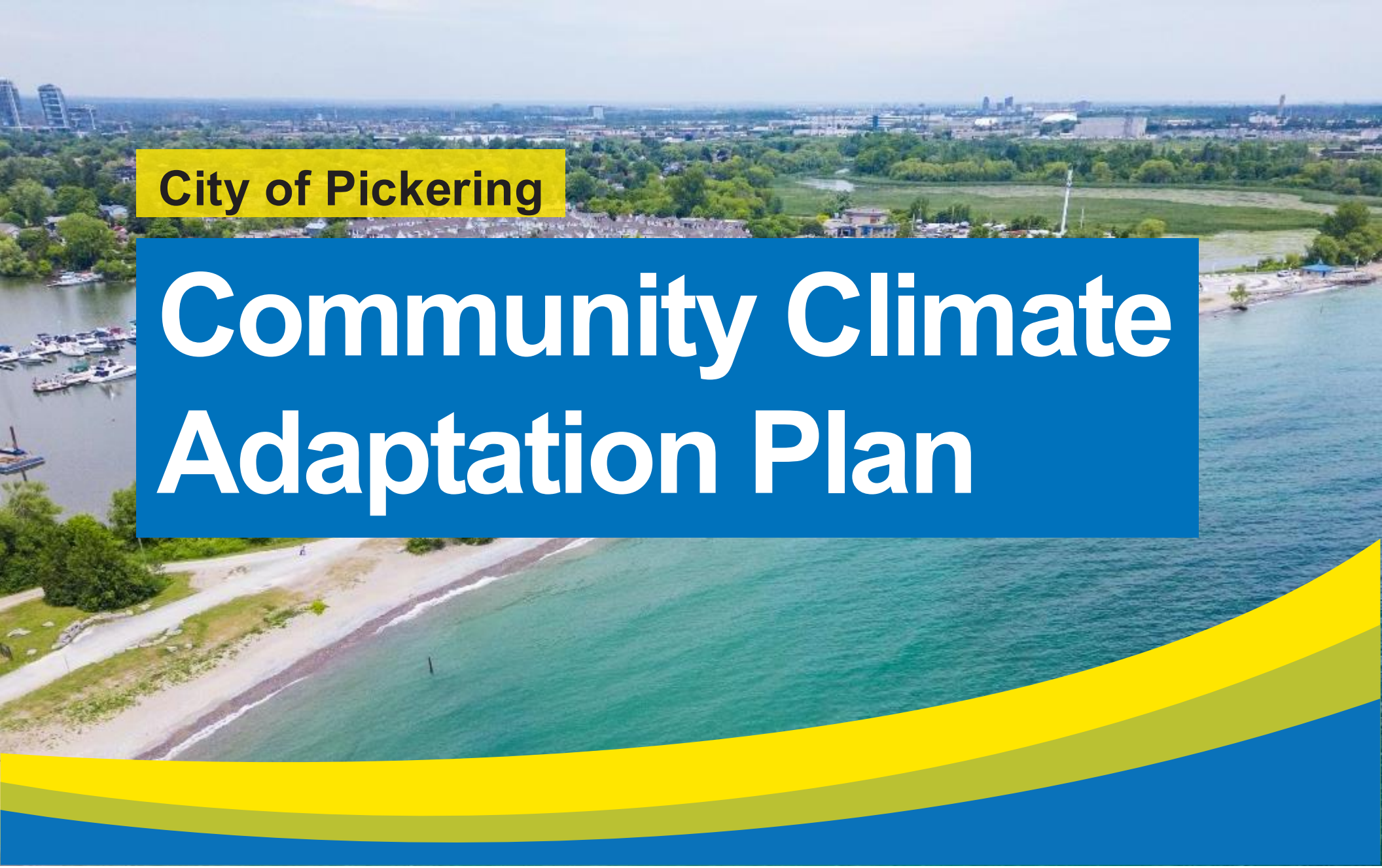

City of Pickering

Community Climate Adaptation Plan

2025-2035

City of PICKERING

Sustainable PICKERING

Climate Compass Advisors

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Land Acknowledgement

We acknowledge with respect and gratitude that this report was produced on land within the Treaty and traditional territory of the Mississaugas of Scugog Island First Nation and Williams Treaties signatories of the Mississauga and Chippewa Nations who continue to live on, steward, and host the land known as the City of Pickering.

The City of Pickering is also home to many Indigenous persons and communities who represent other diverse, distinct, and autonomous Indigenous nations. This acknowledgement reminds us of our responsibilities to our relationships with the First Peoples of Canada, and to the ancestral lands on which we learn, share, work, and live.

We are grateful to live and work on these lands and acknowledge the responsibility to ensure they are cared for respectfully, especially in the face of our changing climate. It is important to highlight that acknowledging Indigenous peoples' history of adapting to climate challenges is an important step toward reconciliation, honouring their resilience and knowledge in addressing environmental issues.

Executive Summary

Our changing climate is one of the greatest challenges faced by cities worldwide. In response, the City of Pickering has made it a priority to plan and implement strategies to address these impacts. The Community Climate Adaptation Plan (CCAP) is a key initiative reflecting Pickering's commitment to enhancing climate resilience. This plan addresses the increasing impacts of climate change, including extreme weather events and rising temperatures, which can threaten local ecosystems, infrastructure, and community well-being.

By integrating scientific insights, comprehensive policy analysis, and extensive community and stakeholder feedback, Pickering aims to develop a forward-thinking strategy that ensures both immediate and long-term climate resilience. This plan serves as a strategic guide to inform ongoing initiatives, ensuring that the CCAP evolves in a manner that is adaptable and aligned with Pickering's commitment to sustainable community development.

The effects of climate change are wide-ranging and require diverse responses. While mitigation efforts aim to contain long-term impacts, adaptation measures are necessary to address current and future climate impacts. Adaptation complements local government efforts to protect and improve long-term sustainability and does not replace or undermine mitigation efforts. Pickering has already been impacted by extreme weather events. Future projections indicate a warmer and wetter climate, along with heat extremes and precipitation variability which will pose new challenges. The latest Sixth Assessment Report (AR6) by the Intergovernmental Panel on Climate Change highlights the widespread impact of a changing climate, including more frequent and intense extreme events leading to adverse impacts on nature and people.

The AR6 report also emphasizes that even with significant reductions in greenhouse gas (GHG) emissions, there is a high likelihood that global warming will reach or exceed 1.5 degrees Celsius (1.5°C) in the near term, causing unavoidable increases in climate hazards and risks to ecosystems and humans. The level of risk will depend on trends in vulnerability, exposure, socioeconomic development, and adaptation.

Now more than ever, it is crucial for cities to implement comprehensive, effective, and innovative responses to climate change that integrate climate adaptation and mitigation efforts. These strategies are essential for advancing sustainable development and capitalizing on the co-benefits they provide.

Acknowledgements

The CCAP has been created in partnership with various City staff, individuals, agencies, committees, and organizations. This plan strives to represent those voices. Pickering's Community Climate Adaptation Plan acknowledges the following partners for their collaboration and insight:

City Departments	Community Partners
• Office of the CAO • City Development • Community Services • Economic Development & Strategic Projects • Engineering Services • Finance • Fire Services • Operations	• Central Lake Ontario Conservation Authority • Climate Justice Durham • Community Safety & Well-Being Advisory Committee • Durham Catholic District School Board • Elexicon Energy • Enbridge • Intact Centre on Climate Adaptation, University of Waterloo • Invasive Species Centre • Region of Durham • Toronto and Region Conservation Authority • Waterfront Visionary Advisory Committee

Prepared by

Climate Compass Advisors Limited

Jade Schofield, MSc, EP | Principal

Message from the Mayor

Climate change is no longer a distant concern - it is here, in our communities and impacting our daily lives. The recent floods across Ontario, air quality crises from wildfires, and devastating droughts throughout Canada all underscore this urgent truth. These are not isolated events, but part of an escalating reality that requires immediate action.

I am proud to introduce the City's first-ever Community Climate Adaptation Plan (CCAP). The CCAP is a crucial step forward in protecting the environment and preparing for the future. It identifies key climate risks and outlines a comprehensive framework to safeguard our city and residents, enabling them to effectively prepare for, and adapt to, extreme weather events.

The City has proactively integrated climate resiliency strategies through various Council-endorsed programs, plans, and policies, including the Integrated Sustainable Design Standards and the Stormwater Management Design Guidelines. Additional measures to enhance the community's climate resiliency include designating City facilities as cooling and warming centres, waterfront restoration, and naturalization projects. This plan will build on and advance these existing efforts.

Addressing climate change is a shared responsibility, and the City is committed to leading by example. Together, we can adapt to these changes, safeguard our environment, and preserve the city's vibrancy for future generations.

Let's build a resilient Pickering that thrives in the face of a changing climate.

Yours truly,

Kevin Ashe

Mayor, City of Pickering

Message from the CAO

As the Chief Administrative Officer of the City of Pickering, I am proud to share with you our Community Climate Adaptation Plan (CCAP). Climate change is a reality impacting communities globally, and Pickering is no exception. From extreme weather events to rising temperatures, we are witnessing the effects firsthand, underscoring the urgent need for us to adapt and strengthen our resilience.

The City of Pickering is committed to playing its part in this global effort. Our CCAP is not just a document; it is a testament to our dedication to enhancing climate resilience. This plan outlines strategies and actions to address the increasing impacts of climate change, ensuring the well-being of our community, local ecosystems, and infrastructure.

From infrastructure upgrades and green space expansions to adopting climate-resilient plans, the City is proactively integrating climate resilience practices. It is essential that we continue to incorporate these adaptive strategies into our core planning and decision-making processes. By fostering continuous dialogue with our community and local businesses, and prioritizing equity in all our efforts, we can ensure that every resident benefits from these initiatives.

The CCAP serves as a vital tool as we navigate our path toward a sustainable, resilient future for Pickering. Our collective efforts today will leave a lasting impact on the environment and quality of life for generations to come.

Thank you for your ongoing support as we embark on this crucial journey together.

Sincerely,

Marisa Carpino

Chief Administrative Officer, City of Pickering

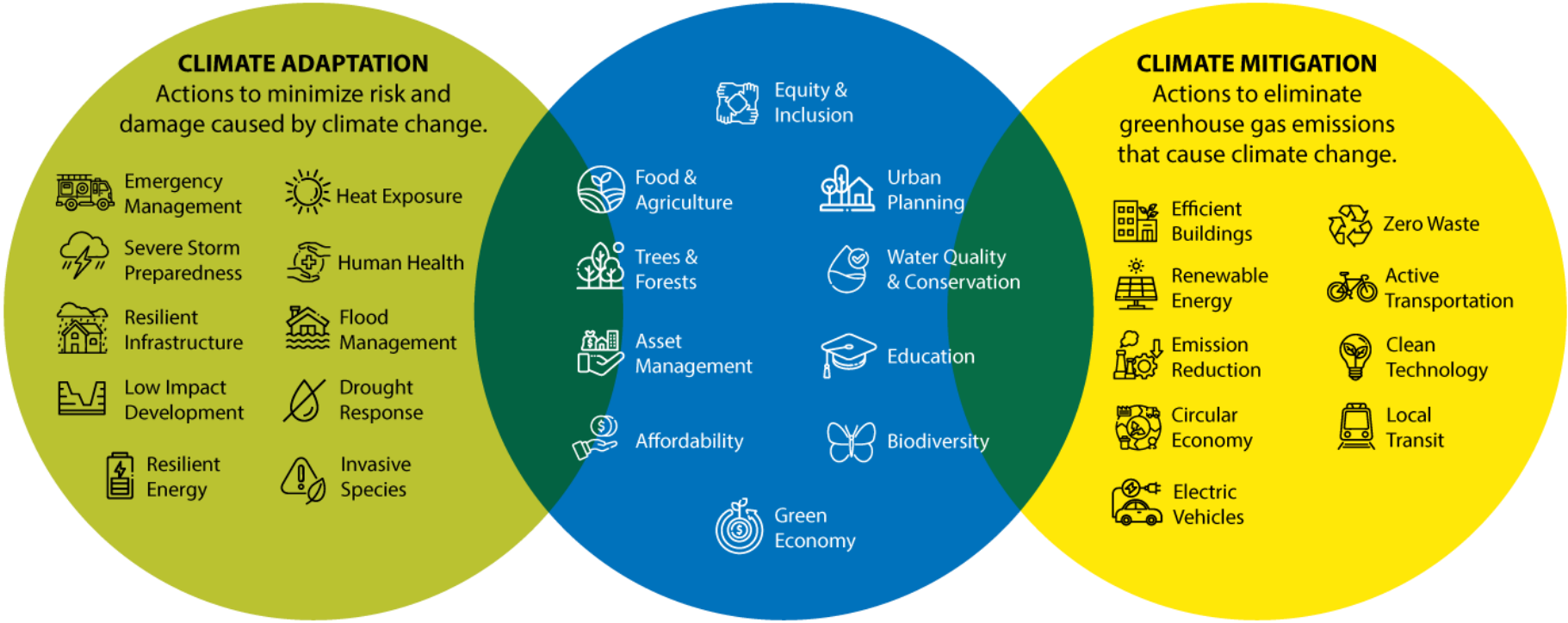
Introduction

Climate change is defined as the long-term shift in temperatures and weather patterns primarily due to human activities that release greenhouse gas emissions. Climate change is already impacting Ontario. Recent events, such as the 2017 floods, the 2022 derecho storm, the 2023 air quality issues from wildfires in Northern Ontario, Quebec and Western Canada, and the 2024 flooding events in the Greater Toronto Area, highlight the urgent need for comprehensive action.

Effective climate action encompasses two key strategies: adaptation and mitigation.

- **Climate adaptation** focuses on preparing for and managing the impacts of climate change.
- **Climate mitigation** aims to limit future climate change by reducing greenhouse gas emissions.

For Pickering, prioritizing climate adaptation will ensure the city can effectively manage the inevitable impacts of a changing climate, fostering a resilient and thriving community.



Local Context

Pickering is already experiencing the impacts of climate change, including an increase in high heat days, the spread of invasive species, and extreme weather events, resulting in a loss of tree canopy, property damage, and utility disruptions. Climate modeling projections show these impacts will become more frequent, intense, and severe over time.

In 2022, a derecho storm caused over $720 million in damage in Ontario[1], leaving thousands in Pickering and Uxbridge without power for more than a week as a result of the extensive damage. More recently, in July 2024, severe thunderstorms caused heavy rainfall and road closures in Pickering.

The 2024 storm also significantly impacted the broader Greater Toronto Area, leaving 167,000 people without power and causing widespread basement flooding[2].

These events highlight the urgent need to build resiliency to floods, windstorms, heat events, and poor air quality caused by wildfires. As climate change progresses, these extreme weather events will become even more intense and frequent, making it crucial to take proactive action now to protect Pickering's residents, infrastructure, and environment.

[1] Insurance Bureau of Canada (2024). "Derecho storm ranks 6th largest insured loss event in Canadian history". https://www.ibc.ca/news-insights/news/derecho-storm-ranks-6th-largest

[2] City of Toronto (2024). "Toronto's Current and Future Climate" www.toronto.ca/wp-content/uploads/2024/12/949f-TorontosCurrentandFutureClimate-REPORT-Final.pdf

Recent Extreme Weather-Related Events

Spongy moths back in Durham, experts hope it's in a less devastating fashion

3 Durham schools to remain closed for 2nd day after devastating Ontario storm

By Isaac Callan · Global News

Pickering business facing major damage following severe wind storm

'AVOID TRAVEL': Environment Canada puts Pickering and Ajax as well as Whitby and Oshawa and rest of Durham under Winter Storm Watch warning of 15 cm of snow and 'damaging' conditions

'Travel is expected to be hazardous due to reduced visibility in some locations'

By Louie Rosella · DurhamRegion.com
Thursday, December 22, 2022

Severe thunderstorm, ping pong ball sized hail warning in place from Oshawa to Pickering

Winter storm closing all schools from Pickering to Clarington

Narcity

Ontario's Weather Forecast Calls For Intense Heat With ...

"This line of severe thunderstorms is located from Pickering to The Beaches, moving southeast at 50 km/h," EC stated. On top of the impending...

1 week ago

What to know as storm clean-up continues in Durham

Municipalities seeing a high volume of calls about downed trees, blocked roads

By Jillian Follert · DurhamRegion.com
Sunday, May 22, 2022

Residents in Oshawa, Ajax, Pickering, Clarington, Whitby and north Durham are being warned to stay away from waterways as warm weather, rain forecast

Conservation Authority says runoff could make creeks, rivers 'extremely dangerous'

By Tim Kelly · Oshawa This Week
Thursday, December 29, 2022

HOME | ENVIRONMENT | WEATHER CONDITIONS

Severe Toronto storm causes flooding, major power outages

12 people rescued from flooded Don Valley Parkway, Toronto Fire says

Police, Environment Canada warning of flooding dangers from Pickering to Oshawa

Durham | Ajax | Clarington | Oshawa | Pickering | Whitby | Latest News | Weather

By Glenn Hendry
Published July 16, 2024 at 1:01 pm

Heavy rains are causing flooding across the GTA Tuesday, with Environment Canada issuing a rainfall and severe thunderstorm warning and Durham Police warning residents about flash floods and water pooling on roads.

Alignment with the Corporate Strategic Plan

The City of Pickering launched its first Corporate Strategic Plan, which identifies a vision, goals, and key actions to be achieved over this term of Council and beyond.

This climate adaptation plan aligns with the six priorities outlined in Pickering's 2024-2028 strategic plan by:

Advancing Innovation & Responsible Planning to Support a Connected, Well-Serviced Community: By incorporating climate resilience into planning, the plan helps ensure that new developments are sustainable and adaptable, fostering a well-connected and well-serviced community.

Championing Economic Leadership & Innovation: Integrating climate resilience into urban planning drives sustainable practices, boosts economic growth, and attracts investment.

Advocating for an Inclusive, Welcoming, Safe & Healthy Community: Actions in the plan aim to enhance community safety and well-being, protect vulnerable populations, and support resilient infrastructure and green spaces.

Leading & Advocating for Environmental Stewardship, Innovation & Resiliency: The plan reinforces Pickering's environmental leadership through innovative and proactive climate resilience measures.

Strengthening Existing & Build New Partnerships: It facilitates collaboration with municipalities, businesses, and organizations, strengthening existing partnerships and forming new alliances.

Fostering an Engaged & Informed Community: The plan promotes equitable involvement and awareness among residents, empowering and supporting their resiliency efforts.

Actions to Date

In addition to the Corporate Strategic Plan, Pickering has integrated climate resiliency into its corporate and community culture through various programs, policies, and declarations. The City has since implemented measures, such as:

- warming and cooling centres to support residents during extreme weather events
- naturalization projects
- shade structures
- waterfront restoration

The plan is designed to align with initiatives such as the Corporate Energy Management Plan, the Community Emergency Management Plan, the Integrated Sustainable Design Standards, the Community Safety and Well-Being Action Plan, and Amendment 23 to the Pickering Official Plan. To enhance its climate resiliency, the City of Pickering in collaboration with ICLEI Canada conducted a technical assessment to identify and prioritize climate risks. This work, done as part of the Community Climate Adaptation Plan, helped to tailor the approach to community needs.

Policy Drivers

A comprehensive policy review at the federal, provincial, and regional levels informed the CCAP's development, ensuring it complemented existing policies while providing strategic adaptation benefits.

Examples of plans in which alignment has been sought includes the National Adaptation Strategy; the Durham Community Climate Adaptation Plan, which was endorsed by Pickering Council on May 8, 2017; and the Toronto and Region Conservation Authority's 2023-2034 Strategic Plan.

These plans offer robust frameworks and strategic directions that are highly relevant to enhancing the City of Pickering's climate adaptation planning. These documents provide actionable insights and collaborative opportunities that Pickering can leverage to bolster its climate adaptation and sustainability efforts.

As such, this plan aims to balance economic, environmental, and social priorities, integrating climate action into all these efforts.

Phased Approach

The development of the climate adaptation plan followed a structured five-step approach:

- **Phase 1:** Climate Risk Assessment
- **Phase 2:** Policy Review & Gap Analysis
- **Phase 3:** Community Engagement
- **Phase 4:** Action Plan Development
- **Phase 5:** Climate Adaptation Plan Finalization

Climate Projections

What is RCP 8.5?

A Representative Concentration Pathway (RCP) is a climate model used by the Intergovernmental Panel on Climate Change (IPCC). The IPCC is an international organization that evaluates and synthesizes the latest scientific research on climate change. In its Fifth Assessment Report (2014), IPCC used RCPs to illustrate how different greenhouse gas emission levels impact future climate conditions. In the Sixth Assessment Report (2021), these scenarios are now based on Shared Socioeconomic Pathways (SSPs), with the timing of this plan and availability of climate parameters, RCPs were used. The plan presents RCP 8.5 for 2041-2070, aligning with trends in the Region of Durham and neighboring municipalities. For a detailed breakdown of Pickering's climate projections, please visit the Guide to Conducting a Climate Change Analysis at the Local Scale: Lessons Learned from Durham Region (2020)[3].

Why RCP 8.5?

Using the RCP 8.5 scenario for Pickering's Community Climate Adaptation Plan is crucial because global GHG emissions are still trending upwards, aligning with this high-emissions pathway. Assuming new policies and investments will reverse this trend is not yet prudent, making RCP 8.5 the most reliable basis for planning.

Climate Change Analysis for Durham Region

In 2020, the Ontario Climate Consortium, in partnership with Durham Region, the eight local municipalities and five local conservation authorities, published a guidance document titled Guide to Conducting a Climate Change Analysis at the Local Scale: Lessons Learned from Durham Region (2020). The document presented downscaled climate projections across Durham Region using an ensemble modelling approach.

The insights from this work offer a crucial foundation for understanding and preparing for the city's future climate scenarios. These findings have provided updated climate projections that paint a detailed picture of the expected meteorological changes, such as increased temperatures and more intense precipitation patterns. These projections were used to help Pickering inform the priorities for developing its adaptation strategies, ensuring that infrastructure, natural resources, and community planning are resilient in the face of evolving climate realities.

[3] Ontario Climate Consortium (2020). "Final guide to conducting a climate change analysis". https://climateconnections.ca/app/uploads/2021/03/Final-Guide-to-Conducting-a-Climate-Change-Analysis-OCC_Nov.pdf

Key Insights

Under the RCP 8.5 scenario, the climate trends for the City of Pickering are projected using values from 1971 to 2000 as a baseline compared with future projections for 2041 to 2070. The following climate projections were extracted from the Ontario Climate Consortium Guide to Conducting a Climate Change Analysis at the Local Scale: Lessons Learned from Durham Region (2020)[3]. This comparison points toward a significant increase in temperatures and changes in precipitation patterns.

Mean Annual Temperature: A significant rise in mean annual temperature is anticipated, reaching 10.1°C by 2070, compared with the historical average of 7.0°C.

Extreme Cold Days: The occurrence of extremely cold days will become less frequent, with days below -20°C decreasing from 8.6 to just 3.0 days per year, and days below 0°C reducing significantly from 146.8 to 111.6 days, indicating much milder winters.

Dry Days: The number of consecutive dry days is expected to increase from 18.2 days to 21.9 days, indicating a shift toward longer dry periods in the future climate conditions of the area.

Extreme Heat Days: There will be a dramatic increase in the number of extremely hot days, with those over 30°C expected to jump from 7.6 days to 23.1 days per year, and days over 35°C increasing from 0.2 days to 2.8 days annually.

Precipitation: Predictions show a 19% increase in overall annual precipitation. Extreme single-day rainfall events are projected to increase in intensity by up to 21 mm above the current maximum.

Growing Season: The growing season in Pickering is projected to extend significantly, from 163 days to 193 days by 2070. This increase of close to 30 days allows for a longer duration of plant growth and agricultural productivity.

Ice and Snow: The number of potential ice days per year in Pickering is projected to decrease by 16.1 days, leading to potential challenges for winter activities and ecosystems adapted to historical snow conditions, but also reducing some of the winter heating energy demands.

These projections paint a picture of a warmer and wetter future for Pickering, with heat extremes and precipitation variability posing new challenges. While reduced cold extremes may alleviate some winter-related issues, the potential benefits such as extended growing seasons and reduced snowfall are accompanied by their own set of management challenges. These include increased risks from pests, droughts, fires, and other climate-related extremes.

[3] Ontario Climate Consortium (2020). “Final guide to conducting a climate change analysis”. https://climateconnections.ca/app/uploads/2021/03/Final-Guide-to-Conducting-a-Climate-Change-Analysis-OCC_Nov.pdf

Climate Risk Assessment

The City of Pickering in collaboration with ICLEI Canada conducted a community-wide climate risk assessment.

This work involved the Climate Adaptation Working Group, made up of community stakeholders and various regional and City departments, who participated in a co-created climate risk and vulnerability assessment.

Through a series of exercises the working group identified the following eight priority climate impacts to move forward into planning, focusing on those with medium or higher risk scores in at least one category. These priority impacts form the basis for Pickering's strategic efforts to build resilience against a changing climate.

Priority Climate Impact Statements

- Increase in temperatures or sudden fluctuations in temperature and rain events, causing damage to crops, trees, native plants, and fruit-bearing plants. This could result in reduced vegetation, crop yield for agriculture, and food sources for wildlife.
- Increase in average temperatures and hot days over 30°C causing heatwaves leading to health risks (such as cardiovascular disorders, heat stress) especially to vulnerable populations.

- Increase in the average temperatures and hot days over 30°C causing increased stress on corporate infrastructure and assets such as buildings and roads, resulting in increased maintenance and replacement requirements.
- Increase in the average winter temperatures causing shifts in eco-regions for flora and fauna and hardiness zones, resulting in increased survival and spread of invasive species such as the Emerald Ash Borer and Phragmites, damage to urban forests, and reduced ecosystem services, such as water cycle impacts, pollinator impacts, and decreased health of natural heritage features.
- Hotter and drier summers causing higher tree mortality and decreased health of non-irrigated grass, resulting in loss of natural cooling areas.
- Hotter and drier summers causing decreased health of the urban forest and other natural features such as wetlands, resulting in reduced ecosystem services.
- Increase in the frequency and intensity of precipitation events causing increased runoff and erosion, resulting in increased stress on stormwater management.
- Increase in the frequency and intensity of extreme weather, resulting in temporary closure of businesses, schools, markets, and City events and programs.

Community Engagement

Engaging a diverse range of stakeholders was essential in developing a strong and well-informed Community Climate Adaptation Plan (CCAP) for the City of Pickering. This section outlines the methods employed to try to ensure inclusive, equitable, and effective participation from all community segments and decision-makers. Below are the engagement activities undertaken to support the development of this plan:

- Conducted stakeholder mapping, categorizing stakeholders by criteria, and prioritizing inclusivity. Following this an engagement plan targeting technical stakeholders, First Nations and Indigenous Peoples, the public, and Council members was developed for effective and equitable engagement.
- Sent out letters to invite local Rightsholders, Indigenous, communities, and equity-serving groups to engage in the process.
- Engaged Council members to discuss project scope, deliverables, and future steps. Hosted a follow-up session to discuss community feedback, and the development of the plan.
- Created a dedicated Let's Talk Pickering page to promote the project, solicit feedback, and inform stakeholders on key updates.
- The City hosted seven pop-up booths at key locations to facilitate direct engagement with residents.

- Targeted surveys with 1,120 survey responses to gather insights from the public, school community, places of worship, and development community on climate risks and preparedness, including demographic data to identify vulnerable groups.
- Hosted a 2-hour virtual workshop to refine climate resilience and adaptation actions, using collaborative planning techniques to prioritize actions and define roles.
- Conducted a 3-hour in-person workshop to facilitate collaborative planning to support the plan's development by prioritizing actions and identifying barriers to implementation and risks to inaction, thus providing inputs to establish an integrated governance framework.
- Presented the CCAP to various advisory committees to get their insight on climate adaptation actions.
- Engaged residents at a town hall meeting to discuss climate risks, adaptation, and resilience; and gather their experiences and visions for a resilient Pickering.
- Prepared a recording for Let's Talk Pickering to provide an overview of the CCAP and collected feedback on the draft plan through a survey.

Key Findings from the Engagement Process

This section presents findings from surveys conducted across various community segments in Pickering, along with insights from interviews with Council members and engagement workshops. These findings have shaped the resulting strategies to enhance climate adaptation, ensuring that the Community Climate Adaptation Plan is responsive and inclusive of the City's diverse needs.

Community Concerns: Widespread concern amongst the public and school community about weather-related emergencies, particularly power outages and extreme weather events. Mixed views on the City's preparedness. Strong calls for better communication and climate adaptation in planning.

Natural Environment: Key concern about protecting natural habitats, with significant worries about the impact of development and growth on natural areas.

Engagement and Education: Importance of public consultation, education, and improved climate literacy to address climate denial and enhance community understanding of climate-related issues.

Support Networks: Strong willingness among residents to assist neighbours during emergencies, highlighting the importance of community engagement and support networks.

Development Challenges: Development community incorporates low-impact development and stormwater management but faces high initial costs. Needs financial incentives and clearer guidelines.

Fiscal Responsibility: Emphasis on the need for fiscal responsibility in implementing climate adaptation measures.

Continuous Feedback and Adaptation Loop: Need for a continuous feedback mechanism to ensure the CCAP remains dynamic and responsive to evolving community needs and insights.

Equity Considerations: Crucial to address diverse and vulnerable populations in emergency preparedness and response planning.

The Business Case for Adaptation

Developing a business case for climate adaptation involves evaluating current and future costs, identifying potential savings from avoided damages, and highlighting additional benefits. This approach provides a clear picture of the financial implications and advantages of adaptation measures, demonstrating their value in protecting long-term economic and environmental sustainability.

Projected Future Costs of Climate Risks in Canada

The financial impact of weather-related disasters in Canada has surged dramatically, with average losses increasing from $8.3 million per event in the 1970s to $112 million per event between 2010 and 2019—an extraordinary 1,250% rise. This trend underscores the escalating costs associated with climate risks[4].

Infrastructure Costs

- **Flood Damage:** Flood damage to homes and buildings to increase fivefold in the coming decades and tenfold by the end of the century, potentially reaching up to $13.6 billion annually[4].
- **Transportation Damage:** Damage to roads and railways from temperature and rainfall variations could reach $5.4 billion annually by mid-century, with costs potentially rising to $12.8 billion by the century's end. Damage to electrical infrastructure could exceed $4.1 billion annually[4].

Infrastructure Savings from Adaptation

- **Building Relocation:** Relocating buildings from high-risk flood zones could reduce flood costs by up to 90% by the end of the century, potentially saving up to $1 billion annually[4].
- **Road Maintenance:** Using climate-resilient materials for road construction and repaving could reduce future costs by over 90%, saving as much as $4.1 billion annually by the 2050s[4].

[4] Canadian Institute for Climate Choices (2020). "Tip of the iceberg: navigating the known and unknown costs of climate change for Canada." https://climatechoices.ca/wp-content/uploads/2021/09/FINAL-ExecSumm-Infrastructure-Report.pdf

Economic Impacts

- **Heat-Related Health Costs:** The cost of heat-related health issues is projected to range from $3.0 billion to $3.9 billion annually by mid-century[5].
- **Transportation Disruptions:** Climate-induced damage to transportation infrastructure could lead to significant delays and disruptions, resulting in substantial costs across supply chains and industries, affecting economic productivity.
- **Productivity Losses:** Climate change could lead to a loss of approximately 128 million work hours annually by the end of the century, translating to $15 billion in lost productivity[5].

Addressing these risks proactively through adaptation measures can significantly mitigate future costs and provide additional benefits, such as reduced carbon emissions and improved public health. By investing in climate resilience now, municipalities can aim to prevent substantial future expenses, strengthen its economic competitiveness, and ensure long-term environmental and financial stability.

[5] Canadian Climate Institute (2021).“The Health Costs of Climate Change” https://climatechoices.ca/wp-content/uploads/2021/06/ClimateChoices_Health-report_Final_June2021.pdf

The Savings of Proactive Action

The Canadian Climate Institute's 2023 report shows that investing in climate adaptation today has significant financial benefits. In both low- and high-emissions scenarios, adaptation measures can reduce climate impacts by up to 50% by the end of the century. If these measures are combined with global efforts to reduce emissions, the total economic losses from climate change can be reduced by 75% by the end of the century[6].

For every $1 spent on adaptation, Canadians can expect to gain $13 to $15 in savings and benefits in the future.[6]

Economy-wide benefits

Knock-on benefits associated with avoided direct costs, such as reduced disruption of supply chains.

Direct benefits

Reduction of costs directly associated with the adaptation measure, such as lower repair and replacement costs.

[6] Canadian Institute for Climate Choices (n.d.). "Damage Control: How Canada can prepare for climate change impacts". https://climateinstitute.ca/adaptation/#:~:text=In%20our%20report%20Damage%20Control,and%20indirect%20savings%20and%20benefits.

The Co-Benefits of Investing in Climate Adaptation

The following co-benefits highlight how climate adaptation not only addresses immediate climate risks but contributes to overall enhancements of the well-being of the community.

Economic Resilience and Growth

Proactively adapting to the changing climate helps safeguard Pickering's infrastructure from extreme weather and minimizes the financial burden of service disruptions.

Co-Benefits

- **Reduce Future Costs:** Investing in climate adaptation can save significant money over time. For example, the 2013 Toronto floods had $1 billion in damages, and the 2022 Ontario derecho with $720 million in damages in Ontario[7]. By upgrading infrastructure now, municipalities can avoid similar expensive repairs and service interruptions.
- **Minimize Service Disruption Costs:** Effective climate adaptation reduces the frequency and severity of service disruptions, such as power outages. The economic impact of service disruptions includes repair costs and lost productivity. Investing in resilient infrastructure helps mitigate these costs and maintain consistent, reliable services.
- **Generate Local Jobs:** Climate adaptation projects, like building resilient infrastructure, create job opportunities and stimulate local economic growth[8].
- **Drive Innovation:** Investing in climate solutions fosters innovation and positions the City of Pickering as a leader in sustainability.

Enhanced Biodiversity and Nature Services

Climate adaptation efforts are crucial for protecting Pickering's ecosystems, water supplies, and biodiversity.

Co-Benefits

- **Preserve Natural Resources:** Adaptation measures protect local ecosystems and improve resource management. For example, some flood prevention projects help maintain clean water sources, prevent erosion, and reduce harm to natural habitats, contributing to a more healthy environment.
- **Enhance Community Beautification:** Sustainable practices and green infrastructure, such as expanding urban green spaces and improving parklands, enhance the visual appeal of the city. This beautification makes Pickering more inviting and enjoyable for residents and visitors alike.

[7] Insurance Bureau of Canada (2024). "Derecho storm ranks 6th largest insured loss event in Canadian history". https://www.ibc.ca/news-insights/news/derecho-storm-ranks-6th-largest

[8] Government of Canada (2020). "A Healthy Environment and a Healthy Economy". https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/healthy-environment-healthy-economy.html

- **Boost Tourism:** A greener, more beautiful city attracts tourists and enhances their experience. Projects like urban tree planting and waterfront improvements not only support environmental health but also increase Pickering's appeal as a destination, encouraging tourism and local economic growth.
- **Lower Carbon Emissions:** Green infrastructure and sustainable practices reduce greenhouse gas emissions, contributing to a healthier environment.

Infrastructure and Operational Efficiency

Investing in resilient infrastructure ensures that City facilities and services are better prepared to withstand extreme weather events, reducing maintenance and repair costs. Effective climate adaptation improves resource efficiency, such as water and energy management, leading to cost savings and enhanced operational performance.

Co-benefits

- **Enhance Infrastructure Durability:** Investing in resilient infrastructure reduces repair costs. The 2017 Ottawa flood cost about $80 million in cleanup and repairs; resilient design can help prevent such high costs[8].
- **Save on Resources:** Better resource management, such as efficient water systems and energy use, leads to cost savings and improved operational efficiency.

[8] Ottawa Citizen (2024, December 2). "Stormy weather for city budgets. Ottawa Citizen". https://ottawacitizen.com/news/local-news/stormy-weather-for-city-budgets

Improved Health, Social Well-Being, and Equity

Climate adaptation measures are vital for protecting Pickering's most vulnerable residents, including low-income families and the elderly, from climate-related risks. These efforts not only improve quality of life but also reduce pressures on emergency services and healthcare systems. As well, they play a crucial role in closing equity gaps and supporting reconciliation efforts.

Co-Benefits

- **Protect Vulnerable Populations:** Adaptation strategies, such as establishing cooling centres, help shield at-risk groups from extreme heat and other climate-related hazards, ensuring their health and safety.
- **Reduce Pressure on Emergency Services and Healthcare:** By mitigating extreme weather impacts and improving public health through adaptation measures, the city can help can alleviate some of the burden on emergency services and healthcare systems.
- **Close Equity Gaps and Support Reconciliation:** Climate adaptation efforts aim to reduce disparities by prioritizing the needs of marginalized and historically underrepresented communities, fostering social equity and advancing reconciliation.

Incorporating a Climate Equity Lens

What is Climate Equity?

Climate equity is a principle that emphasizes fairness in addressing climate change. It recognizes that everyone—regardless of gender, race, ethnicity, income, and other characteristics—should benefit from a healthy environment and have access to the resources and opportunities they need to protect themselves from the impacts of a changing climate.

The concept of climate equity acknowledges that climate change doesn't affect everyone equitably.

For instance, low-income individuals and communities are more likely to face the severe impacts of climate events, while also being the most vulnerable to job insecurity. These facts support the inclusion of an equity lens within the CCAP. Considering climate equity in Pickering's CCAP is especially crucial as it aligns with the City's Equity, Diversity, and Inclusion Strategy. This commitment aims to ensure that climate action is sustainable, inclusive, and just for all residents.

Specific climate inequity effects include:

- **Disproportionate Impact**
  Climate change disproportionately affects people experiencing low income, older adults, racialized populations, and persons with disabilities. These groups may face heightened vulnerabilities due to inadequate housing, limited access to food and healthcare, and difficulties during emergencies. Addressing these inequities is essential for developing inclusive climate solutions.
- **Reconciliation Impact**
  Climate change can undermine reconciliation efforts with Indigenous communities by worsening challenges such as land loss, disruption of cultural practices, and food insecurity. Incorporating Indigenous knowledge into climate action is important for achieving true reconciliation.

Integrating Climate Equity in Pickering's CCAP Development & Implementation

Addressing social equity in climate adaptation planning is essential to ensure that vulnerable communities are not disproportionately affected by climate change and that adaptation efforts do not further disadvantage these groups. Pickering's population is expected to grow to over 150,000 by 2036, and its diverse makeup underscores the need for an equitable approach in its Community Climate Adaptation Plan.

Given Pickering's diverse community, it is crucial to understand how different segments of society are affected by and can respond to climate change. This understanding is key to developing inclusive and effective adaptation strategies that benefit all residents.

Essential steps to address this involve:

Participatory Planning Process

- **Community Engagement:** Actively involve a diverse array of stakeholders, including community members from marginalized groups and stakeholder groups that support them, in the planning process to ensure their needs and concerns are addressed.
- **Feedback Mechanisms:** Establish regular feedback channels throughout the planning and implementation phases to adapt strategies based on community input.

Comprehensive Vulnerability Assessments

- **Identifying Vulnerabilities:** Map out neighbourhoods and sectors based on their vulnerability to climate impacts, considering factors such as income, ethnicity, age, disability, and geographic location.
- **Prioritization of Actions:** Focus resources and adaptation efforts first on the communities and sectors identified as most vulnerable.

Data-Driven Strategies

- **Data Collection and Analysis:** Collect and analyze data on demographics, health, economic status, and resource accessibility to inform targeted adaptation measures.
- **Equitable Resource Distribution:** Ensure resources and funding for climate resiliency are distributed equitably, with prioritization given to the most at-risk communities.

Localized and Inclusive Adaptation Measures

- **Place-Based Approaches:** Customize adaptation strategies to the specific conditions and challenges of each community, acknowledging varied vulnerabilities and capacities.
- **Cross-Identity Collaboration:** Encourage collaboration across different identity groups to foster a collective approach to community resilience.

Indigenous Engagement and Reconciliation

- **Culturally Sensitive Partnerships:** Actively seek to support and collaborate with Indigenous communities, First Nations, and Indigenous service providers to develop and implement climate adaptation initiatives that are culturally relevant and beneficial. Respect and incorporate traditional knowledge and leadership in the planning process to enrich the CCAP and foster stronger community ties and resilience.
- **Learning from Indigenous Knowledge:** Integrate Indigenous perspectives and their deep knowledge of natural systems and millennia of experience as stewards of the environment. This collaboration will enhance the effectiveness and cultural relevance of adaptation strategies.

By embedding these mechanisms into the implementation of the CCAP, the City of Pickering can strive to ensure that its climate adaptation efforts are inclusive and equitable, directly addressing the needs of its most vulnerable populations and effectively using community insights and resources for a resilient future.

Guiding Principles

This plan is guided by key principles to ensure effective and equitable action. These principles are designed to align with the City's goals and address the pressing challenges of our changing climate.

Science-Based Decisions: The City commits to using the latest climate science and local data to drive effective adaptation strategies.

Sustainability: Solutions are chosen for their benefits to Pickering's environment, economy, and overall community well-being, promoting long-term sustainability.

Equity and Inclusion: The City embeds an equity lens and ensures broad community involvement in climate adaptation planning and decision-making processes.

Collaboration: The City collaborates with local Rightsholders, services providers, businesses, and residents to implement adaptation measures and enhance community involvement.

Transparency and Accountability: The City maintains clear communication regarding its climate goals, progress, and outcomes, with regular updates and accessible reporting.

Vision, Objectives, & Focus Areas

Vision Statement

Our vision for Pickering is to lead in climate adaptation by integrating innovative science with a deep commitment to equity. We aim to protect and enhance our natural environment, stimulate economic growth, and enhance social well-being, building a resilient city that excels in quality of life, innovation, and inclusivity for all.

Objectives

The following four objectives have been developed to guide the CCAP. They serve as foundational guidelines for the plan and inform the actions within the various focus areas.

- **Strong Built Environment:** Promote the sustainability and livability of the community. It integrates resilient infrastructure, transportation networks, strategic urban design, flood-resilient measures, sustainable building practices, and land use.
- **Healthy Natural Environment:** Promote the well-being and integrity of the air, water, food, and natural areas. It includes invasive species control, increased biodiversity, and the resilience of natural environments, as well as the promotion of local food systems.
- **Healthy Society:** Promote the physical health and well-being of residents. It includes community relations, education and awareness, diversity and equity, public safety, and the preparedness and well-being of community members.
- **Good Governance:** Encompass the strategic framework and institutional arrangements that guide how the city plans for, responds to, and manages climate change challenges. It is the backbone of our climate resilience and adaptation efforts.

Focus Areas

The following eight focus areas have been identified as essential to helping Pickering become a more resilient and adaptive community. They result from Phase 1 of the Community Climate Adaptation Plan, analysis of background research, and extensive public and stakeholder engagement. In the following sections each focus area is discussed, including a general description and key issues.

1.0 Agriculture & Local Food

2.0 Nature & Biodiversity

3.0 Health, Social Well-Being, & Emergency Preparedness

4.0 Local Economy

5.0 Planning & Policy

6.0 Transportation

7.0 Building & Energy

8.0 Stormwater Infrastructure

Agriculture & Local Food

The Agriculture & Local Food focus area addresses the challenges and opportunities posed by climate change on local food systems. Key actions include promoting sustainable farming practices, partnering with the agricultural sector, and improving access to locally grown food through initiatives such as urban agriculture.

Rising temperatures, shifting precipitation, and more frequent extreme weather events pose risks to crop yields, livestock health, and farm operations, while also increasing pest and invasive species pressure.

At the same time, climate change may offer opportunities such as longer growing seasons and increased crop variety. Adapting to these changes requires ongoing collaboration with farmers to support sustainable practices and strengthen local food systems. Improving local food access, including urban agriculture, enhances community resilience and supports food security.

Equity Lens Considerations (Agriculture & Local Food)

- **Enhancing Accessibility:** Addressing challenges like limited time, financial resources, or physical access by designing workshops, urban agriculture initiatives, and programs to meet diverse needs and schedules.
- **Fostering Collaboration:** Bridging gaps in participation by encouraging involvement in cooperatives, networks, and projects from farms of all scales and from residents with varying knowledge and experience.
- **Supporting Sustainability:** Mitigating resource disparities by promoting sustainable practices and guidelines tailored to the needs of farms of all sizes, including small-scale and community-run operations.
- **Engaging Communities:** Overcoming representation gaps by involving diverse groups in the design and implementation of urban agriculture programs.
- **Strengthening Food Security:** Addressing unequal access to nutritious food by ensuring equitable distribution, particularly during climate disruptions, to build community resilience.

Nature & Biodiversity

The Nature & Biodiversity focus area addresses both the impacts of climate change on natural systems and the critical role ecosystems play in enhancing community resilience. Actions include enhancing the urban forest canopy, managing invasive species, restoring wetlands and ravines, supporting species at risk, and integrating nature into stormwater management and asset planning.

Pickering's natural areas, including forests, wetlands, ravines, and urban gardens, provide essential services such as air and water purification, flood protection, and habitat for native species. Healthy, biodiverse ecosystems improve climate resilience by reducing heat, absorbing carbon, and buffering storm impacts.

Adaptation efforts will focus on restoring ecological integrity, expanding native plantings, and promoting public education and stewardship. These nature-based solutions not only protect biodiversity but can also improve public health, climate regulation, and quality of life for residents.

Equity Lens Considerations (Nature & Biodiversity)

- **Targeting High-Need Areas:** Focus tree planting and canopy enhancements in neighbourhoods with greater heat exposure, limited green space or degraded ecosystems.
- **Engaging Communities:** Address barriers like language differences, lack of tools or transportation, limited program awareness, and time constraints to ensure equitable participation in stewardship initiatives.
- **Improving Accessibility:** Design tree planting subsidies, educational programs, and initiatives to accommodate residents of all ages, abilities, and income levels.
- **Inclusive Planning:** Ensure parks, biodiversity areas, and green spaces are equitably located, particularly in neighbourhoods with fewer natural features or higher population density.

Health, Social Well-Being, & Emergency Preparedness

The Health, Social Well-Being, and Emergency Preparedness focus area addresses the physical and mental health risks posed by climate change while promoting equity, public safety, and social resilience. Actions include developing accessible public safety communication strategies, climate preparedness toolkits, and neighbour-helping-neighbour programs to support mutual aid during emergencies.

Extreme weather events such as heatwaves, storms, and poor air quality increase the risk of injury, illness, mental health impacts, and service disruptions. Strengthening emergency preparedness and expanding awareness of climate risks are essential to reduce these impacts.

Building community support systems, including buddy networks, local partnerships, and climate resilience hubs, helps enhance public well-being and ensures vulnerable populations are protected during climate-related events.

Equity Lens Considerations (Health, Social Well-being, & Emergency Preparedness)

- **Community Inclusivity:** Foster inclusive emergency preparedness initiatives by addressing barriers such as language, accessibility, and cultural norms, ensuring all residents can engage with and benefit from support systems.
- **Accessible Communication:** Use diverse, culturally relevant communication strategies to ensure emergency information reaches all residents, including those with limited digital access, sensory impairments, or language differences.
- **Equitable Resource Distribution:** Prioritize the location and design of resources like cooling centers, shelters, and public health initiatives to ensure they are accessible to all neighbourhoods, especially those with socioeconomic or transportation challenges.
- **Culturally Responsive Practices:** Develop outreach, health campaigns, and mental health supports that respect and align with cultural practices, values, and needs to increase effectiveness and accessibility.
- **Infrastructure Equity:** Ensure infrastructure improvements, such as school retrofits and emergency facilities, are equitably distributed and responsive to the needs of communities with fewer existing resources.

Local Economy

The local economy focus area addresses climate risks posed to local businesses. Actions include integrating climate risk assessments into procurement decisions, supporting businesses in adopting resilient practices, and increasing education and awareness to enhance climate resilience.

A resilient local economy is essential for Pickering to thrive in the face of a changing climate, with initiatives designed to help withstand the increasing severity of extreme weather events.

Encouraging businesses to implement adaptation practices and resilient site features plays an important role in fostering a proactive culture.

Equity Lens Considerations (Local Economy)

- **Inclusive Collaboration:** Foster public-private partnerships and involve diverse community stakeholders to ensure that climate resilience efforts reflect the needs of all sectors and equitably distribute benefits.
- **Support for Small Businesses:** Provide targeted assistance to small and locally owned businesses, helping them develop continuity plans and adopt resilient practices to withstand climate-related disruptions.
- **Equitable Procurement Practices:** Encourage municipal procurement processes that prioritize local and diverse businesses, ensuring economic opportunities are distributed fairly within the community.
- **Accessible Education and Incentives:** Engage community leaders to spread awareness about climate adaptation and promote incentives for adopting resilient site features, particularly in areas with limited green infrastructure or resources.

Planning & Policy

The Planning & Policy focus area addresses climate risks by integrating resilience considerations into municipal strategies and governance, including planning policies for new development and future growth. Actions include incorporating climate resilience into infrastructure decisions and budgets, and reviewing local by-laws to support climate adaptation.

Effective planning ensures that infrastructure decisions, budgets, and development projects incorporate climate resilience. This focus area prioritizes the use of local climate data to guide decisions, identify vulnerable neighbourhoods, and direct support where it is most needed. Regular updates to municipal response plans and policies help mitigate urban heat, manage stormwater runoff, and help protect residents from climate-related risks.

Equity Lens Considerations (Planning & Policy)

- **Equitable Resource Allocation:** Focus infrastructure and budget investments in areas with limited financial resources or infrastructure resilience, such as low-income neighbourhoods and rental housing communities, which often face higher risks from inadequate cooling resources and green spaces.
- **Inclusive Engagement:** Include seniors, renters, newcomers, and individuals with disabilities in planning processes to ensure emergency plans and resilience strategies are accessible, culturally relevant, and reflective of diverse community needs.
- **Accessible Urban Design:** Strengthen policies that increase access to green spaces, shade structures, and cooling solutions in dense urban areas and communities with limited access to private air conditioning, such as low-income households and areas with higher populations of elderly residents.
- **Resilient Community Support:** Develop strategies that help address the needs of economically vulnerable, socially isolated, or health-compromised individuals, ensuring emergency preparedness and long-term adaptation policies prioritize their well-being.

Transportation

The Transportation focus area addresses climate risks that disrupt mobility, safety, and access to essential services. Actions include updating design standards for culverts and flood infrastructure, enhancing snow and ice removal practices, and improving the clearing of transportation routes after extreme weather.

As climate-related events like heavy rainfall and extreme temperatures increase, maintaining safe, connected, and resilient transportation networks is critical. This involves upgrading infrastructure, improving road durability, and regularly reviewing design and maintenance standards to reduce weather-related disruptions.

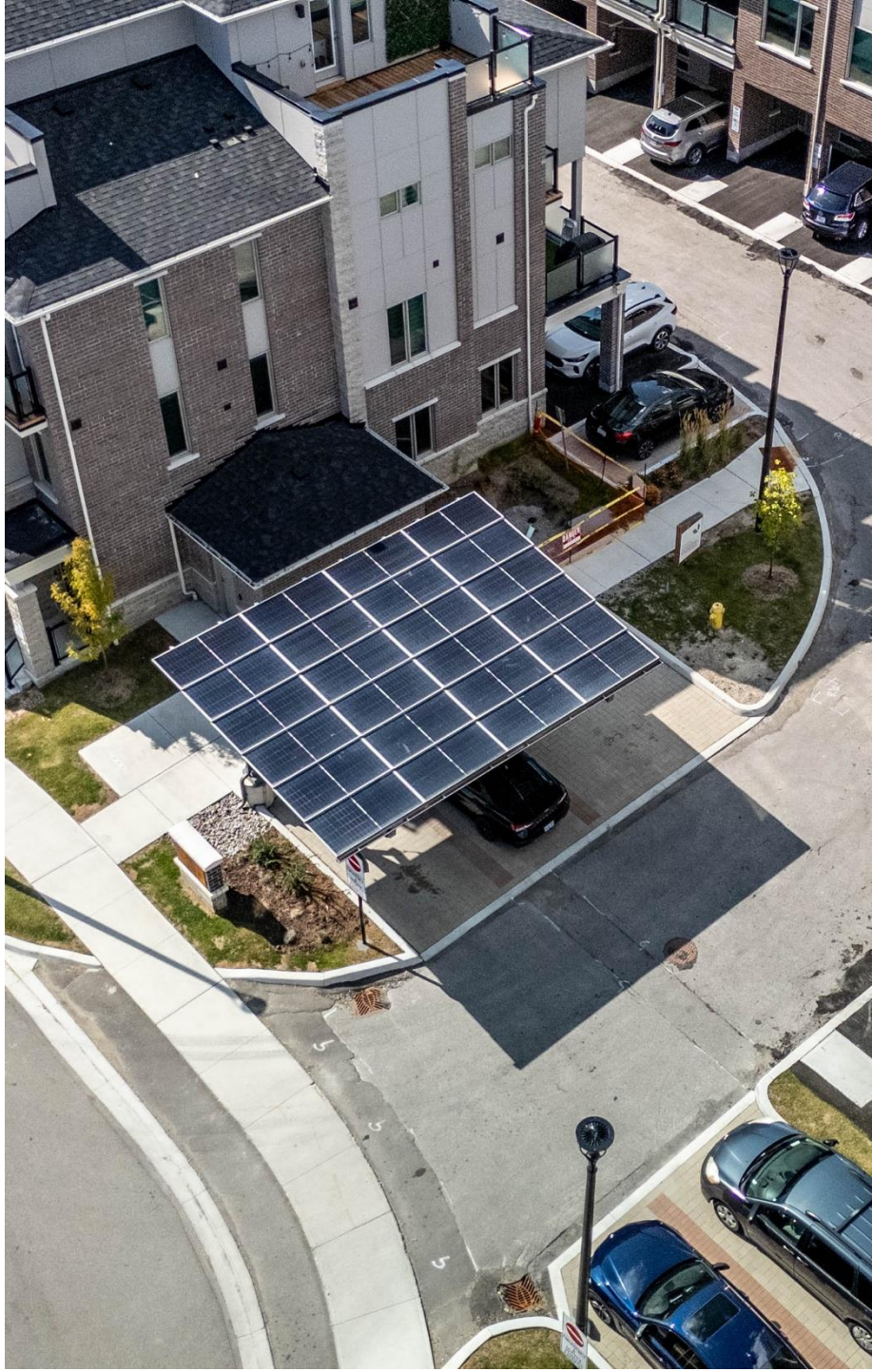
Equity Lens Considerations (Transportation)

- **Prioritizing Infrastructure Needs:** Direct upgrades, such as road and culvert enhancements, to areas where infrastructure is most vulnerable to climate impacts, ensuring improvements address safety, connectivity, and resilience.
- **Accessibility and Affordability:** Ensure that climate adaptation measures and infrastructure improvements are both accessible to all community members and addressing the needs of low-income, elderly, and other vulnerable populations.
- **Accessible Communication:** Provide winter maintenance guidelines and transportation updates in multiple languages and accessible formats to accommodate varying literacy levels, language abilities, and accessibility needs.

Building & Energy

The Building & Energy focus area enhances climate resilience in both municipal and private buildings by addressing risks such as structural damage, energy disruptions, and stress on the energy grid. Actions include supporting resilient building practices, implementing the Corporate Energy Management Plan, developing a corporate building standard with climate adaptation features, and reviewing best practices in climate-resilient asset management.

This focus area emphasizes integrating energy efficiency, sustainable materials, and climate-responsive design into both new and existing buildings. Regular updates to Pickering's Integrated Sustainable Design Standards can further support the long-term resilience of future developments.



Equity Lens Considerations (Building & Energy)

- **Prioritizing Vulnerable Areas:** Focus on improving resilience in infrastructure and energy systems in areas with higher climate vulnerabilities, including neighbourhoods with socioeconomically disadvantaged populations or older, less resilient structures.
- **Affordable Resilience:** Ensure climate-resilient upgrades and retrofitting programs, such as floodproofing and energy-efficient technologies, are affordable and accessible for residents across all income levels.
- **Community-Centred Resilience:** Design infrastructure improvements that prioritize the needs of vulnerable groups, such as seniors and renters, to strengthen overall community well-being and safety during climate events.

Stormwater Infrastructure

The Stormwater Infrastructure focus area addresses climate risks from increased rainfall and severe storms. Actions include mandating water infiltration and storage in new subdivisions, enhancing maintenance of outfalls and catch basins, and promoting strategies to reduce runoff.

With more frequent and intense weather events, it is essential to maintain stormwater and drainage systems that can withstand climate pressures. A comprehensive approach involves regular inspections, maintenance, and upgrades to ensure long-term flood resilience and infrastructure reliability.

Equity Lens Considerations (Stormwater Infrastructure)

- **Community-Centred Design:** Promote naturalized stormwater solutions, such as rain gardens and bioretention cells, in areas that face higher risks of stormwater runoff. These solutions enhance stormwater management while providing additional community benefits.
- **Accessible Education:** Create flood mitigation education materials that are easy to understand and accommodate diverse languages to help residents access and understand critical information.

Implementation Strategy

This implementation strategy, organized by 8 focus areas, details the specific actions required to achieve the CCAP's objectives. It includes:

1. **Identified Actions:** Lists the specific actions required to achieve the strategy's objectives.
2. **Leads and Partners:** Suggests possible leads and partners to be included in the implementation of the actions.
3. **KPIs:** Establishes key performance indicators (KPIs) to measure the success and impact of the adaptation efforts.
4. **Costing:** Estimates the order of magnitude costs associated with each action and outlines potential funding sources.
5. **Timeframe:** Provides a timeline for when the actions will be undertaken.

This comprehensive approach aims to ensure that Pickering can effectively address climate challenges and enhance community resilience.

How to Read the Implementation Strategy

To review the CCAP implementation strategy, begin by examining the outlined adaptation actions with an additional equity lens tailored to each focus area. The implementation strategy also provides estimates of the costing and timeline (reference the legend below for additional clarity) of each action item along with a set of key performance indicators that allow progress to be measured against. The implementation strategy also identifies the designated lead on the action and a preliminary list of City and community partners who hold expertise or could support the success of the action.

Cost	
$	0-100k
$$	100k-800k
$$$	800k+

Timeline	
⏳	1-3 years
⏳⏳	4-7 years
⏳⏳⏳	7+ years

The below acronyms highlight external grant funding opportunities to support implementation. Please note this list is accurate to the date of the creation of this plan and regular monitoring of external funding opportunities will be required.

- **FCM-GMF** Federation of Canadian Municipalities - Green Municipal Fund
- **GCCC** Tree Canada FCM - Growing Canada's Community Canopies
- **GO-GLLAF** Government of Ontario - Great Lakes Local Action Fund
- **IC-DMAF** Infrastructure Canada - Disaster Mitigation Adaptation Fund
- **IC-GICB** Infrastructure Canada - Green and Inclusive Community Building Fund
- **IC-NIF** Infrastructure Canada - Natural Infrastructure Fund
- **IC-RKI** Infrastructure Canada - Research Knowledge Initiative
- **ISAF** Invasive Species Action Fund

Key Performance Indicators

Key performance indicators (KPIs) are measurable goals that help track the success of the CCAP. They can help inform the City on how well implementation is progressing. While the following KPIs are quantitative measures, many qualitative factors are equally important, such as how the action made a difference to individuals or in neighbourhoods. Although the impacts can be difficult to measure during the ongoing implementation of this work, we recognize its importance and will monitor as applicable.

Healthy Natural Environment (HNE)

1.1 Urban Agriculture Engagement: Number of participants, engaged in the City's urban agriculture initiatives.

1.2 Ecosystem Restoration Projects: Number of successful local ecosystem restoration efforts and size of area restored.

1.3 Tree Canopy Expansion: Percentage increase in urban tree cover.

Strong Built Environment (SBE)

2.1 Resilient Infrastructure Projects: Number of infrastructure projects designed to handle extreme weather, including improvements in areas disproportionately affected by climate impacts.

2.2 Key Infrastructure Assessments and Upgrades: Number of inspections and upgrades of critical infrastructure.

2.3 Building Retrofits: Percentage of buildings retrofitted for factors such as temperature regulation, energy efficiency, wind resilience, air quality, and flood prevention.

2.4 Risk Mitigation Measures Implemented: Number of climate risk prevention and maintenance projects completed.

Healthy Society (HS)

3.1 Community Participation: Number of residents participating in climate or resilience surveys, events, workshops and other community engagement opportunities, ensuring broad and inclusive community engagement.

3.2 Heat-Related Health Incidents Reduction: Percentage of heat-related hospital visits, particularly in neighbourhoods with higher vulnerability to heat impacts.

3.3 Support Programs for Vulnerable Populations: Number of programs targeting at-risk groups, including low-income, isolated individuals, the elderly, and disabled residents, ensuring equitable access to resources that support resiliency, such as cooling/warming centres and preparedness kits.

3.4 Household Emergency Preparedness: Number of households prepared for a weather-related emergency.

Good Governance (GG)

4.1 Organizational Collaborations: Number of cross-departmental and external partnerships formed to enhance the coordination and effectiveness of climate adaptation efforts.

Actions

1.0 Agriculture & Local Food

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
1.1	Partner with agricultural associations to understand what farmers are already doing to address the impacts of climate change.	GG	4.1	$	⏳	Region of Durham	Ontario Federation of Agriculture, Ontario Ministry of Agriculture, Food and Rural Affairs, Durham Agricultural Advisory Committee, Durham Region Federation of Agriculture	
1.2	Facilitate collaboration and knowledge exchange among farmers via farmer cooperatives, community networks, and participatory research projects.	HS, GG	3.1 4.1	$	⏳	Region of Durham, City Development	Ontario Federation of Agriculture, Ontario Ministry of Agriculture, Food and Rural Affairs, Durham Agricultural Advisory Committee, Durham Region Federation of Agriculture	

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
1.3	Promote the adoption of agroecological and sustainable farming methods that improve soil health, conserve water, and enhance biodiversity, such as no-till farming, cover cropping, agroforestry, hedgerows, and integrated pest management.	HNE, GG	1.2 4.1	$$	⏳	Region of Durham, City Development	Ontario Federation of Agriculture, conservation authorities, Durham Agricultural Advisory Committee, Durham Region Federation of Agriculture, Durham Farm Fresh, Ontario Soil & Crop Improvement Association	
1.4	Promote urban agriculture through funding initiatives for schools, community gardens, rooftop gardens, etc.	HNE, HS, GG	1.1 3.1 4.1	$$	⏳	City Development, Operations, Finance	Conservation authorities, Region of Durham, Durham Integrated Growers, Durham Food Policy Council, Barrett Centre of Innovation in Sustainable Urban Agriculture	

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
1.5	Continue to offer urban agriculture-related local food educational programs such as seed swaps and vegetable growing workshops.	HS, GG	1.1 3.1 4.1	$	⏳	City Development, Community Services, Pickering Public Library	Conservation authorities, Durham Integrated Growers, Region of Durham, Barrett Centre of Innovation in Sustainable Urban Agriculture, Durham Farm Connections, AgScape	
1.6	Continue to support community-based food security initiatives such as farmers markets and programs that support local farmers to ensure a stable local supply of food, particularly during climate-related disruptions.	HS, GG	1.1 3.3 4.1	$$	⏳	City Development, Community Services, Region of Durham	Conservation authorities, local community groups e.g., food banks, Durham Farm Fresh, DARS, Durham Food Policy Council, Feed the Need, Barrett Centre of Innovation in Sustainable Agriculture	

2.0 Nature & Biodiversity

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
2.1	Develop an invasive species management strategy.	HNE, GG	1.2 4.1	$$	⏳	Operations, Engineering Services	City Development, conservation authorities, Invasive Species Centre, Ministry of Agriculture, Food and Rural Affairs, Canadian Food Inspection Agency	Tree Canada-GCCC ISAF

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
2.2	Analyze heat-vulnerability data to identify the need for canopy shade in vulnerable communities, highlighting areas where the implementation of green infrastructure can mitigate heat-related risks and improve urban livability.	HNE, HS, GG	1.3 3.2 4.1	**$$**	⏳	Engineering Services, City Development, Community Services, Region of Durham	Operations, conservation authorities	Tree Canada-GCCC
2.3	Conduct an urban forest canopy assessment to evaluate canopy cover, tree equity, and current vulnerabilities to climate and tree health, and to identify optimal planting areas. Use this data to update to the 2012 Urban Forest Study.	HNE, GG	1.3 4.1	**$$$**	⏳⏳	Engineering Services, Operations	City Development, conservation authorities, Ontario Urban Forest Council, Region of Durham	Tree Canada-GCCC

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
2.4	Expand community tree planting initiatives on public lands to increase public engagement and canopy cover, focusing on enhancing local biodiversity and resilience.	HNE, HS, GG	1.3 3.1 4.1	$	⏳	City Development	Conservation authorities, Ontario Power Generation, Region of Durham	Tree Canada-GCCC
2.5	Support the naturalization, upkeep, and improvement of natural areas, especially forests/woodlands, aquatic ecosystems, riparian zones, and wetlands. Continue to broaden initiatives that conserve and enrich these environments.	HNE, GG	1.2 4.1	$$$	⏳⏳	City Development, Engineering Services	Conservation authorities, Region of Durham, Ontario Federation of Anglers and Hunters, Ducks Unlimited	IC-NIF
2.6	Introduce planting and education strategies to support pollinators, incorporating drought-resistant native plants in urban and natural areas.	HNE, GG	1.2 4.1	$$	⏳	City Development	Conservation authorities, garden centres/ nurseries, horticultural associations & naturalist groups, property owners	IC-NIF
2.7	Implement a street tree campaign where businesses and residents can adopt and care for newly planted trees.	HNE, HS, GG	1.3 3.1 4.1	$	⏳	Engineering Services, City Development	Local community groups, neighbourhood associations, businesses, residents	

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
2.8	Transition to heat-and - drought resistant native plants and tree species on City owned/managed lands, and ensure adequate resources are available for increased watering needs, such as tanker trucks or irrigation systems.	HNE	1.2 1.3	$	⏳	Operations	City Development	Tree Canada-GCCC
2.9	Develop and implement programs to educate residents in the care and maintenance of privately owned trees.	HNE, HS, GG	1.3 3.1 4.1	$	⏳	City Development	Local community groups, neighbourhood associations	Tree Canada-GCCC
2.10	Continue providing additional subsidy programs for tree planting on private property.	HNE, GG	1.3 4.1	$	⏳	City Development	Conservation authorities, Local Enhancement & Appreciation of Forests (LEAF), Forests Ontario, Region of Durham	Tree Canada-GCCC

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
2.11	Explore opportunities regarding asset management planning in relation to the natural environment.	HNE, GG	1.2 4.1	**$$**	⏳⏳	Finance, Engineering Services, City Development, Operations	Conservation authorities, Region of Durham, Natural Asset Initiative, Greenbelt Foundation, FCM	FCM-GMF
2.12	Protect existing high-quality natural features and areas; restore degraded ecosystems.	HNE, GG	1.1 1.2 4.1	**$**	⏳	Conservation authorities, Engineering Services	City Development, Region of Durham, Ducks Unlimited Canada	
2.13	Explore partnerships with the Sustainable Neighbourhood Action Program to help neighbourhoods build resilience against climate change.	HNE, HS, GG	1.2 3.1 4.1	**$$**	⏳⏳	City Development	Conservation authorities, Region of Durham, Community Services	FCM-GMF IC-NIF

3.0 Health, Social Well-Being, & Emergency Preparedness

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
3.1	Establish buddy systems and neighbour-helping-neighbour programs that encourage residents, especially seniors and those at risk, to connect with local community networks; share resources, information, and assistance; and enhance mutual aid and support during extreme weather emergencies and other crises.	HS, GG	3.1 3.3 4.1	$	⏳	Community Services, Fire Services, Office of the CAO	Region of Durham, community groups, neighbourhood associations, local faith groups, long-term care facilities	
3.2	Foster stronger relationships with neighbourhood groups and local organizations. Work with them to set up community hubs during extreme weather events and investigate options to increase temporary shelters during extreme weather events.	HS, SBE, GG	2.1 3.3 3.4 4.1	$$	⏳	Office of the CAO	Region of Durham, community groups, neighbourhood associations, local faith groups, school boards	

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
3.3	Design or support programs aimed at assisting homeowners and renters in addressing climate risks and improving their preparedness for emergencies. This may involve providing financial support programs, technical assistance for home retrofits, emergency supplies, and mitigation measures.	HS, SBE, GG	2.3 2.4 3.3 3.4 4.1	$$$	⏳⏳⏳	City Development, Region of Durham	Fire Services, Intact Centre on Climate Adaptation, University of Waterloo (Intact Centre), industry collaborators, Institute for Catastrophic Loss Reduction	
3.4	Develop and distribute educational toolkits that provide residents with information and resources on climate risks and emergency preparedness. These toolkits should be accessible, user-friendly, and tailored to the specific needs and vulnerabilities of the community.	HS, GG	3.1 3.4 4.1	$	⏳	City Development, Fire Services, Region of Durham, Office of the CAO	Conservation, authorities, Intact Centre	FCM-GMF IC-DMAF
3.5	Enhance staff capacity to implement community support programs and resources that can manage the needs of vulnerable populations during critical times.	HS, GG	3.3 4.1	$	⏳	Community Services, Office of the CAO	Fire Services, Region of Durham	

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
3.6	Leverage social media and the City's website to maintain open and transparent communication channels for residents. Ensure regular dissemination of significant weather forecasts, emergency preparedness tips, response plans and resources, and live updates during emergencies, to keep the community informed and prepared.	HS, GG	3.1 3.4 4.1	**$**	⏳	Office of the CAO	Fire Services, Region of Durham, conservation authorities, media outlets	
3.7	Conduct a corporate facility needs assessment to identify the resources and infrastructure needed to optimize warming/cooling centres, ensuring they are equipped to support communities during extreme temperature events.	HS, SBE, GG	2.1 2.2 3.2 4.1	**$$**	⏳	Community Services, Operations	Region of Durham	IC-GICB

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
3.8	Identify which facilities have backup power generators and what the facilities can power with the generator.	HS, GG	2.1 2.2 2.4 4.1	**$**	⏳⏳	Community Services, Operations		IC-DMAF IC-GICB
3.9	Launch a transparent public awareness campaign that details the steps the City is taking to improve readiness for weather-related emergencies. This could include showcasing investments in infrastructure, training for emergency personnel, and community preparedness programs.	HS, GG	3.1 4.1	**$$**	⏳	Office of the CAO, City Development	Fire Services, Region of Durham	IC-DMAF
3.10	Review and amend City staff safety practices as needed, to ensure safety during extreme weather events such as days over 30°C.	HS, GG	2.4 4.1	**$**	⏳	Operations	Human Resources	

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
3.11	Increase understanding of values, motivations, and behaviour shifts, to influence climate adaptation perception in community.	HS, GG	3.1 4.1	**$**	⏳	City Development	Corporate Services, Community Services, Office of the CAO	
3.12	Develop culturally inclusive communication strategies for public safety messaging, ensuring that emergency information respects and uses cultural communication norms. For example, form partnerships with multicultural media outlets to broadcast climate resilience information and education.	HS, GG	3.1 4.1	**$$**	⏳	Office of the CAO	City Development, Community Services, Region of Durham, Durham Welcome Centre, Indigenous service providers, local faith groups	

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
3.13	Support vector-borne disease awareness campaign by, for example, installing educational signs in local parks and open spaces, and enhancing disease management programs. Promote public health strategies to control and prevent outbreaks, including personal protection practices, such as the correct application of repellents and use of protective clothing.	HS, HNE, GG	1.2 3.1 4.1	**$$**	⏳	Operations, Region of Durham	Ministry of the Environment and Climate Change	
3.14	Partner and build strong relationships with local organizations to share mental health support initiatives that provide counseling and resources to residents affected by the psychological impacts of extreme weather events.	HS, GG	3.1 4.1	**$$**	⏳⏳	Office of the CAO, Region of Durham	Local faith groups, Indigenous service providers	

4.0 Local Economy

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
4.1	Expand collaboration and foster partnerships between public entities and the private sector, including local organizations, to leverage resources – for example, engaging with local faith groups to establish cooling shelters.	SBE, HS, GG	2.1 3.3 4.1	$	⏳	Office of the CAO, City Development	Community Services, Immigration Centre, Ajax Pickering Board of Trade, Partners in Project Green, STEP Canada, local faith groups	IC-RKI
4.2	Integrate climate risk knowledge into municipal procurement decisions to ensure the resilience of goods, services, and infrastructure against climate impacts.	SBE, GG	2.1 2.2 2.3 2.4 4.1	$	⏳	Finance, Operations, Community Services	Region of Durham, City Development, conservation authorities	IC-DMAF

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
4.3	Raise awareness among businesses about establishing plans to address weather-related emergencies.	HS, GG	3.1 4.1	$	⏳	Economic Development	Ajax-Pickering Board of Trade, Intact Centre, Building Owners and Managers Association (BOMA) Canada, Partners in Project Green, conservation authorities	IC-DMAF IC-RKI
4.4	Encourage businesses to implement adaptation practices and resilient site features and infrastructure.	SBE, GG	2.1 2.4 4.1	$	⏳	City Development, Economic Development	Ajax-Pickering Board of Trade, Region of Durham, Intact Centre	IC-RKI IC-NIF GO-GLLAF Tree Canada -GCCC

5.0 Planning & Policy

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
5.1	Incorporate climate resiliency into infrastructure decisions and associated capital budgets.	SBE, GG	2.1 2.2 2.3 2.4 4.1	**$$$**	⏳⏳⏳	All departments	Conservation authorities	FCM-GMF IC-NIF
5.2	Regularly update and test municipal emergency plans with a focus on climate-induced events, incorporating community input for improved response strategies.	SBE, GG	2.4 4.1	**$$**	⏳	Office of the CAO, Fire Services	Region of Durham, City Development	

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
5.3	Conduct a comprehensive review, as appropriate, to ensure all local by-laws, regulations, and the Official Plan support and enforce climate adaptation measures.	GG	4.1	$	⏳	Corporate Services, Office of the CAO	City Development	
5.4	Review best municipal practices to enhance landscaping-related policies and definitions as appropriate within the Official Plan and Zoning By-law to mitigate impacts of urban heat and stormwater runoff.	SBE, GG	1.2 1.3 4.1	$	⏳⏳	City Development	Engineering Services, Region of Durham, Landscape Ontario	Tree Canada -GCCC IC-NIF GO-GLLAF
5.5	Prioritize the installation of splash pads and shade canopy covers in dense communities where access to shade and/or air conditioning may be limited.	SBE, HS, GG	2.4 3.3 4.1	$$	⏳⏳	Engineering Services	Operations, Region of Durham	

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
5.6	Construct additional features such as shade structures and misting stations, in parks and urban spaces to provide relief from the heat, especially in high pedestrian traffic areas.	SBE, HS, GG	2.4 3.2 4.1	**$$**	⏳⏳	Engineering Services	Operations, Community Services	FCM-GMF
5.7	Explore municipal best practices regarding by-laws to regulate the maximum temperature in dwelling units to protect vulnerable residents from extreme heat.	HS, GG	3.2 4.1	**$**	⏳	City Development, Corporate Services	Durham Region Health, Ontario Government	

6.0 Transportation

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
6.1	Establish a road infrastructure resilience assessment program. This program should regularly evaluate the vulnerability of road surfaces, foundations, and drainage to climate-related damage. Develop a guideline to enhance resilience through material selection, design standards, and maintenance practices.	SBE, GG	2.1 2.2 2.3 4.1	**$**	⏳	Operations, Engineering Services	Conservation authorities, Region of Durham, Ontario Government	FCM-GMF IC-DMAF
6.2	Continue to update and enhance the design standards for culverts and flood infrastructure to improve resilience and manage future climate-related events, prioritizing culvert upgrades or replacements to bolster capacity and resilience against increased precipitation events.	SBE, GG	2.1 2.2 2.4 4.1	**$$$**	⏳⏳	Engineering Services	Conservation authorities, Region of Durham	IC-DMAF

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
6.3	Facilitate discussions with municipalities on best practices, joint efforts, and standards for clearing transportation networks after extreme weather events.	GG	4.1	$	⏳	Operations	Region of Durham, conservation authorities, neighbouring local area municipalities	
6.4	Improve communications to residents and businesses on their role in the maintenance of sidewalks and parking lots, appropriate salt application rates, and best management practices during freezing rain or snow events.	HS, GG	3.1 4.1	$	⏳	Office of the CAO	Operations, conservation authorities, Region of Durham, Smart About Salt Council	

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
6.5	Explore innovative approaches for clearing snow and ice, and the resources required to ensure the continued safety and reliability of travel during winter weather events.	SBE, GG	2.1 2.4 4.1	**$$**	⏳	Operations	Conservation authorities, Region of Durham	
6.6	Prioritize active transportation through the development and enhancement of dedicated bike lanes and pedestrian pathways to promote walking and cycling as viable and safe transportation options.	SBE, HS, GG	3.1 4.1	**$$$**	⏳⏳	Engineering Services, City Development, Operations	Conservation authorities, Region of Durham	

7.0 Building & Energy

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
7.1	Continue implementation of the Corporate Energy Management Plan. Develop a corporate building standard for City facilities that include climate adaptation and resiliency as key design features, to protect City facilities from extreme weather-related events, enable business continuity, and allow certain buildings to act as places of refuge.	SBE	2.1 2.2 2.3 2.4	**$$**	⏳⏳	Operations, Community Services		FCM-GMF IC-GICB
7.2	During the scheduled review of the Pickering's Integrated Sustainable Design Standards, consider performance measures that will enhance the resilience of new developments to extreme weather-related events.	SBE	2.1	**$**	⏳	City Development	Region of Durham, Institute for Catastrophic Loss Reduction, development community	FCM-GMF

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
7.3	As opportunities arise, provide comments to support revisions to building codes to require climate-responsive design features for new construction, ensuring longevity and resilience to extreme weather events.	SBE, GG	2.1 2.3 2.4 4.1	$	⏳	City Development	Provincial Government	
7.4	Organize opportunities to facilitate the exchange of best practices and challenges for climate-resilient design in various industries, such as the development community, landscape industry, and others.	SBE, GG	3.1 4.1	$	⏳	City Development	Region of Durham	

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
7.5	Conduct a best practice review regarding climate-resiliency and asset management planning.	SBE, GG	2.1 2.2 2.4 4.1	**$$**	⏳⏳	Finance, Operations, Engineering Services, Community Services, City Development	Region of Durham, Federation of Canadian Municipalities	FCM-GMF
7.6	Assist school facilities in mitigating the impacts of extreme heat. This may involve installing shade structures such as a large tree canopy, improving ventilation systems, and ensuring access to cool drinking water, to create a comfortable learning environment during heatwaves.	SBE, HS, GG	2.2 2.3 3.2 4.1	**$$**	⏳⏳	School boards, Region of Durham	City Development, Durham Health	
7.7	Support studies to identify potentially suitable locations for district energy and microgrids.	SBE	2.1 2.4	**$$**	⏳⏳	Region of Durham, City Development	Elexicon Energy, Operations	FCM-GMF

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
7.8	Undertake load forecast monitoring to understand both the current and future electrical capacity based on development projections.	SBE, GG	2.1 2.2 2.4 4.1	$	⏳	Elexicon Energy	Region of Durham, City Development, Independent Electricity System Operator, Hydro One	FCM-GMF IC-DMAF
7.9	Explore opportunities to support existing home retrofit programs, prioritizing resiliency measures like floodproofing, backwater prevention valves, windproofing, and heat pump installation.	SBE, HS, GG	2.1 2.2 2.4 3.1 3.4 4.1	$$	⏳⏳	Region of Durham	Finance, City Development, Elexicon Energy	FCM-GMF

8.0 Stormwater Infrastructure

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
8.1	Explore developing a comprehensive stormwater infrastructure monitoring and maintenance strategy. This strategy would include regular inspections, maintenance, and upgrades to stormwater systems and other critical stormwater infrastructure.	SBE, GG	2.1 2.2 2.4 4.1	**$$$**	⏳⏳	Engineering Services, Operations	Conservation authorities	FCM-GMF IC-DMAF
8.2	Maintain outfalls and catch basins by increasing maintenance schedules and employing innovative technologies for early detection of issues and efficient maintenance practices.	SBE, GG	2.2 2.4 4.1	**$$**	⏳	Operations, Engineering Services	Region of Durham, Conservation authorities	

#	Action	Objective	KPIs	Cost	Timeline	Lead	Partners	Funding
8.3	Where it is suitable, promote options to reduce stormwater runoff and the associated maintenance requirements of low-impact design techniques, such as, rain gardens, to support onsite infiltration.	SBE, GG	2.1 3.1 4.1	**$$**	⏳	Conservation authorities, City Development	Engineering Services, Region of Durham, non-profits such as Ducks Unlimited, Green Infrastructure Ontario	IC-NIF
8.4	Mandate water infiltration and storage in the design of new subdivisions.	SBE, GG	2.1 2.4 4.1	**$$**	⏳	Engineering Services	Conservation authorities	IC-NIF
8.5	Implement a targeted education program for residents in high flood-risk areas, outlining flood mitigation strategies.	HS, GG	3.1 3.3 4.1	**$**	⏳	Conservation authorities, City Development	Engineering Services	FCM-GMF

Governance

Incorporating a climate lens into corporate-wide decision-making processes is vital for the City of Pickering's success in enhancing climate adaptation.

Climate change introduces increasing risk exposure which can disrupt the City's ability to maintain functionality of critical infrastructure and key services. This underscores the importance of proactive measures to assess and manage these challenges early.

By prioritizing and coordinating investments in resilient infrastructure and sustainable practices, the City aims to achieve long-term cost savings, safeguard community members, and ensure compliance with legal requirements related to climate impacts such as Ontario Regulation 588/17 for Asset Management. This regulation requires municipalities to address, through asset management planning, the vulnerabilities to infrastructure that may be caused by climate change.

Key approaches to incorporating a climate lens into municipal decision-making include:

- **Strategic Alignment:** Ensuring City priorities and adaptation goals align by incorporating resilience into infrastructure and planning.
- **Transparency and Accountability:** Engaging residents, businesses, stakeholders, and Rightsholders to foster transparent decision-making and responsible resource management.
- **Continuous Improvement:** Updating strategies based on new climate science and community feedback to effectively tackle emerging challenges.
- **Whole-of-City Approach:** Integrating climate resilience actions across all City departments and functions as appropriate.
- **Ongoing Engagement:** Collaborating with diverse stakeholders to drive innovation and implement effective initiatives.
- **Long-Term Financial Investment:** Committing to investments in resilient infrastructure and emergency preparedness to reduce risks.
- **Staff Resourcing and Training:** Equipping City staff with the necessary expertise and ensuring they understand their roles in the successful implementation of the Community Climate Adaptation Plan.

Governance Process

The governance process outlines the roles and responsibilities of elected officials, City staff, and the community in identifying annual projects and priorities, tracking performance, and seeking efficiencies through coordinated collaboration. This approach ensures a strategic and effective response to challenges, promoting continuous improvement and resilience.

Integrating Climate Considerations into Corporate Planning & Policy

- **Policy Integration:** Embed climate considerations into municipal policies, regulations, and development approvals to promote sustainable growth and enhance resilience.
- **Asset Management:** Explore opportunities to integrate asset management planning and adaptation strategies.

Budgeting with a Climate Lens

- **Prioritizing Resilient Investments:** Allocate budget resources for infrastructure projects that enhance resiliency, such as flood management systems and energy-efficient initiatives.
- **Financial Analysis:** Conduct lifecycle cost assessments to ensure cost-effective investments that enhance long-term resilience and sustainability.

Monitoring and Accountability

- **Performance Tracking:** Implement Key performance indicators (KPIs) to monitor the effectiveness of resilience initiatives and report progress.
- **Transparency in Budgeting:** Maintain transparent budgeting processes to build community trust and accountability in climate-related expenditures.

Implementation and Benefits

- **Financial Efficiency:** Optimize budget allocations by prioritizing investments that reduce long-term costs associated with climate impacts.
- **Enhanced Infrastructure Resilience:** Strengthen municipal infrastructure against climate-related risks, ensuring continuity of services and minimizing disruption.
- **Community Engagement:** Involve residents, businesses, stakeholders, and Rightsholders in climate resilience planning to build consensus and support for municipal initiatives.
- **Leadership and Innovation:** Position Pickering as a leader in climate resilience, attracting investment and fostering innovation in sustainable practices.

Roles and Responsibilities

Effective climate adaptation relies on a well-defined governance framework where roles and responsibilities are clearly established. This coordinated approach ensures that all stakeholders understand their duties, streamlines decision-making, and allocates resources efficiently. By promoting collaboration and preventing overlaps, a structured governance framework enhances the effectiveness and cohesiveness of adaptation efforts, leading to stronger resilience and better management of climate risks.

Mayor & Council

- Overall decision-making authority.
- Budget approval for climate adaptation initiatives.
- Strategic direction and prioritization of climate adaptation efforts.
- Setting policy framework for climate initiatives.
- Oversight of budget allocation.

Chief Administrative Officer

- Overseeing corporate priorities and ensuring climate adaptation remains a priority.
- Working closely with the City's Treasurer on financial aspects.

Senior Management

- Coordinating annual budget (ensuring a climate resiliency lens is applied).
- Tracking overall costs and avoided costs (with support from department staff).
- Maintaining funds for climate adaptation actions.
- Prioritizing departmental activities to ensure alignment with climate adaptation goals.
- Identifying budgets and resources required on an annual and 10-year forecast.
- Presenting business cases for climate-related projects.

Departmental Staff

- Identifying specific climate adaptation projects.
- Developing project cost estimates and timelines.
- Establishing partnerships with relevant Rightsholders and stakeholders.
- Implementing and monitoring progress of community climate actions.

Sustainability Section

- Championing climate adaptation within the municipality.
- Conducting education and awareness campaigns as well as engagement sessions on climate-related matters.
- Providing project support and monitoring progress.
- Tracking and reporting on sustainability metrics.

Climate Adaptation Working Group

- Supporting the long-term implementation of the Community Climate Adaptation Plan.
- Identifying priorities for implementation of climate adaptation actions and best practices.
- Reviewing and implementing actions within the Community Climate Adaptation Plan.
- Establishing collaboration mechanisms with external stakeholders, non-government organizations, and academic institutions.
- Conducting lifecycle cost assessments to ensure cost-effective investments that enhance long-term resilience and sustainability.
- Seeking funding opportunities and efficiencies for adaptation projects.

Community

- Supporting action implementation by engaging in community-based initiatives, program development, workshops, and surveys.

Annual Planning & Budgetary Process

Pickering's approach to fund implementation is multi-faceted to ensure long-term viability, scalability and to balance departmental funding requests with CCAP initiatives. The CCAP notes how climate adaptation priorities can be integrated into the municipal budgeting process, while also proactively seeking external funding sources. The City will aim to leverage a combination of traditional municipal funding, external grants, and explore innovative financing mechanisms. Where feasible, potential funding sources have been identified to support implementation of individual actions.

Supporting Funding Mechanisms

This section provides an overview of various funding approaches detailing their definitions and how each could be developed and implemented. Examples include:

Revolving Climate Fund: This financial tool supports sustainability and climate adaptation projects by reinvesting its resources. Seed funding from grants, budgets, or even donations is used to finance projects that boost resilience. Cost savings from these projects—such as reduced energy or maintenance expenses—are reinvested into the fund to finance future initiatives. Examples of municipalities using this tool include Edmonton, Whitby, and Durham.

Green Bonds: A local municipality can partner with a regional government to use a green bond for funding climate projects like renewable energy or infrastructure upgrades. The regional government issues the bond, and the municipality uses the funds, repaying through cost savings. This collaboration lowers costs and maximizes climate impact. Keys steps include analyzing market feasibility, identifying qualifying projects, collaborating with financial experts to structure bonds, and obtaining certification. Examples of municipalities using this tool include Toronto, Ottawa, and Vancouver.

Municipal Tax Levy: This involves a dedicated property tax increase to fund climate action initiatives. It requires resident consultations, legislative setup, determining tax increase percentages, and communicating the levy's benefits. Examples of municipalities using this tool include Peterborough and Halifax.

Grants and Loans: These funds from government or private entities support climate projects. Key actions involve researching available options, preparing detailed project proposals, and collaborating with partners for successful applications and implementation.

As part of the implementation process, City staff will explore different mechanisms to support the long-term funding of the Community Climate Adaptation Plan.

Grants & Loans that Support Climate Adaptation

Exploring various external funding opportunities can help support adaptation actions and lessen the financial burden on taxpayers. Below is a list of funding opportunities currently available that could be leveraged to support the implementation strategy. This list will be reviewed regularly to maximize the potential of aligning funding with priority actions.

FCM Green Municipal Program (GMF): Offers significant funding (50% to 80% of project costs) for local sustainability projects. The program is enabling municipalities to implement energy-efficient upgrades, improve public transportation, and promote sustainable land use.

FCM Local Leadership Climate Adaptation: Supports municipalities in developing and implementing climate adaptation plans tailored to local needs.

FCM General Municipal Fund - Growing Canada's Community Canopies (GCCC): Aims to plant 1.2 million trees across Canada, supporting tree planting to mitigate urban heat, improve air quality, and enhance biodiversity.

Infrastructure Canada - Green and Inclusive Communities Building Fund (IC-GICB): Funds energy-efficient retrofits and new community buildings, allowing municipalities to retrofit facilities and construct new energy-efficient structures to reduce emissions.

Infrastructure Bank Canada - Building Retrofits Initiative (BRI): Provides financing for energy retrofits in public buildings such as municipal buildings, schools, and healthcare facilities, enhancing performance and reducing operational costs while supporting adaptation efforts.

Infrastructure Canada - Disaster Mitigation Fund (DMAF): Provides long-term funding for projects that improve resilience against natural disasters, including stormwater system upgrades and resilient infrastructure construction.

Infrastructure Canada- Natural Infrastructure Fund (IC-NIF): Supports projects enhancing environmental protection and community resilience, such as planting urban forests, restoring stormwater systems, and implementing green infrastructure to address flooding and climate change.

Natural Resources Canada - Research Knowledge Initiative: Funds research on innovative housing and community resilience solutions, helping municipalities develop local climate adaptation strategies and sustainable technologies.

Government of Ontario - Great Lakes Local Action Fund (GO-GLLAF): Supports projects that enhance climate resilience and water quality in the Great Lakes ecosystem, aiding initiatives like planting native species, implementing erosion control, and managing invasive species.

Strategic Funding Recommendations

Implementing long-term, sustainable funding mechanisms are essential to effectively resource and support the plan. City staff will explore three financial mechanisms to support the implementation of resilience actions including:

1. **Prioritizing Grants and Funding:** Place a high priority on securing external grants/funding opportunities, and collaborations with other organizations and agencies, to support climate adaptation initiatives. These resources can significantly supplement the City's financial capacity for implementing projects.
2. **Exploring a Dedicated Climate Reserve:** Explore creating a dedicated fund specifically for climate resilience projects. Regular contributions can then be made to sustain and grow the reserve over time and help reduce the upfront capital investment of resiliency initiatives.
3. **Considering a Dedicated Stormwater Management Fee:** As extreme weather events become more frequent, explore a dedicated fee to help ensure funding for critical infrastructure and for managing the increasing impacts of flooding events.

Maintaining, Monitoring & Updating

Monitoring and reporting are important for ensuring initiatives stay on track, guide informed decision-making, and build accountability through transparency. They help identify successes and challenges, optimize resource use, and allow for adjustments based on new data or changing conditions. As well, these practices support long-term strategic planning and engage the community by keeping them informed and involved in adaptation efforts.

- **Five Years:** It is recommended that the City perform a comprehensive review of the actions being implemented. The review should reflect new data, emerging risks, and best practices related to adaptation strategies.
- **Ten Years:** To ensure the plan continues to address long-term challenges and aligns with current climate science and City priorities, it is recommended that every ten years a comprehensive update to the overall plan be completed to evaluate the relevance of the vision, objectives and focus areas, governance, and monitoring process. This structured approach ensures continuous improvement and responsiveness to changing conditions.

Third-Party Reporting

Engaging third-party reporting programs can help demonstrate accountability in municipal climate actions. Third-party reporting also enables benchmarking against peers and can provide valuable resources for refining strategies to address climate challenges.

Examples to explore:

- **Climate Disclosure Project (CDP)**: An agency that integrates various national and international sustainability standards, allowing municipalities to benchmark performance against key sustainability priorities.
- **Task Force on Climate-related Financial Disclosures (TCFD)**: Established by the Financial Stability Board, TCFD provides a framework for disclosing climate-related risks and opportunities in financial filings, to enhance transparency while attracting sustainable investment.

City of Pickering will explore best practices in municipal third-party reporting. Notably, TCFD reporting can be integrated within CDP, streamlining the process and enhancing accountability in climate-related disclosures. This approach aligns with emerging regulatory requirements in Europe and the United States, as with publicly traded companies in Canada.

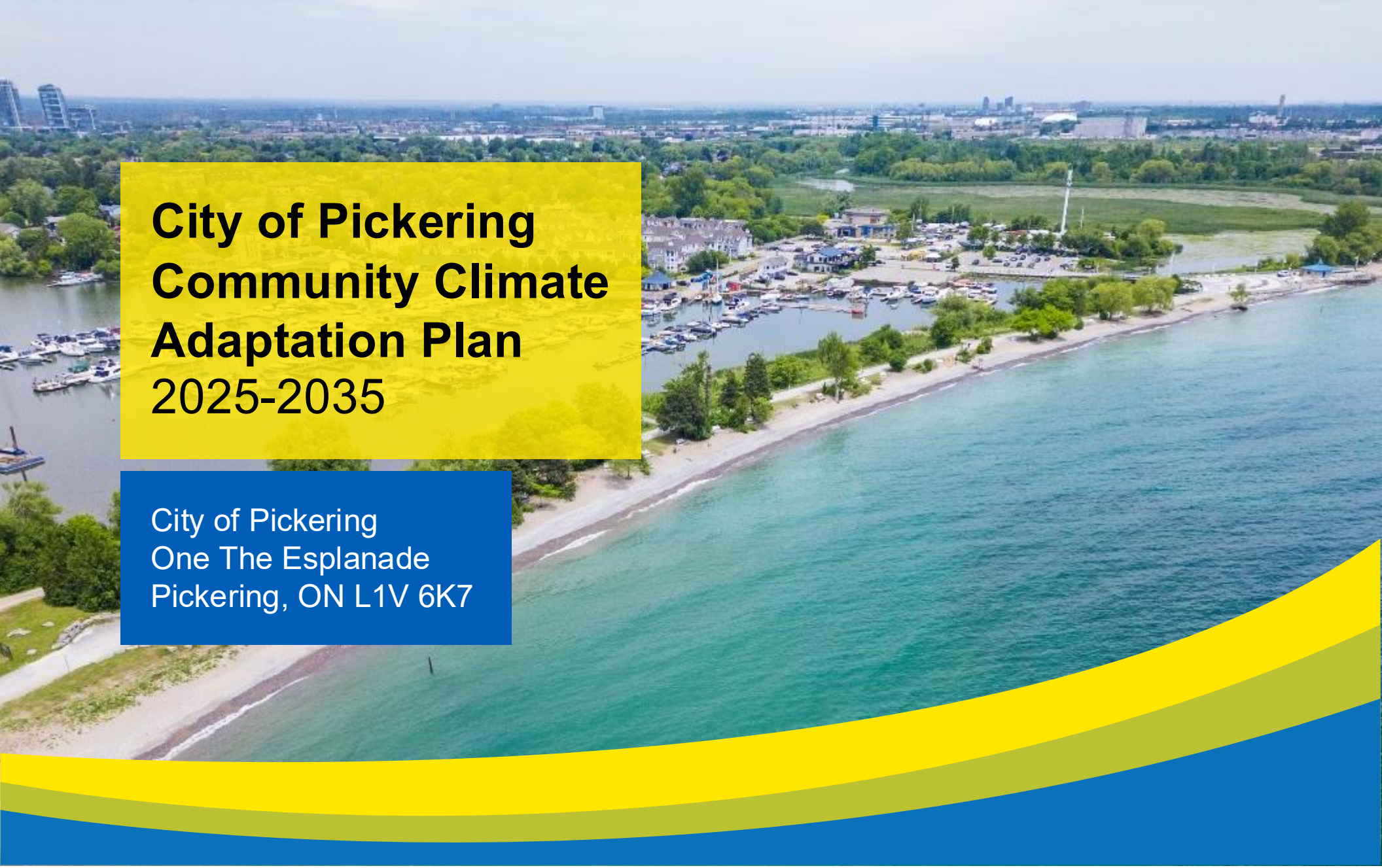
Conclusion and Looking Forward

Like other communities, the City of Pickering has experienced the effects of our changing climate and extreme weather events. Taking a proactive approach, the City has initiated several actions to manage these impacts, including developing its first Community Climate Adaptation Plan (CCAP). By strategically investing in measures to help improve resiliency today, we can prevent future costs, protect infrastructure, and safeguard residents, including our most vulnerable.

The City's current efforts set a solid foundation for progress and momentum for future success. Engagement and collaboration with diverse stakeholders are at the core of the City's sustainability efforts. This was fundamental in developing the CCAP and, as a result, will help the community materialize the actions outlined in this plan.

In addition, by embedding adaptation measures into municipal planning, decision making, and operations, the City will be able to realize direct economic, social, and environmental improvements and co-benefits. Since the effects from our changing climate and extreme weather events are not felt equally across the community and the needs vary from resident to resident and neighbourhood to neighbourhood, equity is an important focus of this plan.

The business case for climate adaptation and building a more resilient community is compelling. By continuing to invest in these measures today, the City aims to not only mitigate future risks and costs but also improve quality of life, reinforcing Pickering's leadership in sustainability.



City of Pickering Community Climate Adaptation Plan 2025-2035

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