrombie, Alma, Hopewell, Lyons Brook, Priestville, River John, and Riverton.

• Culverts – Drainage infrastructure is in some MOPC-owned roads.

Developing a Strategy to Adapt County Facilities to Climate Impacts



The MOPC staff will create an infrastructure modification strategy, including research on vulnerable facilities and development of an updated inventory of infrastructure that are at risk to climate impacts. The strategy process will use the data and online tool outputs from the *Erosion and Flooding Protection* and *Wildfire Protection* climate actions to identify the facilities that are at high risk and to develop retrofit or replacement plans in each case (e.g., inflow and infiltration reduction strategies, flood-proving, wildfire resilience measures).

Budget

The estimated budget for the Assessing and Modifying Vulnerable MOPC Infrastructure action is \$ 100,000. The MOPC may apply to the Nova Scotia Federation of Municipalities' (NSFM) Sustainable Communities Challenge Fund (the Fund) for a grant to help finance this climate action. The Fund supports climate-ready infrastructure projects such as:

- reinforcement, rehabilitation, or modification of assets that protect community infrastructure and services;
- flood risk mitigation measures or infrastructure projects, such as channel improvement, flow regulation, and
- other flood-proofing measures; and mapping of vulnerable and at-risk infrastructure.

8. Implementation and Financial Plan

MCCAP Implementation

The MCCAP is a 'living document'. One component of implementation involves a requirement to renew and update the MCCAP on an annual basis. The MCCAP is also intended to be a companion document. To be effective, the Municipality believes that the planned mitigation and adaptation actions must involve and be in synchronization with the Municipality's Planning Documents, General Operating Budgets, and Capital Investment Plan. The Municipality will monitor the indicators listed in the Table 8-1 below to measure annually the performance of the MCCAP's climate actions.

Actions	KPIs
1. Replacing the MOPC Transportation Fleet	Number of EV chargers installed (#) Number of EVs purchased (#) Reduction in GHG emissions (tCO2e)
2. Replacing Emission-generating Energy Sources	Reduction in annual electricity consumption (kWh) Reduction in GHG emissions (tCO2e)
3. Enhancing the MOPC Tree Planting Program	Number of seedlings planted (#)
4. Developing a Storm Surge and Flooding Risk Analysis Tool	Number of users of the risk analysis tool (#)
5. Developing a Wildfire Risk Analysis Tool	Number of users of the risk analysis tool (#)
6. Emergency and Evacuation Preparedness Education	Number of users of guidelines (#)
 Assessing and Modifying Vulnerable MOPC Infrastructure 	Number of facilities adapted to climate change (#)

Table 8-1: List of Key Performance Indicators (KPIs)

Success in implementation of the MCCAP will be dependent on the clear assignment of responsibilities for results. For the next year and a half, the MOPC will receive some support from Clean Foundation for implementing the action plan, after which the Community Climate Capacity program will be concluded. While several members of the MOPC staff are already involved in some of the action areas, a full-time climate change/environmental sustainability position has not been created. Given the responsibility loads carried by those existing staff members, adding a person with climate change experience to be responsible for plan implementation will help to ensure that the MCCAP fulfills its potential.

MCCAP Financial Plan

The five-year financial plan (2025-2029) in Table 8-2 below provides high-level cost estimates for implementing the MCCAP's actions. As noted in the Climate Actions section of the MCCAP, the MOPC will have the opportunity to access funding from a range of climate action funding programs. Through the annual MOPC budget process, funding requirements will be confirmed for specific actions at the time of implementation. This will provide an opportunity to evaluate these actions with the most up-to-date costs, resource requirements, available grants, and other identified funding sources. Work is underway to access external funding and support for

some actions in the table, and estimated contributions from external funding programs are shown in **bold** red text.

Actions	Budget	Туре	Budget Year				
Actions	Operating	Capital	2025/26	2026/27	2027/28	2028/29	2029/30
Replacing the MOPC Transportation Fleet Exterior funding from Sustainable Communities Challenge Fund		√	\$50,000 \$40,000	\$125,000	\$125,000	\$125,000	\$125,000
Replacing Emission-generating Energy Sources Exterior funding to be determined		~	<mark>\$</mark>	<mark>\$</mark>			
Enhancing the MOPC Tree Planting Program Exterior funding from Thriving Forests Program	√		\$10,000 \$4,100	\$10,000 \$8,000	\$10,000 \$12,000	\$10,000 \$16,000	\$10,000 \$20,000
Developing a Storm Surge and Flooding Risk Analysis Tool Exterior funding from Sustainable Communities Challenge Fund	~		\$16,500 \$12,000	\$80,000	\$40,000		
Mitigating Wildfire Risk in Pictou County Exterior funding from Sustainable Communities Challenge Fund or	√		\$100,000	\$60,000 \$240,000	\$60,000 \$240,000		
Emergency and Evacuation Preparedness Education	√		\$10,000				
Assessing and Modifying Vulnerable MOPC Infrastructure		~		\$60,000	\$20,000	\$20,000	
MOPC Funding			\$186,500	\$255,000	\$215,000	\$155,000	\$135,000
Exterior Funding			\$56,100	\$328,000	\$292,000	\$16,000	\$20,000
Total Annual Budget			\$242,600	\$583,000	\$507,000	\$171,000	\$155,000

 Table 8-2: Five-Year Financial Plan (2025-2029)
 Image: Comparison of Comparison of

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Appendix 2: Public Policies Impacting Climate Change Action Planning

Jurisdiction	Туре	Name	Description	Impact
Municipal	Policy	Capital Improvement Plan Policy	A blueprint for planning the municipality's capital expenditures. It coordinates the planning fiscal capacity and physical development and is used as a management tool for the budget and planning process.	Greenhouse gas reduction explicitly identified as a priority
Municipal	Policy	Procurement Policy	Provides guidelines for the procurement of all goods, services, construction, and facilities for the Municipality of the County of Pictou.	Requirement for procurement decisions to contribute to goal of net-zero municipal operations by 2030
Municipal	Policy	Municipal Vehicles Policy	Establishes a uniform policy for the purchase and disposition of municipal vehicles and the use of those vehicles by municipal staff.	Specifications that include preference for zero greenhouse gas emission vehicles
Municipal	Policy	Municipal Grants Program Policy	Establishes equitable guidelines for Council Members and Municipal Staff to distribute funds to the not-for-profit sector and charitable organizations in the community.	Recognition and support of the efforts of community organizations to provide environmental programs

Jurisdiction	Туре	Name	Description	Impact
Provincial	Law	Environmental Goals and Climate Change Reduction Act	Nova Scotia's legislation to move towards GHG reduction and environmental sustainability goals. Applies to 15 provincial departments and identifies the goals for the provincial climate change plan.	Creates conditions necessary for making progress toward sustainable prosperity, including regulation, programs and initiatives that encourage actions and innovation by local government, business, non- government organizations and Nova Scotians
Provincial	Law	Coastal Protection Act	Creates protection zones; regulations planned that will set the rules and requirements for new construction in these zones, including the minimum distance from the water.	None until proclaimed, but concern that responsibility for preventing coastal erosion and imposing development setbacks will be imposed on municipalities
Provincial	Regulation	Greenhouse Gas Emissions Regulations	Applies to any facility located in the province that emits greater than 10,000 metric tonnes of carbon dioxide equivalent (10 kt CO2 eq) greenhouse gases in a calendar year.	None expected given that the MOPC does not own any such facilities.
Provincial	Plan	Our Climate, Our Future Nova Scotia's Climate Change Plan for Clean	Represents government's commitment to develop, coordinate and lead actions that promote sustainable	Opportunity for partnerships with provincial government, First Nations, and other community sectors

Jurisdiction	Туре	Name	Description	Impact
		Growth	prosperity for all Nova Scotians.	with funding potential for green building and transportation
Federal	Act	Canadian Net- Zero Emissions Accountability Act	Government's commitment to achieve net-zero greenhouse gas emissions by 2050. A framework of accountability and transparency to deliver on it. Applies specifically to federal departments and agencies and their programs	Funding available for buildings, waste, transportation, and nature-based solutions
Federal	Plan	2030 Emissions Reduction Plan	Roadmap that outlines a sector-by-sector path for Canada to reach its emissions reduction target of 40 percent below 2005 levels by 2030 and net-zero emissions by 2050.	Funding available through Low Carbon Economy Fund, Greener Homes Grant, Green and Inclusive Community Buildings program, Public Buildings Retrofits Imitative, Net Zero Building Code Acceleration Fund, Nature Smart Climate Solutions Fund, and On-Farm Climate Action Fund

Appendix 3: The MOPC Policy Modifications

The following tables show changes to Municipal Policies made by Municipal Council. The intention in making these changes was to help reduce the impacts of climate change on the Municipality by adapting existing policies. The following text includes the wording of existing policies and, <u>underlined in italics</u>, the changes made.

Capital Improvement Plan Policy

Clause	Wording
6.6.4	Environmental, Aesthetics and Social Impacts: Will the project reduce pollution
	levels and greenhouse gas emissions, improve appearance of neighbourhoods,
	or ensure community values are achieved.
6.7.1	Essential: High priority projects that are necessary for the municipality. These
	include projects that are required to complete a major public improvement;
	projects that address an emergency or remedy a condition dangerous to public
	health, welfare or safety; projects that will produce a measurable reduction in
	greenhouse gas emissions; projects that would provide facilities for a critically
	needed community plan.

Procurement Policy

Clause	Wording								
2.	The Municipality of the County of Pictou ("Municipality") is committed to:								
	<i>f. ensuring that procurement decisions contribute to the goal of net-zero</i>								
	municipal operations by 2030.								
6.	Best Value means "Evaluating bids not only on purchase price and life cycle cost								
	considerations, but also taking into account items such as environmental								
	considerations (including greenhouse gas emissions) and social considerations,								
	delivery, servicing, and the capacity of the supplier to meet other criteria as								
	stated in the tender documents."								

Municipal Vehicles Policy

Clause	Wording
Acquisition	Public tenders for the purchase of municipal vehicles will be called by
of Vehicles	the Municipal Treasurer in accordance with the Municipality's Municipal
	Officers Policy. The Municipal Treasurer will provide all prospective
	bidders with a list of specifications for the vehicles required. <u>The</u>
	specifications will include preference for zero greenhouse gas emission

vehicles, unless operational requirements for the vehicle clearly exclude
this specification.

Municipal Grants Program Policy

Clause	Wording
1)b)	For the Municipality to recognize and support the efforts of community
	organizations to provide cultural, social, <u>environmental,</u> heritage, economic,
	recreation programs, facilities and events to the benefit of municipal residents.
10)a)i)	Application is consistent with Council's Strategic Priorities, Recreation Master
	Plan, Capital Improvement Plan, or other formal documents approved by
	Council.

Appendix 4: Climate Change Impacts Research

Historical Impacts of Severe Weather Events

Date	Event Type	Event Name	Event Impact
April 1815	Temperature	Mt. Tambora eruption	Lead to the "year without a summer." Estimates of temperature drops were as much as 2.6° C in northern regions. Abnormally cold temperatures during the growing season with poor crop production led to restrictions in exports of crops from Lower Canada and the Maritime colonies to protect domestic supply (McGuigan, 2016).
October 4-5, 1869	Wind	Saxby Gale	Traveled up the west side of the Bay of Fundy during a period of higher than normal (perigean) tides causing immense flooding in the Bay of Fundy and Minas basins. The Tantramar Marsh dyke system failed and the railway line between NB and NS was cut off (Snoddon, 2019).
August 24, 1927	Wind	Great August Gale	Decimated the Lunenburg fishing fleet (Wikipedia, 2023).
Spring 1967-69	Wildfire	Linacy/Pine Tree Fire	(No citation found)
August 15- 16, 1971	Wind	Hurricane Beth	Produced 296 mm of rain in Nova Scotia; caused an estimated \$3.5 to \$5.1 million in flood damage; damage to crops was extensive, sections of highways and bridges were washed out; fresh water supplies in Dartmouth, Nova Scotia were left contaminated for days because of extensive runoff (Environment Canada, 1993)
October 20, 1974	Wind		Produced severe snowfall, winds, and power outages; breached the Merigomish beach/ causeway (Johnson, 1986).
Summer 1975	Precipitation		Negligible precipitation from the latter part of June until the end of September; severe drought necessitated pumping water from an adjacent watershed to assure Westville's

Date	Event Type	Event Name	Event Impact
			water supply (Environment Canada, 1975).
February 2-3, 1976	Wind	Groundhog Day Storm	Damaged homes, fishing gear, caused power outages and extensive flooding (Johnson, 1986).
June 1976	Wildfire	Porcupine Lake/Trafalgar Fire	Largest fire in NS prior to 2023 Shelburne/ Barrington Lake Fire. Approximately 13,000 hectares burned (Department of Natural Resources, 2009).
Summer 1997	Precipitation		The crop growing season was severely impacted by the previous winter's winterkill and no effective rainfall from July until October. The drought included Eastern Canada as far west as Guelph/ Waterloo, Ontario, and occasioned livestock herd reductions due to lack of feed (Environment Canada, 1997).
September 2002	Health		First confirmed case of Lyme acquired in N.S. (Government of Nova Scotia, 2002). The presence of deer ticks (Lyme vector) was confirmed in Pictou County in August 2010 (CBC News, 2010).
September 29, 2003	Wind	Hurricane Juan	Canada's most destructive hurricane in 100 years when it hit Halifax; damage was estimated at over \$192 million in the affected provinces (MacDonald, 2023).
February 17-18, 2004	Wind	White Juan	Winter nor'easter with high winds and record-breaking snowfall approaching 100 cm. in the Halifax region (Wikipedia, 2023).
September 7, 2019	Wind	Hurricane Dorian	Hit Nova Scotia as a large post-tropical storm. Exposed much of Nova Scotia to winds greater than 100 kmh., with Caribou Point in Pictou County recording 122 km/h. 400,000 people were left without power in Nova Scotia (Snoddon, Ryan, 2020). Insurance damage was estimated at greater than \$100 million for Atlantic Canada (Saltwire Network, 2019).
September	Wind	Hurricane	Came ashore near Canso, N.S. as a strong extra-tropical storm, with peak wind gusts of

Date	Event Type	Event Name	Event Impact
22, 2022		Fiona	179 km/h. recorded at Arisaig, N.S.; over 80% of Nova Scotians were without power at some point during the storm and its aftermath. Insured losses exceeded \$800 million dollars making it the costliest storm in Atlantic Canadian history (Wikipedia, 2023).
April and May, 2023	Temperature		Average world ocean temperatures highest on record (since 1850s) with exceptional higher temperature anomalies being reached in eastern parts of the North Atlantic (Paddison, 2023).
May-June, 2023	Wildfire	Upper Tantallon and Barrington Lake fires	Burned 25,000 ha., almost twice the area burnt in the 1976 Trafalgar fire and destroyed over 200 homes (CBC News, 2023).
July 22-23, 2023	Precipitation	Halifax Area Flooding	Up to 250 mm of rain in six to eight hours in parts of the HRM. Overall, the worst deluge since 1971's Hurricane Beth (Ryan Snoddon, 2023).
Summer of 2023	Precipitation		One of the rainiest on record for Nova Scotia. Pictou County saw rainfall totals in the 500- 600 mm range (Ryan Snoddon, 2023).
Year of 2023	Temperature		Likely to be the hottest year on record, in fact, for the last 125,000 years (Kate Abnett and Gloria Dickie, 2023). Since then, 2024 was the hottest year on record.

Climate Predictions

The <u>Climate Atlas of Canada</u> is an interactive tool for citizens, researchers, businesses, and community and political leaders to learn about climate change in Canada. A climate change map allows you to explore climate change information for your region. The following two figures show predicted changes in climate variables under two greenhouse gas (GHG) emission scenarios in a region centered in New Glasgow. The High Carbon scenario (RCP8.5) assumes that emission of very large amounts of carbon dioxide from the burning of fossil fuels will continue. The Low Carbon scenario (RCP4.5) assumes that drastic reductions of emissions in the coming decades will stabilize the concentration of GHGs in the atmosphere by the end of this

century (Prairie Climate Centre, 2019).

These tables illustrate the probable difference in climate impacts that significant GHG emission reductions will have. The differences in temperature and precipitation changes between the "business as usual" and reduced emissions scenarios are evident. For example, by the 2051-2080 period, the mean annual precipitation will increase by 22 mm, the mean annual temperature will increase by 1.3°C, and there will be 11 more very hot days (+30°C) and 9 more tropical nights.

RCP 8.5: High Carbon climate future GHG emissions continue to increase at current rates								
1976-2005							2051-2080	
Variable	Period	Mean	Low	Mean	High	Low	Mean	High
Precipitation (mm)	annual	1165	1042	1226	1422	1086	1272	1469
Precipitation (mm)	spring	266	204	285	375	211	299	393
Precipitation (mm)	summer	247	175	258	364	172	266	387
Precipitation (mm)	fall	330	235	337	446	239	343	456
Precipitation (mm)	winter	322	258	345	439	273	364	470
Mean Temperature (°C)	annual	6.3	7	8.2	9.7	8.8	10.3	11.9
Mean Temperature (°C)	spring	3.6	3.5	5.4	7.4	5.2	7.3	9.6
Mean Temperature (°C)	summer	17.4	17.6	19.3	21.1	19.5	21.5	23.5
Mean Temperature (°C)	fall	8.9	9.2	10.8	12.4	11	12.7	14.4
Mean Temperature (°C)	winter	-5.1	-5.1	-2.9	-0.4	-3	-0.6	1.7
Tropical Nights	annual	1	0	5	13	6	18	35
Very Hot Days (+30°C)	annual	3	2	11	22	10	27	47
Very Cold Days (-30°C)	annual	0	0	0	0	0	0	0
Date of Last Spring Frost	annual	May 11	April 14	May 2	May 16	April 1	April 20	May 8
Date of First Fall Frost	annual	Oct. 12	Oct. 11	Oct. 27	Nov. 15	Oct. 22	Nov. 9	Nov. 27
Frost-Free Season (days)	annual	152	151	176	203	173	201	229

Climate Predictions for a High Carbon Future

Source: Climate Atlas of Canada

N.B. The 2023 summer rainfall in Northern Nova Scotia already exceeded the high scenario for 2051-2080

1976-2005 2021-2050 2051-2080								
Variable	Period	Mean	Low	Mean	High	Low	Mean	High
Precipitation (mm)	annual	1166	1027	1223	1418	1057	1250	1470
Precipitation (mm)	spring	267	205	281	363	209	288	376
Precipitation (mm)	summer	248	170	258	363	172	263	373
Precipitation (mm)	fall	330	229	340	453	242	350	465
Precipitation (mm)	winter	322	262	344	436	264	349	435
Mean Temperature (°C)	annual	6.3	6.8	8.1	9.5	7.6	9	10.7
Mean Temperature (°C)	spring	3.6	3.3	5.3	7.3	4.1	6.2	8.7
Mean Temperature (°C)	summer	17.5	17.3	19.2	21	18.1	20.1	22.3
Mean Temperature (°C)	fall	8.9	9.1	10.5	12.1	9.7	11.4	13.2
Mean Temperature (°C)	winter	-5.1	-5.3	-3	-0.5	-4.3	-1.9	0.5
Tropical Nights	annual	1	0	5	12	1	9	21
Very Hot Days (+30°C)	annual	3	2	10	21	4	16	33
Very Cold Days (-30°C)	annual	0	0	0	0	0	0	0
Date of Last Spring Frost	annual	May 11	April 13	May 2	May 16	April 7	April 27	May 14
Date of First Fall Frost	annual	Oct. 12	Oct. 9	Oct. 25	Nov. 12	Oct. 15	Oct. 31	Nov. 19
Frost-Free Season (days)	annual	152	148	173	200	159	184	214

Climate Predictions for a Low Carbon Future

Source: Climate Atlas of Canada

The 2022 publication *Weathering What's Ahead: Climate Change Risk and Nova Scotia's Wellbeing* identified thirteen different future risks related to oncoming climate change (Department of Environment and Climate Change, 2022):

- Pluvial flooding, or overland flooding from heavy rainfall.
- Fluvial flooding when rivers, lakes, or streams overflow because of heavy rain or melting snow.
- Vector-borne diseases, like Lyme disease, that affect humans.
- Sea level rise and coastal flooding.
- Wildfires in forested and grassland areas.
- Combination of climatic changes that can increase agricultural pests and diseases.
- Combination of climatic changes that cause shifts in habitats and species composition that change the characteristics of ecosystems.
- Heat extremes that can damage agricultural crops or harm animals.
- Heat extremes that can damage transportation infrastructure, such as roads or rail lines.
- Heat extremes that can damage ecosystems.
- Heat extremes that can damage human health.
- Increased demand for energy to cool buildings.
- Drought where the availability of freshwater is significantly reduced.

The following figure lists the five anticipated top ranked climate hazards to the well-being of Nova Scotians over the 21st century when compared to the historical climate (1981-2010) (Ibid).



Top Ranked Climate Hazards for Nova Scotians

Source: Weathering What's Ahead: Climate Change Risk and Nova Scotia's Well-being

The next table indicates the relative position of Pictou in Nova Scotia counties in terms of Vulnerability (i.e., propensity or predisposition of exposed elements such as human beings, their livelihoods, and assets, as well as natural systems, to suffer adverse effects when impacted by climate hazards), Sensitivity (i.e. susceptibility of natural capital, manufactured capital, people, etc. to adverse or beneficial effects when exposed to climate impacts), and LCC (i.e., low coping capacity) factors (ESSA Technologies, 2022).

				2050s					
	Pluvial (overland) Flo	oding	Fluvial (riverine) Flo	oding	Wildfire		
	Vulnerability	Sensitivity	LCC	Vulnerability	Sensitivity	LCC	Vulnerability	Sensitivity	LCC
1	Digby	Kings	Digby	Digby	Halifax	Digby	Digby	Halifax	Digby
2	Annapolis	Pictou	Annapolis	Annapolis	Kings	Annapolis	Shelburne	Shelburne	Queens
3	Pictou	Hants	Shelburne	Pictou	Hants	Shelburne	Pictou	Colchester	Annapolis
4	Colchester	Cumberland	Queens	Halifax	Lunenburg	Queens	Cumberland	Cumberland	Pictou

Source: Understanding Climate Change Impacts in Relation to Wellbeing for Nova Scotia

The 2030s are dominated by flooding events, with Pictou County estimated to be the third most vulnerable to overland and river flooding. For the 2050s the greatest risk shifts to forest fires, and Pictou County shows up there again in the top four counties, at number three for

vulnerability to wildfire. However, by the 2080s, the study identified extreme heat effects on agriculture as being the biggest risk, and Pictou County does not fall into the most at-risk counties for that category. While these predictions of future climate change impacts are harmful, it is important to note that the *Weathering the Future* report also acknowledges that there will be some positive offsets to a warming climate, primarily reduced winter heating costs, the possibility of greater diversification in agricultural crops, and a longer season for tourism.

In considering what future climate impacts may occur in Pictou County and what mitigation and adaptation strategies could be appropriate, it may be wise to keep a few other potential future climate impacts in mind.

Climate Model Limitations

A more rapid rise in global temperatures than predicted by most models may be in the offing. A recent report by several prominent scientists, including James Hansen, sometimes considered the "godfather of global warming", indicates that current climate models have not included the effects of cleaner air (less particulates in the air) which allows for more solar radiation to hit the earth. Apparently cleaning up the quality of fuel burned by global shipping has produced this extra heat, which would then lead to more rapid global warming (James E Hansen, 2023).

Coastal Erosion

Coastal erosion is the loss or changes to land over time due to the action of water movement, such as waves, currents and/or tides. The rate of erosion is determined by the magnitude of these actions. Larger waves, stronger currents and tides due to weather events, such as storms, strong winds and increased rainfall result in greater rates of erosion. There are several climate change factors that contribute to this increased erosion, including larger and more severe weather events, waves and storm surge, and less shoreline protection due to reduced winter ice cover.

Differing underlying geologies can produce significantly different rates of erosion, and the Northumberland Strait area is particularly vulnerable. The till/bluff headlands along the Northumberland Strait in Nova Scotia have been receding at an average annual rate of 0.4m/year over the period of 1964-2005. Physical impacts of increased erosion include loss of critical infrastructure, such as roads and bridges, which may interrupt emergency services. Besides injury and threats to life, social and economic impacts of erosion include loss of employment, threats to drinking water, reduction in marine industries, loss of recreational opportunities and displacement of people (Amaratunga, 2025).

Sea Level Rise and Warming

Sea levels are rising because glaciers and ice sheets are melting, and seawater is expanding as it warms. From 1880 until the early 21st Century, global sea levels have risen a total of 20-24 cm (8-9 inches). In the past, melting ice and warming both contributed equally to this rise. But recently, the melting ice from Greenland and Antarctica has become the main cause. From 1900 to 2009, sea levels rose an average of about 1.7 mm (0.07 inches) per year, but from 1993 to 2009, this rate increased to 2.8-3.2 mm (0.11-0.12 inches) per year. Predictions suggest sea levels could rise more than 25 mm (1 inch) per year by 2100, about ten times the current rate. In Pictou County, the sea is also rising faster because the southern parts of maritime Canada are sinking (Lindsey, 2023).

Along with contributing to sea level rise, rising ocean temperatures will have other adverse effects on our region. Distribution of commercially important fish species that are dependent on cool water will move farther north or to deeper cooler water if available. Warming temperatures are also increasing the risk of invasive species (e.g., tunicates) finding suitable habitat and displacing our local cool water adapted species. Another implication of warmer sea temperatures is increased acidification of sea water. Increased acidity impacts all species of shellfish, including lobsters, mussels, clams, and oysters, by impacting shell growth and reproductive processes (Jean-Pierre Savard, 2016).

Running "AMOC"

The Atlantic Meridional Overturning Circulation is a system that distributes heat from tropical waters northward and is what keeps places like Britain and Scandinavia habitable with its heat. The AMOC is part of a global system, "the thermohaline conveyor belt" of warm and cold currents, that distributes heat all over the planet. Some scientists feel this current may break down as early as 2025 which would cause major difficulties in terms of a colder North America and Europe (Carrington, 2023).

Droughts

Even though droughts are often linked to places like the Prairies, Pictou County can experience dry weather too. As the climate warms, we might see more wildfires and heatwaves affecting agriculture by the 2080s, suggesting more droughts. Pictou County has had droughts before, like in 1975 and 1997. In 1975, water had to be pumped from a nearby watershed to supply

Westville. In 1997, a lack of rain harmed livestock farmers, forcing them to buy expensive feed and, in some cases, sell their herds. The water level gauge graphs in the following charts on the Middle River in Rocklin (pictured left) tells the story for those two years. As is obvious in both graphs, there wasn't much water in the Middle River during the June-October growing season. Droughts are also affecting the some 80% of residents that rely on well water in the County.



Food Supply

Pictou County, like the rest of Nova Scotia, doesn't grow enough food to meet all it's needs. Another breach in the Chignecto Isthmus would have a significant impact on the food supply of Nova Scotians and on trade in general, cutting off the rail and trucking links of the Port of Halifax to the rest of Canada. This could happen in just about any hurricane season. Indeed, it already has during the Saxby Gale in 1869, and the rail link was also temporarily cut off in another location after a recent flood. It becomes more of a statistical risk, however, as relative sea levels rise in the absence of significant dike strengthening or development of new transportation corridors across the Isthmus, as proposed in a 2012 study (Tim Webster, 2012).

Even if the Tantramar connection remains open, bad weather can still ruin crops and affect our food supply. For example, long droughts on the prairies can reduce our grain and meat supplies. Nova Scotia grows a lot of fruits and vegetables, but unpredictable weather has caused problems recently. In June 2018, frosts hurt the fruit sector, and hurricanes in September have damaged crops. The polar vortex in winter 2023 also harmed fruit trees.

Climate Refugees

As temperatures rise, there may be a significant movement of people from warmer climates north to Canada, or from within Canada. Nova Scotia has already seen some of the issues that accompany rapid in-migration with the recent increases in Nova Scotia's population, powered by people's desire to escape dense urban areas in other provinces that are prone to pandemics like COVID, or to participate in a less expensive real estate market (Willick, 2023). This arrival has coincided with some significant reduction in medical and housing availability.

Climate change impacts are making many regions of the world less hospitable, and Canadian immigration experts are urging the Government of Canada to begin considering ways to open its doors to a potential flood of climate refugees (Heisler, 2022). The social friction caused by future population influxes might also be exacerbated by the immigrants' ability to outbid current Nova Scotians because of the high cash out value of urban real estate, relative to the cost of Nova Scotian real estate. Under this scenario, rapid adaptation in housing, medical personnel and infrastructure, and educational infrastructure would be necessary.

Property Insurance

A significant contraction in real estate insurance coverage and real estate insurance cost increases are not unrealistic concerns. Some major insurance firms in the U.S. have already

refused to renew insurance coverage in high climate risk areas like California (wildfires) and Florida (hurricanes) (Alonzo, 2023). Should similar insurance losses prompt property insurers in Nova Scotia to do the same, there will arise significant pressure on the Provincial government to provide some sort of insurance alternative, to help property owners preserve their properties' liveability and market values. The government assumption of real estate property risk from private insurers for dangers like flooding has proven to be a moral hazard in the U.S., where buyers continue to occupy at risk properties, knowing the government "has their back" (Starbuck, 2016). This increases the cost of governing in two ways, by assuming the climate damage costs, and through the extra cost of hardening climate infrastructure in those areas, to mitigate those risks, when the areas should have been abandoned. Nova Scotia provided a flood relief program to those hit by the July 2023 floods (CBC News, 2023).

There are several adverse effects that can come from all this. For example, what happens to the property owner and property value when insurance is not available, and it is time for mortgage renewal? What happens to the cash flow of municipalities when the assessed value of at-risk of at-risk properties rise? How do increased bond yields affect the ability of municipalities to finance risk mitigation? (Union of Concerned Scientists, 2018).

Human Health

Climate Change makes natural hazards like storms, floods and heatwaves worse, leading to injuries and all kinds of health problems. Vulnerable groups, including Indigenous peoples and rural residents, face greater risks due to less infrastructure and existing challenges. Water quality and quantity are affected by changes in precipitation and temperature. This can threaten drinking water, increase waterborne diseases, and cause injuries from heavy rainfall. Air pollution also worsens due to climate change, with wildfires and more pollen contributing to poorer air quality. This affects people with conditions like asthma or heart disease, especially the elderly and children. Extreme weather events like floods can also harm indoor air quality. Mental health can suffer from both short-term events like hurricanes and long-term changes like sea-level rise. These disruptions can cause fear, grief, anxiety and weaken community bonds.

One of Pictou County's health impacts from climate change is the risk of Lyme Disease from ticks. Nova Scotia's climate is ideal for ticks and there are more ticks per person here than in other parts of Canada. Warmer weather allows ticks to live longer and spread to new areas. Higher temperatures and more rain help ticks and the diseases they carry spread faster. New diseases like Anaplasmosis, Babesiosis, Powassan virus, and Borrelia miyamotoi disease are becoming more common (CBC News, 2010).

Carbon Credits

The Greenhouse Gas Offset Credit System program may allow the municipality to earn carbon offset credits for approved projects that could then be sold to industry. Offset credits are tradeable units representing verified (CBC News, 2010) GHG reductions achieved by a project either by reducing GHG emissions or increasing GHG removals from the atmosphere. Each offset credit is equivalent to one tonne of carbon dioxide reduced or removed from the atmosphere. Further information on Canada's Greenhouse Gas Offset Credit System, including regulations, protocols, tracking systems and public registry and a GHG Offsets Toolkit is available at <u>Canada's Greenhouse Gas Offset Credit System - Canada.ca</u> (Government of Canada, 2025).

Appendix 5: Support and Funding Mechanisms for Climate Change Action Planning and Implementation

Support Mechanisms

Mechanism Name	Organization Name	Contact	Description	Application Process
Community Climate Transitions Cohort Program	Tamarack Institute	Laura Schnurr, Director, Climate Transitions <u>laura@tamarac</u> <u>kcommunity.ca</u> Kieran Maingot, Manager of Communities <u>kieran@tamara</u> <u>ckcommunity.ca</u>	The Climate Transitions Cohort is a unique opportunity for communities across Canada to learn to build and/or advance a whole-of-community climate action plan. Applicants join a group of communities from across Canada to develop and implement community plans for a just and equitable climate transition. Community changemakers learn how to develop a shared vision for local climate action and set a common agenda with local stakeholders In addition, the Cohort doubles as a community of practice for rapid experimentation and prototyping of solutions aimed at advancing the development and implementation of a successful climate transition plan. Cohort members have access to, for example: Monthly cohort sessions with guest speakers on a range of relevant topics Six coaching sessions with professional coaches from the Tamarack Learning Centre One-on-one support from the Community Climate Transitions team Access to leading resources on developing transition plans	Online Application Form Submission by Dec. 1, 2023

Mechanism Name	Organization Name	Contact	Description	Application Process
			 An opportunity for rapid prototyping, and peer feedback on program design, piloting, and launch 	
Community Climate Capacity (CCC) Program	Clean Foundation	Sydney Griffiths sgriffiths@clean foundation.ca Rachel Mitchell rmitchell@clean foundation.ca Logan Horrocks Ihorrocks@clea nfoundation.ca Mary Best marybest@clea nfoundation.ca	The CCC program works with 15 Nova Scotian communities over three years, supporting their climate and sustainability measures by helping to identify their climate challenges and implement adaptation and mitigation actions. The CCC program provides communities with the dedicated staff of specialists who can help guide them through climate and sustainability initiatives at the local level. Projects eligible for CCC support may include: developing a climate plan; implementing elements of an existing climate plan; undertaking adaptation or mitigation measures; improving asset management or completing grant applications for funding to support climate initiatives. Successful applicants have access to a team of climate specialists to support local climate initiatives. Climate Leads can also help communities source and apply for funding for climate initiatives in their host communities.	Online Expression of Interest Form Submission by Early Nov. 2023 Online Application Form Submission by Dec. 13, 2023

Mechanism Name	Organization Name	Contact	Description	Application Process
CLIMAtlantic	CLIMAtlantic	Alex Cadel, Climate Services Specialist alex.cadel@nov ascotia.ca (902) 717-5936	 CLIMAtlantic facilitates access to regionally relevant climate information and supports its effective use in planning and decision making for the Atlantic Provinces. Regional climate data hubs support efforts to make all communities more resilient to extreme weather events. Tools available on the CLIMAtlantic website include: Networking Map; A platform for users to search and find individuals and organizations working on climate adaptation. Coastal Adaptation Toolkit; A toolkit to help Atlantic rural coastal communities and property owners plan for the effects of climate change. Adaptation Library; A collection of publicly accessible and searchable climate adaptation documents, tools, and products. Funding Opportunties; A list of regional, provincial and national climate adaptation funding programs, as well as opportunities for Indigenous applicants. CLIMAtlantic also provides access to information on climate change impacts and adaptation in multiple economic sectors, as well as climate data and a very useful learning zone from ClimateData.ca. 	N/A
Local Governments for Sustainability	ICLEI		This mechanism is a global network of more than 2,500 local and regional governments committed to sustainable urban development. They influence sustainability policy and drive	N/A

Mechanism Name	Organization Name	Contact	Description	Application Process
			local action for low emission, nature-based, equitable, resilient and circular development. Members and a team of experts work together through peer exchange, partnerships and capacity building to create systemic change for urban sustainability.	
Community Climate Hubs (CCH) Program	Climate Reality Project Canada Halifax Climate Hub	Tara Day, HRM Climate Transitions Cohort – Team Lead <u>taraclimatework</u> @gmail.com	 The CCH program works to empower and connect citizens and grassroots groups across municipalities together through the Community Climate Hub model and overarching Hub network. The Climate Reality Project Canada provides administrative support and the creation of quality resources so that people with boots on the ground can focus on what's important: pushing the climate movement forward with their campaigns. Resources that are available include: Hubflix Webinars; experts in transportation, sustainable business, energy, urban planning, and public engagement to learn more about good practices that will inspire your community Toolkits; for example Community Climate Hubs handbook, a toolkit for Hub members to help direct their municipalities to take meaningful climate action for a just, liveable future for all; Best Practices Series, reference docs that summarize best practices in 	N/A

Mechanism Name	Organization Name	Contact	Description	Application Process
			 a range of topics relevant to local climate action; Video Playlist, discovering how cities are leading on climate & what role citizens are playing in pushing them forward 	
<u>Climate</u> <u>Caucus</u> <u>Network</u>	Climate Caucus	Alex Lidstone, Executive Director <u>alex@climateca</u> <u>ucus.ca</u>	 Climate Caucus serves as: a meeting place for local elected leaders to connect; a centralized location for local government climate policy in Canada; and a collective force to advocate at the regional, provincial, territorial, and federal orders of government. Resources that are available include: Councillor's Handbook; a toolkit for local elected leaders (and their allies) written by local elected leaders for local elected leaders More Tools for Local Elected Leaders; policies, motions, and inspiring examples of local government action on buildings, biodiversity, transportation, equity, waste, and more 	N/A
<u>Climate</u> <u>Change</u> <u>Services</u>	Canadian Centre for Climate Services (CCCS)		 CCCS is a dedicated multi- disciplinary team with expertise across a broad range of climate- related disciplines. CCCS works with partners and stakeholders to support the implementation of the Pan-Canadian Framework on Clean Growth and Climate Change. CCCS helps Canadians understand, and become more resilient to climate change by: delivering climate services driven by user needs; providing access to climate information; 	N/A

Mechanism Name	Organization Name	Contact	Description	Application Process
			 building local capacity; and offering training and support. CCCS teams up with regional climate organizations (e.g., CLIMAtlantic) to provide locally- relevant information to their users and build a strong network of climate service providers. 	
<u>Climatedata.c</u> <u>a</u>	Canadian Centre for Climate Services		ClimateData.ca is a climate data portal produced collaboratively by the country's leading climate organizations and supported, in part, by the Government of Canada. The goal of this portal is to support decision makers across a broad spectrum of sectors and locations by providing the most up to date climate data in easy- to-use formats and visualizations.	N/A
Partners for Climate Protection (PCP) Program	Federation of Canadian Municipalities and ICLEI— Local Governments for Sustainability		The PCP program consists of a five-step Milestone Framework that guides municipalities to take action against climate change by reducing emissions in their municipality. PCP membership is free and provides access to tools, case studies, and other informational resources, as well as support from the PCP Secretariat and Regional Climate Advisors.	N/A

Funding Mechanisms

Mechanism Name	Organization Name	Contact	Description	Application Process
Sustainable Communities Challenge Fund	Nova Scotia Federation of Municipalities (NSFM)	Brandon Durkee, Grant Coordinator info@sccfns.ca	This fund is a provincial grant program for local action on climate change in Nova Scotia. It supports community efforts to reduce or remove greenhouse gas emissions, or to prepare for and respond to the impacts of a changing climate. The Fund provides non-repayable grants up to 80% of the eligible project costs, and a maximum of \$1,000,000 per project. An applicant must make a financial contribution to the project, which may be a combination of cash and in-kind. Projects with a higher value grant request are expected to make a larger contribution, which can include other funding sources. The core objectives are to: • Support the implementation of initiatives that avoid and reduce greenhouse gas emissions and contribute to Nova Scotia's targets for emission reduction; and/or • Improve community capacity to adapt in an ongoing way to the changing climate and implement projects that help reduce vulnerability and exposure of human and natural systems.	Online Application Forms Pre-screening deadline Nov. 14, 2023 Full application deadline Nov. 28, 2023 Evaluation of submissions Jan./Feb. 2024 Notification of funding decisions to Applicants Mar./Apr. 2024
<u>Workforce</u> <u>Development</u>	Clean Foundation	cleanleadership @cleanfoundati on.ca greenjobs@clea nfoundation.ca	Clean Foundation's paid internship programs help open doors for youth looking to gain meaningful work experience in the growing environmental sector across the country. The Clean Leadership Summer Internship Program provides paid	Online Application Forms Jan. 2024

Mechanism Name	Organization Name	Contact	Description	Application Process
		sciencehorizons @cleanfoundati on.ca 902-420-3474	employment opportunities for youth looking to work in Nova Scotia's growing clean economy. The Green Jobs Internship program provides employment opportunities for youth in Canada's natural resources sector. The Science Horizons Internship Program provides employment opportunities for youth in Canada's environmental sector.	
Green Municipal Fund (GMF)	Federation of Canadian Municipalities	gmfinfo@fcm.ca 1-877-417-0550	The GMF helps local governments switch to sustainable practices faster. GMF is a \$1.6 billion program funded by the Government of Canada. Included are various components such as grants for: • community building monitoring and analysis; • collecting data on existing buildings to improve maintenance decision-making; • building commissioning grants to ensure building systems are operating at optimal levels; and • GHG reduction pathway feasibility to help determine the best approach to achieving near net zero community recreational and cultural facilities. There is also capital funding for retrofits which reduce GHG emissions in a local recreational or cultural facility and for a capital "pathway project" which would achieve near-net zero carbon community buildings over time. Capital loan combined with grant: • Loan to a maximum of \$10 million	Applications are accepted year round, though this offer will close when all the funding has been allocated

Mechanism Name	Organization Name	Contact	Description	Application Process
			 Grant of up to a maximum of 50% of the loan amount to support start-up and operating costs The combined loan and grant can cover up to 80% of total eligible program costs 	
Community Climate Transitions Innovation Fund (CCTIF)	Tamarack Institute		The CCTIF funds projects that focus on sharing resources, reciprocal models of support, increasing awareness and engagement, and equity- centered climate mitigation and adaptation solutions. Applicants must represent a nonprofit, community organization or resident-led group, municipality, or multi- sector collaborative focused on developing community-level solutions that advance a just and equitable climate transition.	Online Application Form Submission by August
<u>TD Friends of</u> <u>the</u> <u>Environment</u> <u>Foundation</u>	TD Bank Group	tdfrf@td.com	This foundation supports a wide range of environmental initiatives, with a primary focus on environmental education and green space programs. Eligible projects include schoolyard greening, park revitalization, community gardens, park programming and citizen science initiatives. Funding requests are needs based, and there is no set minimum or maximum amount. However, the majority of grants are between \$2,000 and \$8,000.	Online Application Forms Winter submission deadline: Jan. 15th Summer submission deadline: Jul. 15th
2 Billion Trees (2BT) Program	Natural Resources Canada	2btrees- 2garbres@nrca n-rncan.gc.ca	The 2BT program provides financial support to organizations to plant trees over 10 years. These trees will capture and store carbon from the atmosphere, improve air and water quality, help to restore nature and biodiversity, cool urban centres,	Online Application Forms Tree Planting Stream Application Deadlines:

Mechanism Name	Organization Name	Contact	Description	Application Process
			 and create and support thousands of green jobs. The 2BT program has an ongoing call for proposals – applications can be submitted anytime. The program will process and assess proposals based on the submission date and provide decisions at specific intervals. The funding streams are: Tree Planting Stream: for organizations, including for- profit organizations and non- profit organizations interested in tree planting projects. Capacity Building Stream: for non-profit organizations seeking to focus on activities that build and transfer knowledge, expertise and experience related to planting and managing trees and forests. The program prioritizes projects that demonstrate that the funded activities will directly support future 2BT planting activities.	Apply by Jan. 18, 2024, for a decision by Jul. 2024 Apply by May 16, 2024, for a decision by Nov. 2024 Apply by Sep. 19, 2024, for a decision by Mar. 2025 Capacity Building Application Deadline: Apply by Nov. 30, 2023, for a decision by May 2024
<u>Community</u> <u>Tree Grants</u> <u>Program</u>	Tree Canada	R. Seltzer, Community Tree Grants Program Manager <u>rseltzer@treeca</u> <u>nada.ca</u>	Tree Canada helps schools, community groups, Indigenous communities and municipalities across Canada looking to plant trees or develop green infrastructure through creative projects. This includes supporting planting projects as well as developing and implementing urban forest good management practices and innovative urban design solutions. Grants provide support for community greening, innovation and stewardship initiatives. Two grants are: • Greening Canada's School Grounds: This grant helps	Online Application Forms Applications open annually in early Oct. Submission deadline: Dec. 3rd

Mechanism Name	Organization Name	Contact	Description	Application Process
			 support school greening projects that in turn enhance the learning experience for students and strengthen their relationship with nature. Grant amount: Up to \$10,000. Treemendous Communities: This grant encourages and supports community tree planting projects that create long-lasting benefits where people live, work or play. Grant amount: Up to \$10,000. 	
<u>National</u> <u>Greening</u> <u>Program</u>	Tree Canada	R. Vanwagner, National Greening Program Manager <u>rvanwagner@tr</u> <u>eecanada.ca</u>	The National Greening Program supports landowners with their tree planting projects where there is a need for forest rehabilitation, afforestation or ecosystem restoration. Eligible properties include: areas formerly used for crop rotation; meadows, grasslands and riparian areas; and woodlands that could use enhancement. Plant-able area must be a minimum of 4 hectares (10 acres).	Online Application Form
Zero Emission Vehicle Awareness Initiative	Natural Resources Canada	awareness- projects.projets- de- sensibilisation@ nrcan- rncan.gc.ca	This initiative supports projects that aim to increase awareness, knowledge and public confidence in zero-emission vehicles (ZEVs) and public charging and refueling infrastructure. It funds outreach, education, and capacity building activities. It addresses the lack of awareness and understanding of, and public and industry confidence in ZEVs and clean fuels, creating a barrier to adoption.	Online Application Forms Submission by Sep. 26, 2023
<u>Garden Grant</u> <u>Program</u>	Whole Kids Foundation	Stephanie Porto, OPERATIONAL & INTERNATIONAL	The Garden Grant program provides a \$3,000 monetary grant to support a new or existing edible educational garden located at either a: K–12 School or Non-	Online Application Form

Mechanism Name	Organization Name	Contact	Description	Application Process
		PROGRAMS LEADER <u>info@wholekids</u> <u>foundation.org</u>	profit organization (Registered Charity in Canada) that serves children in the K-12 grade range. Government entities are also eligible.	Applications open in February 2024
FCC AgriSpirit Fund	FCC	AgriSpirit- AgriEsprit@fcc- fac.ca	 This fund supports projects in communities of less than 150,000 people by charities, non-profit groups, and First Nations, Inuit or Métis governments/communities. Types of projects considered are: Refrigeration and equipment to support food waste reduction and recovery Construction of or upgrades to community buildings Renovations or upgrades that reduce a building's energy footprint Greenhouses and community gardens Initiatives that support agriculture and food 	Online Application Form Applications open in Spring 2024
<u>Greenhouse</u> <u>Gas Offset</u> <u>Credit</u> <u>System</u>	Environment and Climate Change Canada	Jackie Mercer, Program Manager, Offsets & Emissions Trading, ECCC <u>jackie.mercer@</u> <u>ec.gc.ca</u>	This program allows municipalities to earn carbon offset credits for approved projects that could then be sold to industry. "The offset system will give municipalities, foresters, farmers, Indigenous communities, and others a market-based incentive to undertake innovative projects that reduce greenhouse gases (GHGs) by preventing emissions and removing GHGs from the atmosphere." (News release on June 8, 2022)	

Appendix 6: Stakeholder Engagement

The Climate Action team engaged citizens in Action Plan development by providing climate impact information and completing an online survey and a series of eight community engagement meetings. The engagement process utilized a presentation on the top 10 climate impacts and a set of possible climate actions. Following are details of the survey and the education and engagement processes.

The MOPC Climate Change Action Survey

The purpose of this survey was to identify the public's climate change action priorities, which would help to inform the development of a Climate Action Plan.

Questions

1. Do you feel that Pictou County is currently undergoing climate change and will be more affected in the future?

____Yes ____No

 If your answer to Question 1 is "Yes", please list what you feel are the top three issues that climate change will pose to the County. List three issues

What have your friends and neighbours said on this topic? List

 If your answer to Question 1 is "No", what three other issues do you feel are important to the County's future and need to be addressed? List three issues ______

What have your friends and neighbours said on this topic? List _____

- What is your level of concern about the impacts of climate change (chose one)?
 None _____ Low ____ Medium ____ High ____ Very High
- If you have been impacted by climate change (e.g., severe precipitation, high wind and damaging storm surge events), please briefly describe those impacts.
 Explain ______
- 6. The MOPC has identified five preliminary focus areas for climate change action. Please provide your ideas for action in the following areas.

Mitigation Actions

Greenhouse Gas Reduction – actions to lower the gases in the atmosphere that raise the surface temperature of the earth.

Your ideas _____

Carbon Capture – actions to catch carbon dioxide (CO2) emissions produced from fossil fuels in electricity, industrial processes, etc.

Your ideas _____

Public Education and Engagement – actions to encourage citizens to learn more about climate change and take climate action.

Your ideas _____

Additional mitigation actions that you think can be taken.

Your ideas ___

Adaptation Actions

Infrastructure Modification – actions to modify County infrastructure (e.g., roads, culverts, water and wastewater systems, etc.) that is prone to climate change impacts. Your ideas

Erosion and Flooding Protection – actions to protect the MOPC facilities and infrastructure and citizens' properties from flooding events and decrease erosion impacts. Your ideas _____

Additional adaptation actions that you think can be taken. Your ideas ______

7. Are you interested in participating in a Townhall Meeting that will increase awareness of climate change impacts and provide the opportunity for additional inputs to the action planning process?

___Yes ___No

- If your response to Question 7 was "Yes", please provide your address so the Action Planning Team can select Townhall meeting locations in accordance with level of interest. Address
- If you have any other feedback on climate change action, please add them here. Explain

Climate Change Impact Education

The development team used a variety of research methods to find and document the key climate change impacts on Pictou County and developed flyers and social media posts for education of the public. The following table provides brief descriptions of these impacts.

Climate Change Impact	Description			
Coastal Erosion and Flooding	 Climate change makes this worse by causing bigger storms like Fiona and reducing the ice that protects the shoreline 			
Wildfires	 Fiona damage increased vulnerability to unplanned, uncontrolled and unpredictable fires in areas of dry, combustible vegetation 			
Severe Winds	 Strong windstorms that topple massive hardwood trees, leading to higher wildfire risks, significant damage to homes and other structures, and costly cleanup 			
Sea Level Rise and Warming	 Rising levels due to melting glaciers and ice sheets, and expansion of warming seawater, causing more flooding and erosion damage, affecting fisheries, and increasing invasive species 			
Climate Refugees	 Increased interest in immigration to Nova Scotia by persons who have been forced to leave their homes because of the effects of climate change 			
Property Insurance	 Owners of properties in floodplains, on eroding coastlines or near woodlands may face higher insurance rates or lose coverage as climate impacts increase 			
Droughts	 As the climate warms, there are increased risks of more wildfires, heatwaves affecting agriculture, and loss of well water in the County 			
Unpredictable Growing Seasons and Food Shortages	8. Risk of food transportation links loss due to hurricane flooding of the Trans-Canada highway and railway at the NS- NB border, and loss of local crops to severe climate impacts			
Ticks and Lyme Disease	 Warmer winter weather allows ticks to live longer and spread to new areas and higher temperatures and more rain help ticks and the diseases they carry spread faster 			

Key Climate Change Impacts on Pictou County

Human Health	10. Climate Change increases the frequency and intensity of
	storms, floods and heatwaves, leading to injuries and health
	problems like heart and lung diseases and resulting in fear,
	anxiety, grief and other mental health effects

Community Engagement Meetings

The MOPC Council's Climate Change Advisory Committee hosted a series of eight public engagement meetings in January 2025. In addition to the information in the previous table, the presentations on climate action provided information on proposed climate actions, summarized in the table below.

Proposed Actions	Description
Greenhouse Gas Reduction	 Replacing the MOPC transportation fleet with zero- emission vehicles and installing EV charging stations Replacing emission-generating energy sources within the MOPC buildings with zero-emission sources
Carbon Capture	3. Increasing tree planting capacity by growing the volunteer group, working with partner organizations and employing tree planting contractors, and assessing the need for more climate adapted tree species
Erosion and Flooding Protection	 Developing a database of coastal erosion and flood mapping and a tool to analyse the risk of damage from storm surge and flooding events
Wildfire Protection	5. Developing a database of forest areas that are prone to wildfires and close to homeowners at risk and a tool to analyse the risk of damage from an imminent wildfire
Emergency Measures	6. Creating measures for ensuring the safety of citizens impacted by climate disaster events (e.g., promotion of the MOPC Alert use, and guidance on how to develop emergency and evacuation plans
Infrastructure Modification	7. Assessing and modifying the MOPC infrastructure that is vulnerable to climate change impacts

Proposed Climate Change Actions

More detailed information about the climate impacts and proposed climate actions listed in the tables above, and a report about the engagement feedback are available on the MOPC Website at <u>Climate Change » Municipality of Pictou County</u>.