

**SUBJECT: Climate Resilient Burlington: A Plan for Adapting to Our Warmer, Wetter and Wilder Weather - Year 3 Progress Update**

**TO:** Council Information Package (CIP)

**FROM:** Public Works  
Engineering Services

**Report Number:** PWS-04-25

**Wards Affected:** All

**Date to Committee:** N/A

**Date to Council:** N/A

**CIP date:** May 30, 2025

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### **Recommendation:**

Receive for information Public Works report PWS-04-25 providing a third progress update on Climate Resilient Burlington (CRB): A Plan for Adapting to Our Warmer, Wetter and Wilder Weather.

### **Executive Summary**

#### **Purpose of report:**

- The [CRB](#) plan was first adopted by City Council through [EICS-12-22](#) in July 2022. The CRB plan includes a 10-year action with 32 actions identified to manage the highest risks to the City of Burlington associated with the changing climate. The purpose of this report is to fulfil the commitment to provide annual updates on the progress of the CRB plan.

#### **Key findings:**

Of the 32 actions presented in the CRB plan, three actions have been completed, 13 are underway, 13 are continuous efforts with no end date, two have not yet started, and one is at risk of being delayed. Two actions were completed in 2024, and work was active on 26 others.

## Implications:

- Severe weather events and costs are increasing. In 2024, the [Insurance Bureau of Canada](#) stated that insured loss reached a record of over \$8.5 billion in Canada.
- Burlington is not immune to extreme weather events. In recent years, the City has experienced the 2013 ice storm, significant flooding in 2014 and 2024, along with other events such as extreme heat, high wind, and record high Lake Ontario levels in 2017 and 2019.
- To prepare for our changing climate and associated risks and vulnerabilities, while ensuring our national and international reporting commitments, the City will report annually on the existing CRB plan and revisit and renew the plan every five years, pending budget approval. A business case to renew the plan will be included for consideration in the 2026 budget process.
- Sustainability staff use the [Take Action Burlington](#) blog, the [Taking Action on Climate in Burlington video](#), Get Involved Burlington, webinars, and attend in person events to promote climate actions.

# Information Report

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## Background

Our climate is changing. We are experiencing warmer, wetter and wilder weather. [NASA](#), [NOAA](#), [C3S](#) (Copernicus Climate Change Service) confirmed that 2024 was the warmest year on record (air and sea surface temperatures). As our planet warms, more unpredictable and intense weather events are expected.

Severe weather is very costly in Canada and continues to rise. Between 1983-2008, the Intact Centre on Climate Adaptation (ICCA) reported [insured catastrophic loss](#) averaging \$250-450 million annually, then rising to \$2 billion annually between 2009-2022. In 2023, the Insurance Bureau of Canada (IBC) reported insured loss in Canada at over [\\$3.1 billion](#) while in 2024, a record of over [\\$8.5 billion was reported, \\$7.7 billion](#) of which was due to four catastrophic events (Ontario and Quebec floods, Jasper wildfire and Calgary hailstorm) in July and August.

Key financial implications to consider include:

- For every dollar in insured losses, there are [three to four dollars in uninsured losses](#) incurred by governments, businesses, and individuals according to a report prepared for the IBC and ICCA.
- In 2021, the Financial Accountability Office of Ontario released a [report](#) on the financial impacts of extreme rainfall, extreme heat, and freeze-thaw cycles on public buildings in Ontario. They estimated a cost increase of 8.2 to 14.5 percent over current costs to maintain assets in a state of good repair when accounting for future climate conditions.
- According to the [Canadian Climate Institute](#), “for every \$1 spent on adaptation measures today, [\\$13-\\$15](#) will be returned in years ahead in direct and indirect benefits.”

## Extreme weather events in Burlington

Burlington is not immune to the changing climate and the associated environmental, economic and social impacts. Over the past 10 or so years, the City has experienced several extreme weather events including:

- Dec. 21, 2013 - A freezing rain event impacted [7,500 Burlington Hydro \(BH\) customers](#). With power still out for 1,550 homes the following day, the City opened three warming stations. The City received over [\\$2 million](#) from the [Ontario Ice Storm Assistance Program](#).
- Aug. 4, 2014 – 191 mm of rain fell over eight hours in parts of Burlington resulting in riverine and urban flooding. The City activated its Emergency Operations Centre and opened two evacuation centres for residents. Over 3,000 homes reported flooding resulting in [\\$90 million](#) in insured claims. The [Burlington Flood Disaster Relief Program](#) (a combination of community donations and matches of up to a 2:1 ratio by the [Ontario](#)

[Disaster Relief Assistance Program](#)) paid \$2.7 million in claims while \$20.4 million was added to Burlington's existing 10-year stormwater capital budget to help address stormwater issues.

- 2017 and 2019 – The International Joint Commission reported record-breaking seasonal rainfall depths on the Lake Ontario basin in [2017](#) and record high inflows from Lake Erie in [2019](#) caused extremely high Lake Ontario levels resulting locally in beach erosion, damaged pathways, and trail closures.
- May 21, 2022 - A derecho (wind event) impacted [24,566 BH customers \(35.7%\)](#). Utilities from other jurisdictions helped with power restoration efforts. City tree debris clean-up cost \$500K.
- July 2024 – Between July 10 and 14, 95 mm of rain fell in Burlington. On July 15, another 74 mm of rain fell, with approximately 50 mm falling in an hour (a 1:100-year storm event). Over 1,600 households and workplaces experienced flooding. Parts of the city impacted by the July 15/16 event qualified for the [Disaster Recovery Assistance for Ontarians program](#).

### **Taking action on climate in Burlington**

On Apr. 23, 2019, the City declared a [climate emergency](#) “for the purposes of deepening our commitment to protecting our economy, environment and community from climate change” and that “Council and staff immediately increase the priority of the fight against climate change and apply a climate lens to the plans and actions of the City of Burlington including the Council strategic workplan and future budgets.”

In 2022, the City adopted its first climate adaptation plan called [Climate Resilient Burlington \(CRB\): A Plan for Adapting to Our Warmer, Wetter and Wilder Weather](#). The approval of this plan follows the adoption of two plans related to reducing the greenhouse gas emissions that contribute to climate change (climate mitigation):

- The [Corporate Energy and Emissions Management Plan](#) (2014; updated in 2019 and 2024) with a target to achieve net carbon neutrality for City operations by 2040; and
- The [Climate Action Plan](#) (approved in 2020 and planned for renewal in 2025) with a community target for net carbon neutrality by 2050.

Sustainability staff have committed to annual progress reports to City Council both to help keep momentum on implementation and to fulfil the City's reporting commitments to the Global Covenant of Mayors (GCoM) and the Carbon Disclosure Project (CDP). In 2024, the City continued to be [compliant](#) for GCoM's climate adaptation badges and are waiting for the CDP score. In 2023, Burlington received an A sub-score for Adaptation Action through the CDP.

“Taking action on climate change” is one of five enabling behaviours outlined in Council's work plan, [Vision to Focus 2022-2026](#). Implementing the CRB plan is one of the supporting actions.

**Climate Resilient Burlington (CRB): A Plan for Adapting to Our Warmer, Wetter and Wilder Weather**

The [CRB plan](#) identifies actions to manage the highest projected local risks associated with the changing climate. While the plan considered [Burlington’s climate projections](#) to the years 2051-2080, it includes 32 actions to focus on over 10 years (2022-2032) under five themes:

- Resilient Built and Natural Infrastructure
- Thriving Natural Environment
- Health and Well-Being
- Disaster Resilience
- Strong and Resilient Economy

Each theme contains up to three subthemes, each with defined goals. Appendix A provides details on the goals of each theme and provides a status update on each of the plan’s 32 actions. A progress snapshot is provided in the following table.

Status	Definition	# of actions
Completed	Action has been fully implemented	3
Underway <sup>1</sup>	Implementation has begun	13
Continuous improvement <sup>2</sup>	Action is continuous and has no end date	13
Not started	Implementation has not begun	2
Delayed/At Risk	Funding and/or staff resourcing required to proceed	1
Total Actions		32

The one ‘delayed/at risk’ action relates to completion of a wind hazard risk assessment. Funding is required for the assessment and will be considered through future budgets.

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**Status**

**Progress Highlights**

Progress towards completing the CRB actions and achieving the plan’s goals has been made in 2024. The following section summarizes several highlights achieved in 2024.

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<sup>1</sup> “Underway” actions include pilot projects and the initial stages of projects (background research, etc.). Additional resources could be necessary which might move some of these actions to delayed/at risk in future years.  
<sup>2</sup> “Continuous improvement” actions could still benefit from additional resources.

## Theme 1: Resilient Built and Natural Infrastructure

- *Action 1-1: Expand natural asset data*
  - The [Advancing Natural Asset Management Practices in the Grindstone Creek Watershed](#) study was completed to better understand barriers and best practices to advance natural asset management in the watershed. The study was led by Conservation Halton (CH) with interested municipal partners including the City of Burlington. Natural assets provide many services including absorbing water during storm events to reduce the risk of flooding, reducing the urban heat island effect which is an increasing cause of concern with our warming summers, maintaining or increasing biodiversity, etc.
- *Action 1-4: Shoreline protection*
  - Shoreline reconstruction at [Appleby Place Window-to-the-Lake](#).
- *Action 1-5: Enhance creek flood protection plan*
  - A [Flood Hazard Impacts and Mitigation Assessment](#) was completed to evaluate flood hazards, in and around the Burlington GO Major Transit Station Area (MTSA), the downtown core, and along the Hager-Rambo Diversion Channel, and recommended infrastructure improvements and preliminary costs to mitigate flooding.
  - Four stormwater/flood studies (erosion control EA, flood mitigation EA, MTSA Phase 2 supplemental spill mitigation alternative review, and a drainage assessment) and six creek rehabilitation projects were designed and constructed to [address erosion concerns](#) which could become a greater concern with increasing heavy precipitation.
  - The Watershed-Based Resource Management Strategy ([Watershed Strategy](#)) was approved by CH Board of Directors. This included the [Watershed Climate Change Vulnerability and Risk Assessment](#) and a [Watershed Climate Resiliency Plan](#) to help reduce the negative effect of climate change on local communities. City staff provided input throughout the process.
- *Action 1-9: Maintain level of service for tree pruning and enhance risk assessment protocol*
  - City Council approved additional funding to help close the gap on the \$500K funding shortfall required to achieve a seven-year [pruning cycle](#) for City trees. Properly pruned trees are better able to withstand extreme wind events resulting in less calls for fallen trees post storm.
  - Burlington Hydro led a tree removal initiative along the [Centennial Trail](#) due to several branches falling on lines and causing outages during extreme weather events. Replanting with hydro-friendly tree and shrub species will take place in 2025.
- *Action 1-12: Assess snow management plan to ensure a climate lens is applied*
  - An enhanced windrow cleaning program was introduced along with new winter [sidewalk maintenance programs](#) near schools and winter maintenance to 20 [parking lots](#) not previously cleared as they were not immediately near to recreation facilities.

## Theme 2: Thriving Natural Environment

- Action 2-2: Incorporate a climate lens in the recommendations of the Urban Forest Master Plan (UFMP) to maximize co-benefits
  - The [UFMP](#) and [Woodland Management Strategy](#) were approved. The UFMP integrated a climate lens throughout the plan.
- *Action 2-4: Invest in green infrastructure*
  - Several trees and seedlings were planted by Forestry staff and with community partners in 2024. Trees help reduce runoff and filter water, provide cooling helping to reduce the urban heat island effect, etc.
  - [Greening the Crosstown Trail](#) was approved, a pilot project to establish a meadow habitat along 7.5 hectares of the trail. This will be a multi-year project.
- *Action 2-5: Establish a City-Wide Biodiversity Plan*
  - Planting and invasive removal species projects; stream, riparian and land restoration projects; landowner grants which included four rain gardens completed by CH staff in Burlington.
  - Burlington's Bird Friendly City designation was renewed in 2024; a dedicated [page](#) was added to the City's website; educational decals, posters and information were posted on TV screens, windows and on bulletin boards explaining the bird friendly dots on windows at Mountainside Community Centre and City View Pavilion.
  - Annual road closure for the mating passage of the endangered [Jefferson salamanders](#).

### *Theme 3: Health and Well-Being*

- *Action 3-2: Identify gaps in public space cooling*
  - Community Development Burlington presented City staff with a Burlington Cooling Centre report highlighting issues around awareness and access to the City's cooling centres.
  - A [Climate Change and Health in Halton Region](#) report was released highlighting seven key climate-related health impact categories of concern including extreme heat. Recommended actions included how to stay cool and prevent heat-related illness, and a note about accessing municipal cooling centres.
- *Action 3-5: Incorporate shade (natural and built) and opportunities for cooling*
  - Shade structures (natural and artificial), outdoor drinking fountains and a splash pad were added in park redevelopment projects helping to provide respite during extreme heat.

### *Theme 4: Disaster Resilience*

- *Action 4-1: Enhance emergency notification and communications plan*
  - [Bylaw 07-2024](#) Emergency and Continuity Management Program was approved by City Council providing a comprehensive framework for managing large-scale emergencies and disasters and ensuring the continuity of essential services.
- *Action 4-4: Promote and augment existing programs for home and business climate resilience retrofits*
  - Existing [flood prevention programs](#) were promoted on the City's website and on the [Take Action Burlington](#) blog. Temporary programs were also introduced to help



residents with the impacts of the [July 2024 flood](#) including the Burlington Flood Recovery Grant and Building Permit/Zoning Certificate Fee Flood Relief Program.

*Theme 5: Strong and Resilient Economy:*

- *Action 5-2: Expand the opportunities to support local food production across the city*
  - Four community garden plots were added in two existing gardens. Community gardens help increase resilience and decrease our dependency on food imports.
- *Action 5-3: Assess the feasibility of sourcing and providing preference to local suppliers in contracts to increase resilience with supply chain disruptions*
  - TechPlace's co-location partner Haltech and Hamilton's Innovation Factory merged, significantly increasing TechPlace's access to a network of over 800 start-up businesses. The goal is to adapt innovations, creating and applying a scalable model to strengthen local supply chains and foster resilience.

Appendix A highlights more detailed progress for each of the 32 actions.

Appendix B highlights progress through select Key Performance Indicators (KPIs) grouped by the CRB themes.

Appendix C summarizes the costs from various sources for CRB related initiatives completed in 2024 that assists in advancing climate resiliency.

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## **Key Dates & Milestones**

- Q2/3 2025, 2026, and 2027 – Annual reporting via the Carbon Disclosure Project to meet reporting requirements for the Global Covenant of Mayors
- Q2 2025 – A business case to renew the Climate Resilient Burlington plan will be submitted for consideration through the 2026 budget review process
- Q2 2026 – Year 4 CRB Progress Update Report to City Council
- Q1 2026 – Work begins to renew the CRB plan including RFP to update Climate Projections for Burlington, Climate Risk and Vulnerability Assessment, and renew the Plan (pending funding approval)
- Q3 2027 – Updated CRB plan to City Council (pending funding approval).

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## **Implications**

### **Financial Implications**

To prepare for our changing climate and associated risks and vulnerabilities, while ensuring our national and international reporting commitments are met, the City will revisit and renew the CRB plan every five years. To have a new CRB plan approved in 2027, a request for funding support to renew the plan will be included for consideration in the 2026 budget process. Third-party funding sources will also be investigated.



Funding for a wind risk and vulnerability mapping exercise (CRB action 1-11) will also be considered through the future budget process.

### **Human Resource Implications**

The CRB plan is administered, and annual update reports are completed by the City's Environmental Sustainability staff. In 2024, the 32 actions within the plan were led by staff from seven departments. Members of the CRB Implementation Team, composed of City staff and representatives from Burlington Hydro and Conservation Halton, meet five times a year to share progress, ensure alignment with other corporate and community initiatives, and contribute to the annual report.

### **Engagement**

Environmental Sustainability staff use the [Take Action Burlington](#) platform to provide updates related to the Climate Resilient Burlington plan and other sustainability initiatives. Of the 31 posts published in 2024, over half had aspects related to climate resilience, including flood preparedness.

In January 2024, the [Taking Action on Climate in Burlington video](#) was released highlighting in under 60 seconds some actions the City is taking related to climate adaptation and mitigation. The video was shared on the Take Action Burlington blog, City webpages, the City's recreational digital screens, and through community partners such as BurlingtonGreen.

In 2024, the City's flood prevention page was updated, and the Flood Recovery and Bird Friendly City pages were added. Two webinars in October (43 attendees) and November (38 registrants with 11 attendees) promoted how to help reduce or eliminate stormwater runoff from flowing into municipal sewer systems and creeks. The November session was also recorded and [posted](#) on the Take Action Burlington blog.

Two in-person events were offered for Emergency Preparedness Week with about 40 people in attendance. Environmental Sustainability staff also attend in person events such as Food for Feedback.

### **Climate Implications**

The City continues to make progress on the CRB plan to improve resilience to the impacts of our warmer, wetter and wilder weather.

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### **References**

- [Climate Emergency Declaration](#) (2019)
- [EICS-03-21 - Climate Adaptation Plan staff report](#), [Climate Projections for Burlington Region](#), and [Climate Impacts Story Map](#)

- [EICS-02-22](#) - [CRB Draft Plan staff report](#) and [CRB Climate Change Vulnerability and Risk Assessment Technical Report](#)
  - [EICS-12-22](#) - [CRB Plan staff report](#) and [final CRB plan](#)
  - [EICS-07-23](#) - CRB Plan - Year 1 [staff report](#) and [progress update](#)
  - [EICS-05-24](#) - CRB Plan - Year 2 [staff report](#), [progress update](#), and [key performance indicators](#)
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## Strategic Alignment

(Select all that apply)

- ☐ Designing and delivering complete communities
  - ☐ Providing the best services and experiences
  - ☒ Protecting and improving the natural environment and taking action on climate change
  - ☐ Driving organizational performance
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## Appendices:

- A. Climate Resilient Burlington – Year 3 Progress Report on 32 Actions
- B. Climate Resilient Burlington – Year 3 Progress Report on Key Performance Indicators
- C. Climate Resilient Burlington – Year 3 Progress Report on Expenditures Associated with Initiatives Completed in 2024

## Report Approval:

All reports are reviewed and approved by the Commissioner, Head of Corporate Affairs, Chief Financial Officer, and Commissioner of Legal and Legislative Services/City Solicitor.