

Corporate Climate Change Adaptation Plan

Town of Pelham

1. Introduction

- Increased severity in **extreme weather events** weather E.g., Pelham Arches
 - Annual temperature changes that have led to **invasive species** infestations and **heat waves**
 - Heavy precipitation that has led to **flooding**
- Ice storms, excessive heat alert warnings, and freezing rains

Corporate Climate change Adaptation Plan

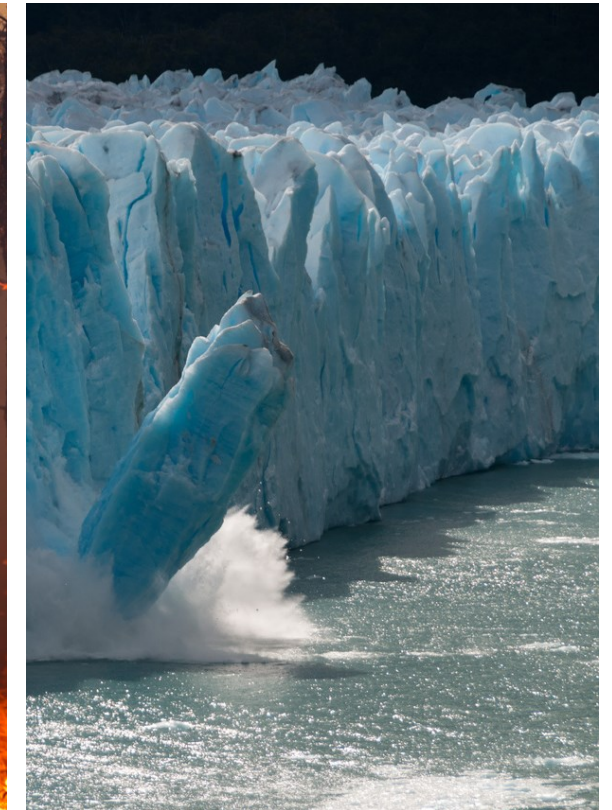
- Increase **resilience**
- **Adapt** to the threats of climate change



Photo: NiagaraThisWeek.com

2. Climate Change

- World Meteorological Organization (WMO) released a statement that indicated **2020 was one of the three warmest years** on record
- The global mean surface temperature is **1.2°C above the preindustrial levels** (1850-1900)
- More frequent and extreme weather events such as **heavy rainfall and floods, droughts, fires, cold and heatwaves, and severe storms** have been observed around the world



Climate Change in Canada

- Canada has been **warming at double the global rate**
- The **annual and seasonal mean temperatures have increased** with more warming in winters
- The mean annual temperature increase is **1.7°C for Canada as a whole and 2.3°C for northern Canada** between 1948 and 2016
- Average **annual mean precipitation has increased**
- Extreme weather events such as **storms, heatwaves, droughts, floods will be intensified due to warmer temperatures**. Local sea-level rise will cause increased coastal flooding

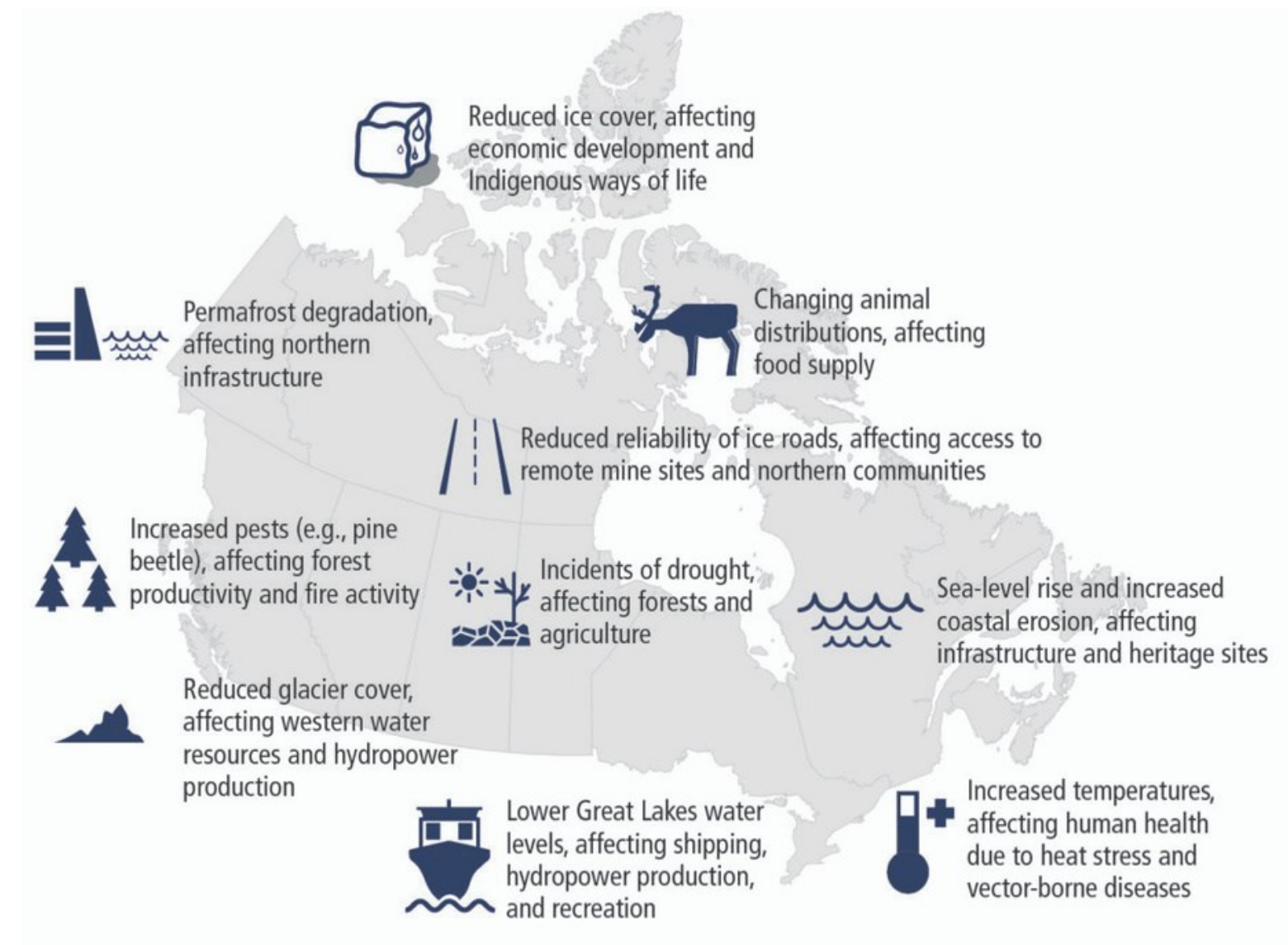


Figure 3: Climate Change Impacts in Canada

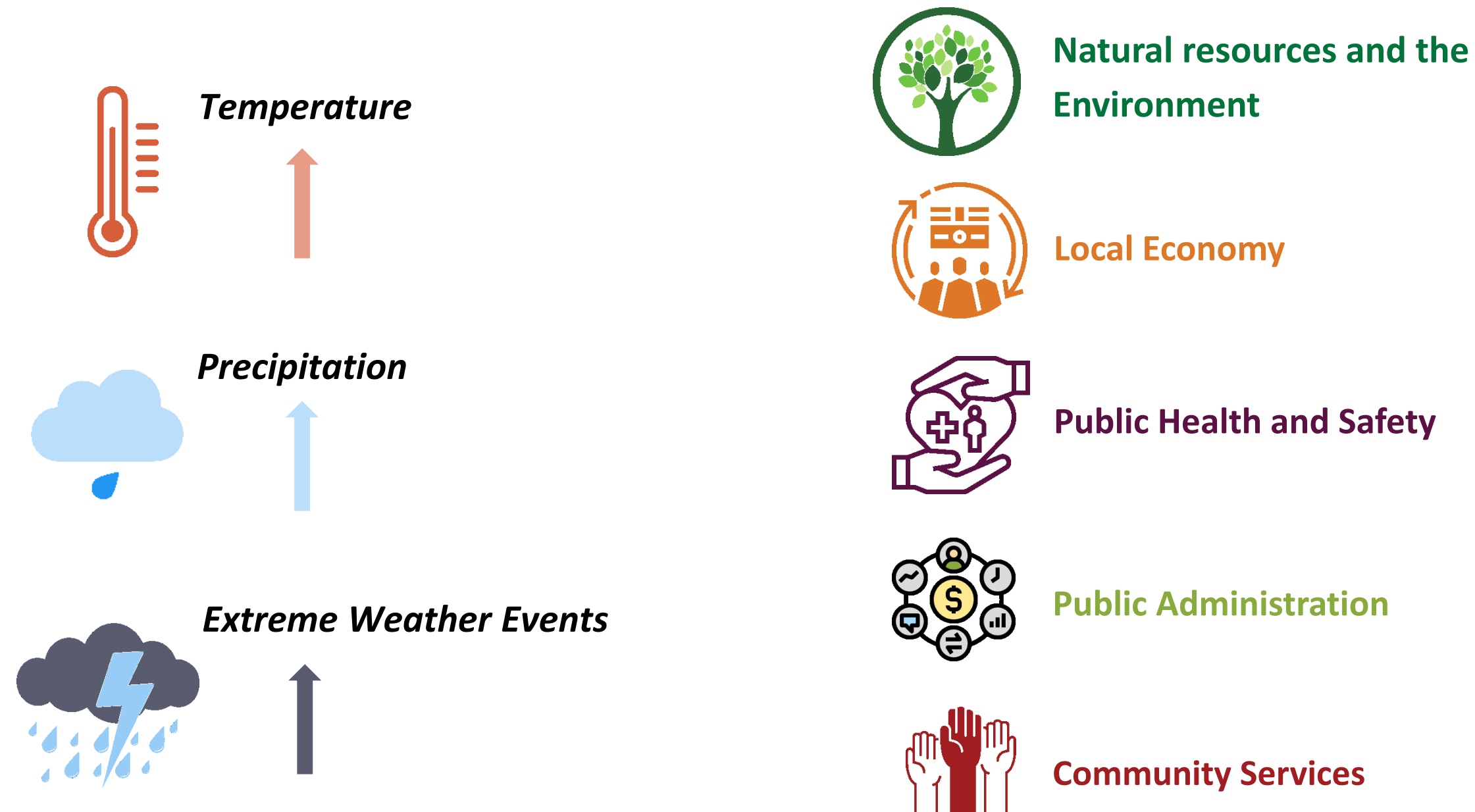
Credits: Canadian Council of Academies | Canada's Top Climate Change Risks, 2019

3. Planning Process

- Increase the Town's capacity to adapt to climate change. The Town of Pelham sanctioned the development of the **Corporate Climate Change Adaptation Plan (CCCAP)**
- The Town developed a 5-step plan drawing on ICLEI Canada's Building Adaptive and Resilient Communities (BARC) program for adaptation planning and garnered additional support from Niagara Adapts at Brock University and the Federation of Canadian Municipalities (FCM)



4. Climate Change Projections and Impacts in Pelham



53 climate impact statements were developed and cover different areas/functions of the society

5. Vulnerability & Risk Assessment

$$\text{Vulnerability} = \frac{\text{Exposure} \times \text{Sensitivity}}{\text{Adaptive Capacity}}$$

Niagara Adapts Review

Final vulnerability index value of 0.509 for Pelham, where 0 represents highly vulnerable and 1 represents highly robust

A total of 53 impact statements were assessed through a vulnerability assessment

7 impacts rank high in vulnerability (V4 & V5)
23 impacts rank medium in vulnerability (V3)
23 impacts rank low in vulnerability (V2 & V1)

$$\text{Risk} = \text{Likelihood} \times \text{Consequence}$$

Of the 30 statements that were assessed

1 impact statement was categorized as a high risk
1 impact statement was categorized as a medium-high risk
14 impact statements were categorized as a medium risk
11 impact statements were categorized as a medium-low risk
3 impact statements were categorized as a low risk

16 priority impacts

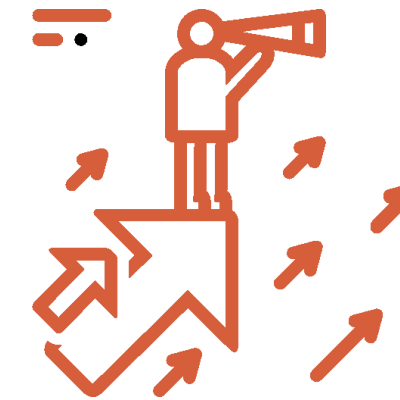
6. Community Engagement

Vulnerability Assessment



- 50 indicators: municipal partner(s) from Pelham prioritized the indicators, from most to least important
- Vulnerabilities at the municipal scale and at the household scale, two survey instruments were implemented at the respective scales

Stakeholder Engagement Survey on Vision and Goals



- Stakeholder engagement survey was conducted in Pelham to generate feedback on the municipality's draft vision and goals for the climate change adaptation plan

7. Vision

The Town of Pelham will reduce, respond to, and recover from, the unique climatic threats posed by climate change, and will embrace the opportunities that position the Town to support sustainable development by promoting cultural assets while protecting our environmental assets



8. Goals and Actions



Goal 1. Protect community members and outdoor workers from potential health risks related to climate change

7 Actions



Goal 2. Build awareness of climate change impacts and risks among Town's staff and community members

5 Actions



Goal 3. Develop a comprehensive strategy to manage extreme weather events and emergencies

4 Actions



Goal 4. Foster adaptive capacity in the design, construction, and maintenance of Town-owned infrastructure

8 Actions



Goal 5. Preserve, protect, and restore Town's urban and rural forests

5 Actions



Goal 6. Cultivate resiliency to heavy rainfall and flooding events

7 Actions



Goal 7. Streamline Town services to provide sustained support to Pelham community

4 Actions



Goal 8. Mainstream climate change information into Town's planning, policy, and decision-making processes

5 Actions

9. Implementation

Appendix F – Implementation Schedule

Options	Description/Scope	Lead Department(s)	Relevant Department(s)	Implementation Term	Resource Requirement
1.1 Create an extreme weather policy to minimize risks to vulnerable populations during extreme events including heavy rainfall, extreme heat, and extreme cold	<p>Vulnerable populations (i.e. seniors, children (<5yrs), or individuals with pre-existing health conditions) are prone to extreme distress in conditions of extreme weather events (thunder, hail, storms, heavy rainfall, heatwaves, and cold stress). These events may cause distresses such as (but not limited to) heatstroke, renal/cardiovascular/skin issues, mental health, etc. and place excessive demands on caretakers and health care facilities. The policy may cover the following grounds:</p> <ul style="list-style-type: none"> • Collection of baseline information on the leverage points for intervention for the benefits of vulnerable populations • Create support systems for an immediate effect (e.g. buddy systems, dedicated emergency helplines etc.) during and after an emergency event • Create protocols to deal with extreme scenarios such as power outages etc. (e.g. arrange transport to designated refuge buildings) • Train caretakers and staff to deliver targeted response to the needs of vulnerable population during emergency events 	<ul style="list-style-type: none"> • Fire & By-Law Services • Recreation, Culture & Wellness 	<ul style="list-style-type: none"> • Administration Services • Communications and Public Relations 	Medium-term	Staff: Medium Budget: \$

10. Monitoring and Review

Appendix G – M&E Plan

Options	Indicator(s)	Lead Department(s)	Duration	Resource Requirement
1.1 Create an extreme weather policy to minimize risks to vulnerable populations during extreme events including heavy rainfall, extreme heat, and extreme cold	1.1.1 Progress on extreme weather policy 1.1.2 Number of data points/baseline information collected	<ul style="list-style-type: none"> • Fire & By-Law Services • Recreation, Culture & Wellness 	Short-Term	Staff: Low Budget: \$
1.2 Develop a communication strategy to inform the Town residents and staff on road conditions during extreme weather events	1.2.1 Progress on communication strategy 1.2.2 Number of times communication alerts issued to inform the residents	<ul style="list-style-type: none"> • Public Works - Roads 	Short-term	Staff: Low Budget: \$
1.3 Foster emergency preparedness among Town's staff and community members (e.g. mainstream the 72-hour emergency preparedness guide)	1.3.1 Number of workshops conducted for the staff and residents 1.3.2 Number of communication strategies carried out 1.3.3 Number of areas that showed successful flood preparation and management	<ul style="list-style-type: none"> • Fire & By-Law Services • Recreation, Culture & Wellness 	Short-term	Staff: Low Budget: \$\$
1.4 Design educational and training content to support community members and outdoor staff during extreme weather events	1.4.1 Number of social media posts published to raise awareness on best practices 1.4.2 Number of printed material and videos generated	<ul style="list-style-type: none"> • Fire & By-Law Services • Communications and Public Relations 	Short-Term	Staff: Low Budget: \$
1.5 Increase relief measures for extreme events of heatwaves through providing indoor activities for community members (e.g. pool facilities, cooling centres, recreational facilities)	1.5.1 Number of cooling centres and recreational facilities designated 1.5.2 Number of partnerships forged to provide heat relief programs 1.5.3 Percentage increase in the use of heat relief programs	<ul style="list-style-type: none"> • Recreation, Culture & Wellness 	Short-term	Staff: Low Budget: \$
1.6 Increase operating hours of current facilities available to the residents during extreme heat and extreme cold	1.6.1 Changes in operating hours of Town facilities 1.6.2 Percentage increase in the use of facilities outside business hours during extreme heat and cold	<ul style="list-style-type: none"> • Recreation, Culture & Wellness 	Short-term	Staff: Low Budget: \$
1.7 Review (and revise if necessary) the Town's Winter Operations Plan to accommodate the effects of climate change	1.7.1 Progress on Winter Operation Plans review in the context of climate change projections 1.7.2 Number of updates in the plan	<ul style="list-style-type: none"> • Public Works - Roads 	Short-term	Staff: Low Budget: \$

Thank You!