



TOWN OF AJAX

Ajax Climate RISK & RESILIENCY PLAN

Implementation Strategy



June 2019

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1.0 Introduction

1.1. Implementing the Ajax Climate Risk and Resiliency Plan

The Town of Ajax is committed to taking action on climate change, and has developed the **Ajax Climate Risk and Resiliency Plan (ACRRP)** to support greater adaptive capacity and resilience to the impacts of a changing climate. The Vision for the ACRRP was developed in collaboration with key stakeholders, and provides the basis for the goals, objectives, and actions that follow.

Vision Statement: A climate-ready Ajax that is Collaborative, Leading, Engaging, Action-oriented and Resilient.

Framework for the Ajax Climate Risk and Resiliency Plan



This 10-year vision encourages coordinated action and real progress in response to multiple climate related threats across a variety of sectors. This Implementation Strategy is a companion to the ACRRP, serving as a tool for Town staff to turn plan into action. The ACRRP provides the background information to support the intent of the actions in this Strategy document. Section 2.0 of this document provides a breakdown of the recommended actions for key focus areas of the ACRRP, and allocates lead responsibility as well as an appropriate and realistic timeline for when each action should be completed.

1.2. Goals

The following goals set the stage for the Objectives of the ACRRP:

1. **Collaborative:** Develop a system of policies and programs across all divisions in the Town that work in sync to support the Vision.
2. **Leading:** Create a resilient and livable community by supporting innovation and partnerships that encourage integration of climate change considerations into all levels of municipal and community services.
3. **Engaging:** Encourage all members of the community to take individual action and share information to assist in the ongoing tracking and monitoring of progress, and seek input on ways to improve on a continuous basis.
4. **Action-oriented:** Leverage past progress and set the stage for future advancements in building resiliency by creating and implementing achievable and impactful actions for the next decade.
5. **Resilient:** Enhance the ability of our community's systems and structures to absorb the shocks of climate change related events and impacts, and return to normal functioning without major delays.

1.3. An Objectives-Oriented Approach

The ACRRP objectives represent the measurable steps the Town of Ajax will need to take in order to achieve the vision for limiting climate risk and improving community resiliency. Associated actions described in **Section 2.0** of this document are geared towards practical achievements over the next decade. There are a total of eight **(8) Objectives** for the ACRRP that flow across three main strategic focus areas:

1. Emergency Preparedness and Response;
2. Natural Systems; and
3. Stormwater, Flooding and Erosion.

The objectives are as follows:

OBJECTIVE #1: Town residents, priority populations and businesses are communicated with about emergency preparedness and have access to emergency resources and information.

OBJECTIVE #2: Existing and future critical and social infrastructure is adapted to withstand the impacts of climate change.

OBJECTIVE #3: The Town has implemented supporting plans, programs and policies to manage human health impacts resulting from climate change.

OBJECTIVE #4: Emergency plans are in place for transportation and accessibility within the Town.

OBJECTIVE #5: Naturalized urban areas and green infrastructure within the Town are enhanced to be resilient and supportive of biodiversity, to help protect critical and social infrastructure from climate change impacts, and are planned and maintained to limit conflicts with critical infrastructure.

OBJECTIVE #6: Natural heritage systems across the Town have been protected, restored and expanded to support biodiversity and improve their overall resiliency to climate change impacts.

OBJECTIVE #7: Town staff are equipped with improved decision making tools to identify areas of high vulnerability and risk of flooding and erosion.

OBJECTIVE #8: Stormwater Infrastructure resiliency has been enhanced across areas of known high flooding risk.

Each of the objectives is further described in **Section 3.0** of the ACRRP. The implementing actions along with strategic elements related to timing, cost, leadership and community partnerships are provided in **Section 2.0** of this Implementation Strategy.

1.4. How to Read This Document

This document is organized by assigning implementation actions to each objective identified in the ACRRP.

The Implementing Actions are categorized based on the following typologies:

- Plans & Studies;
- Data & Technology;
- Regulations, Policies, Guidelines, & Standards;
- Procedures & Protocols;
- Programs & Projects; and
- Partnerships, Communication, & Engagement.

Implementation Timeline

The timing of actions is identified in the tables in the 'Guiding Actions' section under each strategic objective area, based on a scale of short to long term actions. A symbol at the start of each action signifies its placement in this timeline as follows:

- Ongoing (actions to be initiated immediately and that recur or are continuous throughout the life of the Implementation Strategy)
- Short Term (1-3 years): ●○○
- Medium Term (4-7 years): ●●○
- Long term (7+ years): ●●●

Cost of Implementation

The estimated cost to the Town of implementing each action has been characterized based on a relative scale, as listed below. The implementation costs that may be incurred by community partners in supporting or participating in the actions is not identified in this Strategy:

- Low Cost (<\$100,000): \$
- Medium Cost (\$100,000 - \$500,000): \$\$
- High Cost (\$500,000+): \$\$\$

Funding

The funding sources for actions where funding is required will also be updated during the implementation period.

The identification of Internal funding relates to actions that will require staff resources and/or Town funding. The identification of External funding relates to actions where grants can be accessed or where the Town is promoting an action by a community partner.

2.0 Implementing Actions

2.1. Overview

The complexity of any emergency depends on a combination of factors such as the severity, intensity or duration of an event and the nature of the assets, services, or demographics impacted. Precipitation, temperature fluctuation and extreme weather have the potential to effect the natural environment, stormwater and other infrastructure, as well as community services that are tasked with responding to such events. Although the effects of climate change are shared across multiple disciplines, stakeholder groups and community agencies, the Town of Ajax is responsible for developing, managing and implementing the climate change adaptation measures necessary to effectively and efficiently address the impacts of climate change on its internal systems and services.

This strategy will serve as a tool for the Town to proactively minimize the impacts of climate change stressors and will assist in supporting the community partners and stakeholders to ensure collaboration and unity in ensuring resiliency is achieved across the entire community of Ajax.

The actions were developed in conjunction with a range of local stakeholders including Town staff representatives from Transportation, Engineering, Policy Planning, Parks, Community Development, Asset Management, and Forestry; representatives from Durham Region Public Health, Transportation and Police Services; Conservation Authorities (Toronto and Region Conservation Authority (TRCA) and Central Lake Ontario Conservation Authority (CLOCA)); chambers of commerce; utility companies (Elexicon Energy and Enbridge Inc.); local non-governmental organizations (NGOs); school boards; and others.

The Guiding Actions identified in the following section are attached to realistic timeframes to provide results moving forward, in order to guide Ajax in fulfilling its commitment to climate adaptation.

2.2. Guiding Actions

The following tables present the guiding actions associated with each of the Objectives for the ACRRP. For further information on the Objectives, please see **Section 3.0** of the ACRRP.

OBJECTIVE #1: Town residents, priority populations and businesses are communicated with about emergency preparedness and have access to emergency resources and information.

Action		Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
1.1	Update existing priority population dataset and mapping, as new data becomes available, to help inform the development of emergency response procedures and protocols.	Data & Technology	\$	Ongoing	Geographic Information Systems; Planning & Development Services Champion(s): Manger of IT	Durham Region Public Health	Internal
1.2	Identify Town and other community facilities for weather-appropriate shelter and relief areas (such as cooling centres or splash pads) in close proximity to locations of priority populations based on the data set developed in Action 1.1 .	Partnerships, Communication & Engagement	\$	Ongoing	Operations & Environmental Services; Recreation, Culture & Community Development Champion(s): Manager of Infrastructure & Asset Management	The relief facility owners and operators themselves (e.g., NGOs, community spaces, faith based organizations, school boards)	Internal
1.3	Equip Town facilities designated as shelter and relief areas in Action 1.2 with back-up generators.	Programs & Projects	\$\$\$	●●○	Operations & Environmental Services; Recreation, Culture & Community Development Champion(s): Manager of Infrastructure & Asset Management		Internal and External

OBJECTIVE #1: Town residents, priority populations and businesses are communicated with about emergency preparedness and have access to emergency resources and information.

	Action	Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
1.4	Develop a Communications Plan to disseminate emergency information with a specific focus on providing information to priority populations (e.g., care facilities, seniors' residences).	Plans & Studies	\$	●○○	Office of the CAO Champion(s): Manager of Communications	Utilities, Conservation Authorities, Durham Emergency Management Office, Emergency Officers Working Group	Internal
1.5	Develop an emergency notification system to distribute real-time information to the public about emergency events based on the Communications Plan developed in Action 1.4 .	Data & Technology	\$\$	●●○	Office of the CAO; Fire & Emergency Services; Information Technology Services Champion(s): Manager of Communications; Fire Chief/Deputy	Provincial Emergency Operations Centre, Durham Regional Police Services, Durham Emergency Management Office, Ontario Power Generation	Internal
1.6	Develop emergency preparedness educational materials to supplement Durham Region's educational materials, based on the Communications Plan developed in Action 1.4 , with a focus on priority populations (e.g., in formats to reach a wide audience) to communicate local emergency resources (e.g., where cooling centres are, how to get there, etc.).	Programs & Projects	\$	●○○	Office of the CAO Champion(s): Manger of Communications	Durham District School Boards, Durham Region Health, Faith-Based Organizations	Internal

OBJECTIVE #1: Town residents, priority populations and businesses are communicated with about emergency preparedness and have access to emergency resources and information.

Action		Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
1.7	Partner with faith-based organizations, not-for-profit organizations, non-governmental organizations, schools, businesses and other community groups/ organizations to aid in distributing emergency preparedness materials to residents and businesses.	Partnerships, Communication & Engagement	\$	●○○	Recreation, Culture & Community Development; Planning & Development Services Champion(s): Community Development Coordinator; Manager of Economic Development	Durham District School Boards, Faith-Based Organizations, Local establishments, Ajax BIAs, Regional business support organizations	Internal
1.8	Partner with local establishments for access to their public signage for the communication of emergency information in line with the Communications Plan developed in Action 1.4 .	Partnerships, Communication & Engagement	\$	●●○	Planning & Development Services; Office of the CAO Champion(s): Manager of Economic Development (establish partnership); Manager of Communications (posting of emergency information)	Local establishments, Ajax Business Improvement Areas (BIAs)	Internal and External
1.9	Develop an outreach program to help guide local business on how to maintain business continuity during extreme weather events.	Partnerships, Communication & Engagement	\$	●○○	Planning & Development Services Champion(s): Manager of Economic Development	Local establishments, Ajax BIAs, Regional business support organizations	Internal

OBJECTIVE #2: Existing and future critical and social infrastructure is adapted to withstand the impacts of climate change.

	Action	Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
2.1	Conduct a vulnerability assessment of Town-owned building stock to determine the degree to which the facility is at risk or exposed to climate related hazards.	Plans & Studies	\$	●●○	Operations & Environmental Services Champion(s): Manager of Infrastructure & Asset Management, Manager of Building Maintenance		Internal
2.2	Develop a policy, based on the vulnerability assessment undertaken in Action 2.1 , to guide the retrofit of existing Town infrastructure (e.g. buildings) and the construction of new infrastructure (e.g. roads) to be more resilient to extreme weather.	Regulations, Policies, Guidelines & Standards	\$	●●○	Planning & Development Services; Operations & Environmental Services Champion(s): Sustainability Coordinator, Manager of Infrastructure & Asset Management		Internal
2.3	Implement renewable energy sources, where feasible, in Town facilities and for Town-owned infrastructure to enhance self-sufficiency.	Programs & Projects	\$ to \$\$\$	●●○	Operations & Environmental Services; Planning & Development Services Champion(s): Manager of Infrastructure & Asset Management, Manager of Building Maintenance, Sustainability Coordinator		Internal

OBJECTIVE #2: Existing and future critical and social infrastructure is adapted to withstand the impacts of climate change.

	Action	Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
2.4	Promote programs and funding sources made available by other levels of government, utilities, and other partners that help homeowners and businesses improve the structural resilience of their properties.	Programs & Projects	\$	●○○	Planning & Development Services Champion(s): Sustainability Coordinator	Insurance Companies; Regional, Provincial and Federal Government; Utilities	External
2.5	Update the Town of Ajax Corporate Asset Management Plan to identify infrastructure needs and asses the Town infrastructure's vulnerability to climate change.	Plans & Studies	\$	●●○	Operations & Environmental Services Champion(s): Manager of Infrastructure & Asset Management	Conservation Authorities	Internal
2.6	Identify funding and grant opportunities to upgrade the Town's critical and social infrastructure to be more resilient to extreme weather.	Plans & Studies	\$	●○○	Operations & Environmental Services; Planning & Development Services; Office of the CAO Champion(s): Manager of Infrastructure & Asset Management; Manager of Engineering	Conservation Authorities	External
2.7	Share mapping of street tree locations with utilities to assist them in identifying areas where conflicts could arise between trees and electrical distribution lines.	Data & Technology	\$	Ongoing	Geographic Information Systems; Operations & Environmental Services Champion(s): Manager of IT, Manager of Infrastructure & Asset Management	Utilities	Internal

OBJECTIVE #2: Existing and future critical and social infrastructure is adapted to withstand the impacts of climate change.

	Action	Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
2.8	Increase tree canopy cover and consider the use of permeable paving in Town-owned surface parking lots to minimize the urban heat island effect and overland flooding.	Programs & Projects	\$	Ongoing	Operations & Environmental Services Champion(s): Manager of Infrastructure & Asset Management, Manager of Environmental Services		Internal

OBJECTIVE #3: The Town has implemented supporting plans, programs and policies to manage human health impacts resulting from climate change.

	Action	Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
3.1	Update the Town of Ajax Heat Warning and Extended Heat Warning Guidelines to address extreme cold temperature events (building on Durham Region's Cold Alert System).	Procedures & Protocols	\$	●○○	Office of the CAO Champion(s): Manager of Communications	Durham Region	Internal
3.2	Create an incentive program to encourage private residential and business property owners to plant more trees and construct shaded areas to provide relief and protection from harmful ultraviolet rays and extreme heat.	Programs & Projects	\$	●○○	Operations & Environmental Services; Champion(s): Supervisor of Forestry	Local Enhancement and Appreciation of Forests (LEAF) Forests Ontario	Internal and External

OBJECTIVE #3: The Town has implemented supporting plans, programs and policies to manage human health impacts resulting from climate change.

	Action	Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
3.3	Develop protocols outlining the criteria and steps to be taken for cancelling Town-led public events due to extreme weather.	Procedures & Protocols	\$	●○○	Office of the CAO Champion(s): Manager of Communications, Manager of Customer Service Administration (Recreation, Culture & Community Development)		Internal
3.4	Provide shade opportunities, cooling areas and water drinking stations at Town special events on extreme heat days.	Procedures & Protocols	\$	●○○	Recreation, Culture & Community Development Champion(s): Festival and Events Coordinator		Internal
3.5	Assess the Town's existing park infrastructure and develop a policy for the provision of splash pads, shade structures and tree planting in the Town's parks and open space system to combat extreme heat days.	Regulations, Policies, Guidelines & Standards	\$	●○○	Operations & Environmental Services Champion(s): Manager of Infrastructure & Asset Management		Internal
3.6	Explore opportunities for collaboration with Conservation Authorities, Durham Region Health and other partners to build on and implement a pests, disease and invasive species awareness education campaign.	Partnerships, Communication & Engagement	\$	●●○	Operations & Environmental Services Champion(s): Supervisor of Forestry	Conservation Authorities, Durham Region Health	Internal and External

OBJECTIVE #4: Emergency plans are in place for transportation and accessibility within the Town.

	Action	Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
4.1	Establish strategies for communicating road closures, transit cancellations and route detours during extreme weather events and incorporate into the Communications Plan established in Action 1.4 .	Partnerships, Communication & Engagement	\$	●○○	Office of the CAO Champion(s): Manager of Communications	Durham Region, MTO, Metrolinx, Durham Region Transit, Durham Regional Police Services	Internal
4.2	Develop a corporate policy that addresses the closure of Town facilities in extreme weather and that facilitates Town staff working from home during extreme weather conditions to reduce the number of employees commuting in unsafe travel conditions.	Regulations, Policies, Guidelines, & Standards	\$	●○○	Office of the CAO Champion(s): Manager of Human Resources		Internal
4.3	Train public works staff to assist in extreme weather emergencies (e.g., setting up and communicating road closures, correct methods for sandbagging, understanding legal compliance in an emergency and worker safety in hazardous conditions).	Procedures & Protocols	\$	●○○	Operations & Environmental Services Champion(s): Manager of Roads	Durham Region, Durham Municipalities	Internal

OBJECTIVE #4: Emergency plans are in place for transportation and accessibility within the Town.

	Action	Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
4.4	Expand upon the Town of Ajax Emergency Response Plan to include procedures, priorities and resources specific to evacuation (where possible, in regards to flood prone areas).	Plans & Studies	\$	●●○	Fire & Emergency Services Champion(s): Fire Chief/Deputy		Internal
4.5	Develop a policy for opening and closing public access to the Town's trail system in valley corridors when flood conditions are present to ensure public safety.	Regulations, Policies, Guidelines & Standards	\$	●○○	Operations & Environmental Services Champion(s): Manager of Environmental Services	Conservation Authorities	Internal

OBJECTIVE #5: Naturalized urban areas and green infrastructure within the Town are enhanced to be resilient and supportive of biodiversity, to help protect critical and social infrastructure from climate change impacts, and are planned and maintained to limit conflicts with critical infrastructure.

	Action	Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
5.1	Create Green Development and Environmental Design Guidelines that encourage the incorporation of Low Impact Development, naturalized areas, and other types of green infrastructure such as green roofs in new development to help reduce the urban heat island effect and improve energy efficiency.	Regulations, Policies, Guidelines & Standards	\$	●●○	Planning & Development Services Champion(s): Supervisor of Planning Policy & Research	Conservation Authorities	Internal
5.2	Develop a dataset on public trees and update on an ongoing basis to track growth, canopy cover and tree vulnerability.	Data & Technology	\$	Ongoing	Geographic Information Systems; Operations & Environmental Services Champion(s): Manager of IT; Supervisor of Forestry	Conservation Authorities	Internal
5.3	Update the Town's Urban Forest Management Plan, incorporating available surface temperature mapping from external agencies, to target planting in areas with limited canopy cover to help reduce surface temperature.	Plans & Studies	\$	●●○	Operations & Environmental Services Champion(s): Supervisor of Forestry	Conservation Authorities, Natural Resources Canada, Durham Region Health, Durham School Boards	Internal

OBJECTIVE #5: Naturalized urban areas and green infrastructure within the Town are enhanced to be resilient and supportive of biodiversity, to help protect critical and social infrastructure from climate change impacts, and are planned and maintained to limit conflicts with critical infrastructure.

	Action	Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
5.4	<p>Update the Town’s Tree By-law (based on Action 5.3) to include the protection of trees on private property to help preserve the existing tree canopy.</p> <p>*Note: Cost is only reflective of resources needed to update the Tree By-law. Cost does not include resources required for enforcement.</p>	Regulations, Policies, Guidelines & Standards	\$*	●●○	<p>Operations & Environmental Services; Planning & Development Services; Legislative & Information Services</p> <p>Champion(s): Manager of Environmental Services, Supervisor of Planning Policy & Research; Manager of By-law Services</p>		Internal
5.5	Undertake tree maintenance, as provided for in the Urban Forest Management Plan (Action 5.3), based on risks to critical and social infrastructure.	Programs & Projects	\$	Ongoing	<p>Operations & Environmental Services</p> <p>Champion(s): Supervisor of Forestry</p>	Utilities, Conservation Authorities	Internal

OBJECTIVE #6: Natural heritage systems across the Town have been protected, restored and expanded to support biodiversity and improve their overall resiliency to climate change impacts.

Action		Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
6.1	Integrate data on trees, woodlots and habitat from the Natural Capital Report (2018) into the Town's GIS system.	Data & Technology	\$	●○○	Geographic Information Systems; Operations & Environmental Services Champion(s): Manager of IT	Conservation Authorities	Internal
6.2	Incorporate species that are climate resilient and tolerant to seasonal variability into planting plans for vegetation buffers and other naturalized areas.	Programs & Projects	\$	Ongoing	Operations & Environmental Services; Planning & Development Services Champion(s): Manager of Environment Services, Sustainability Coordinator	Conservation Authorities	Internal
6.3	Identify appropriate locations for the creation of wetland habitat to support biodiversity and stormwater storage, in partnership with Conservation Authorities.	Partnerships, Communication & Engagement	\$	●○○	Planning & Development Services; Operations & Environmental Services Champion(s): Manager of Engineering	Conservation Authorities	Internal

OBJECTIVE #6: Natural heritage systems across the Town have been protected, restored and expanded to support biodiversity and improve their overall resiliency to climate change impacts.

	Action	Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
6.4	Secure, restore and enhance vegetation buffers and tree planting in areas adjacent to water bodies to help improve water quality, regulate water temperature, and reduce erosion.	Programs & Projects	\$	●○○	Operations & Environmental Services; Planning & Development Services Champion(s): Manager of Environmental Services, Manager of Planning	Conservation Authorities	Internal and External
6.5	Establish partnerships with Conservation Authorities and other organizations to promote the use of community-based programs, such as the Early Detection and Distribution Mapping System, by Ajax residents to help map biodiversity.	Partnerships, Communication & Engagement	\$	●○○	Planning & Development Champion(s): Sustainability Coordinator	Conservation Authorities, Ontario Invasive Plant Council, Ontario Federation of Anglers and Hunters, Private Landowners	Internal and External
6.6	Promote education and communication campaigns developed by community partners that are intended to increase public understanding of invasive species (e.g., dog strangling vine, garlic mustard, round goby, zebra mussels and Asian carp).	Programs & Projects	\$	●○○	Planning & Development Champion(s): Sustainability Coordinator	Conservation Authorities, Ontario Invasive Plant Council, Ontario Federation of Anglers and Hunters, Durham Region	Internal

OBJECTIVE #6: Natural heritage systems across the Town have been protected, restored and expanded to support biodiversity and improve their overall resiliency to climate change impacts.

Action		Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
6.7	Update the Town's Salt Management Plan to support best practices around road salt handling, storage and application during winter events, to reduce negative impacts on water quality and vegetation.	Plans & Studies	\$	●○○	Operations & Environmental Services Champion(s): Manager of Operations	Conservation Authorities	Internal
6.8	Engage Durham Region to educate Ajax residents and businesses on the Region's program regarding best salt management practices in order to maximize the protection of vegetation, fish and wildlife.	Programs & Projects	\$	●○○	Planning & Development Services Champion(s): Sustainability Coordinator	Conservation Authorities, Ministry of Natural Resources & Forestry, Durham Region	Internal

OBJECTIVE #7: Town staff are equipped with improved decision making tools to identify areas of high vulnerability and risk of flooding and erosion.

Action		Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
7.1	Support the Region in the exploration of a data sharing platform with Durham municipalities and other relevant agencies.	Data & Technology	\$	●●●	Geographic Information Systems Champion(s): Manager of IT	Durham Region, Durham Municipalities, Conservation Authorities	Internal and External

OBJECTIVE #7: Town staff are equipped with improved decision making tools to identify areas of high vulnerability and risk of flooding and erosion.

	Action	Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
7.2	Develop a more detailed shoreline analysis and risk mapping, in collaboration with Conservation Authorities, to protect the Ajax shoreline from erosion and help inform the continued relocation and/or rehabilitation of critical infrastructure and Town assets.	Data & Technology	\$\$	●○○	Planning & Development Services Champion(s): Manager of Engineering	Conservation Authorities	Internal
7.3	Develop a more detailed erosion potential analysis (riverine areas), in collaboration with Conservation Authorities, to inform the continued relocation and/or rehabilitation of critical infrastructure and Town assets as required.	Data & Technology	\$\$	●●○	Planning & Development Services Champion(s): Manager of Engineering	Conservation Authorities	Internal
7.4	Develop more accurate and detailed flood plain mapping, in collaboration with Conservation Authorities, to inform land use planning and the rehabilitation of critical infrastructure in high risk areas.	Data & Technology	\$\$	●●●	Planning & Development Services Champion(s): Manager of Engineering	Conservation Authorities	Internal

OBJECTIVE #8: Stormwater infrastructure resiliency has been enhanced across areas of known high flooding risk.

	Action	Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
8.1	Identify and fill in data gaps in the Town's model to include up-to-date details on stormwater infrastructure and modelling to allow for enhanced identification of spatial risks (incremental based on priority areas defined by Planning & Development Services).	Data & Technology	\$\$	●●○	Planning & Development Services Champion(s): Manager of Engineering	Conservation Authorities	Internal
8.2	Identify key infrastructure improvement and upgrade opportunities based on risk mapping developed in Action 8.1 to improve performance in a flooding event.	Plans & Studies	\$	●●○	Planning & Development Services; Operations & Environmental Services Champion(s): Manager of Engineering, Manager of Infrastructure & Asset Management	Conservation Authorities	Internal
8.3	Enhance Ajax's existing outreach programs to teach residents and businesses what they can do to improve stormwater management on their property (e.g., Healthy Yards, Disconnect your Downspout, Yellow Fish Road Program, and Greening Your Grounds).	Programs & Projects	\$	●○○	Planning & Development Services Champion(s): Manager of Engineering		Internal

OBJECTIVE #8: Stormwater infrastructure resiliency has been enhanced across areas of known high flooding risk.

	Action	Category	Cost	Timeline	Lead Department(s)	Community Partners	Funding
8.4	Undertake a study to determine a sustainable funding source for the construction, operation, maintenance and rehabilitation of the Town's stormwater management system	Plans & Studies	\$\$	●○○	Planning & Development Services Champion(s): Manager of Engineering		Internal
8.5	Update Engineering Design Criteria and Standards to better protect Town infrastructure from flood risks.	Regulations, Policies, Guidelines & Standards	\$	●●○	Planning & Development Services Champion(s): Manager of Engineering	Conservation Authorities	Internal
8.6	Construct a Flood Control Landform and lower the floodplain, as per recommendations in the Carruthers Creek Flood Management & Analysis Municipal Class Environmental Assessment, to protect properties in the Pickering Beach neighbourhood from flood risks.	Programs & Projects	\$\$\$	●●●	Planning & Development Services Champion(s): Manager of Engineering	Conservation Authorities	Internal and External (grants)

3.0 Monitoring and Reporting

Achieving the objectives put forward in the Ajax Climate Risk and Resiliency Plan will require the Town's ongoing commitment and leadership. This implementation strategy will require consistent monitoring and evaluation to ensure that the objectives of the plan are achieved in a realistic and appropriate timeframe. This Implementation Strategy presents a set of specific, measurable, and timely actions that the Town can implement over the next ten years to build on progress in addressing climate change in Ajax. The Strategy is a living document, intended to be updated on an ongoing basis throughout the implementation process. Monitoring and reporting will be central to identifying the most effective actions as well as those that need to be added or adjusted.

Measuring and Monitoring Progress

As the actions in the Implementation Strategy are implemented, the Town will update the tables in this document and maintain a record of accomplishments. The indicators for achievement for the actions are identified through the wording of the actions and the category that each one belongs to. This will aid in the reporting on progress, which the Town will undertake on a biennial basis.

The reporting process will include a brief summary document that identifies success stories and progress for each action. A 'status' indication (recurring, underway, or complete) will be added to the Timeline column for all actions in the summary document.

Updating the Implementation Strategy

Given the rapid pace of climate change and the necessity to consider the corresponding changing needs of all those who live, work, and play in Ajax, the Implementation Strategy will be updated every five years. The updates will consider new information on climate change risks and vulnerable areas, and align with other leading planning initiatives in the Town, including:

- Region of Durham Official Plan;
- Town of Ajax Official Plan;
- Urban Forest Management Plan;
- Ajax Fire Master Plan; and
- Ajax Emergency Response Plan, among others.

Roles and Responsibilities

A collective approach is the most critical factor that will ensure the successful implementation of the strategy. Each department identified has a role to play and a responsibility to ensure that a future Ajax is adaptive and resilient to the effects of climate change. The actions in this Strategy each have a Lead Department and Champion assigned to support the leadership and accountability of the implementation process.

This will be updated on an ongoing basis, to provide continuity and collect information from across Town departments as the Strategy is implemented.

To ensure the implementation actions are advanced, an internal ACRRP Review Team with representatives from all Town departments will meet twice a year to review action progress and provide support, as needed, to staff undertaking actions. To further advance actions, the ACRRP Review Team will prepare annual work plans that will be presented to Senior Management for their endorsement.

Supporting Resources

The approximate cost ranges identified for each of the actions are provided to support decision-making and inform Town budget processes, as well as any applications for external funding. Where specific external funding or grant programs are not identified in the Strategy, the Town will explore opportunities to apply for financial support from Federal, Provincial and Regional agencies as well as non-government sector organizations on an ongoing basis.

4.0 Glossary

The following glossary of terms used in the ACRRP Implementation Strategy are based on definitions provided in the Canadian Institute of Planners (CIP) Climate Change Glossary of Terms, supplemented with additional defined terms to enhance the legibility of the document.

Adaptation: Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Several types of adaptation can be distinguished, including anticipatory (before an event) and institutional (after an event) adaptation.

Climate change: Climate change refers to any change (higher or lower) in climate over time, whether due to natural variability (defined below) or as a result of human activity (anthropogenic). Climate change is any systematic change in the long-term statistics of climate elements (such as temperature, sea level, precipitation, humidity, or winds) sustained over several decades or longer. Climate change may be due to natural external forces; such as changes in solar emission or slow changes in the earth's orbital elements; natural internal processes of the climate system; or anthropogenic forces.

Climate: Climate is long-term (months to many years) and weather is short term (today, tomorrow, a week). Technically, climate is a statistical description of the mean and variability of relevant quantities over a period of time, ranging from months to thousands or millions of years. These quantities are most often surface variables such as temperature, precipitation, and wind. The World Meteorological Organization (WMO) considers 30 years to be a "normal" period.

Critical infrastructure: Critical infrastructures are those physical and information technology facilities, networks, services, and assets which, if disrupted or destroyed, would have a serious impact on the health, safety, security, or economic well-being of our communities. This includes bridges, roads, and utilities such as water, wastewater, and telecommunications.

Extreme weather: Extreme weather is an event out of the norm that seems to be happening with greater frequency. A thunderstorm, for example to be extreme would be one that lasts a shorter time than typical for the area, while including more intense periods of rain, stronger winds than usual and may result in more community damage. Weather forecasts more regularly predict extreme weather events, ironically making these events the “new norm”.

Green infrastructure: The natural and engineered vegetative systems and green technologies that provide a range of services and benefits for society, including absorbing climate change impacts such as flooding. Examples include woodlots, wetlands (both natural and engineered), meadows, green roofs, urban farms, parks, bioswales, and stormwater ponds.

Priority population: A Town of Ajax term that refers to individuals who are at risk or who may be impacted more severely by the effects of climate change than others.

Resilience: The ability of systems and communities to absorb the impacts of climate change and respond by continuing to function and maintain services, while also innovating and evolving to create stronger pathways to reducing the net effects of these impacts.

Risk: The potential for consequences where something of value is at stake and where the outcome is uncertain, recognizing the diversity of values. Risk is often represented as probability of occurrence of hazardous events or trends multiplied by the impacts if these events or trends occur. Risk results from the interaction of vulnerability, exposure, and hazard. In climate change planning, disaster risks are those that could potentially lead to losses in lives, health status, livelihoods, assets, and services, which could occur to a particular community or a society over some specified future time period.

Social infrastructure: Schools, hospitals, emergency services, community support, public space, libraries and cultural institutions.



Helping #CDNmuni take action on climate change.

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