



SUBJECT: Climate Resilient Burlington: A Plan for adapting to Our warmer, wetter and wilder weather progress report

TO: Environment, Infrastructure & Community Services Cttee.

FROM: Environment and Energy

Report Number: EICS-07-23

Wards Affected: All

File Numbers: 210-09

Date to Committee: June 28, 2023

Date to Council: July 11, 2023

Recommendation:

Receive and file environment and energy report EICS-07-23 regarding Climate Resilient Burlington: A plan for adapting to our warmer, wetter and wilder weather progress report.

PURPOSE:

Vision to Focus Alignment:

- Increase economic prosperity and community responsive city growth
- Improve integrated city mobility
- Support sustainable infrastructure and a resilient environment
- Building more citizen engagement, community health and culture
- Deliver customer centric services with a focus on efficiency and technology transformation

The purpose of this report is to present City Council with the first annual progress report on Climate Resilient Burlington: A Plan for Adapting to Our Warmer, Wetter and Wilder Weather which was approved in July 2022 ([EICS-12-22](#)). While directly aligned to Focus Area 3, risks and vulnerabilities associated with our changing climate will have impacts on all focus areas as outlined in [EICS-02-22](#).

Background and Discussion:

[Climate Resilient Burlington \(CRB\): A Plan for Adapting to Our Warmer, Wetter and Wilder Weather](#) was approved by City Council in July 2022 ([EICS-12-22](#)). There were many steps associated with developing the plan and many touch points with City Council and the community including but not limited to:

- [Get Involved Burlington CRB project page](#)
- [Climate Projections for Burlington \(EICS-03-21\)](#)
- [Climate Change Impacts story map](#)
- [Public launch event in October 2021](#)
- [Draft CRB Plan, Climate Change Vulnerability and Risk Assessment Technical Report, Engagement Plan and Engagement Report \(EICS-02-22\)](#)

The CRB plan includes a 10-year action plan (2022-2032) to manage the highest projected risks of warmer, wetter and wilder weather under five themes:

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

Each of the 32 actions includes:

- Action type (assessment, partnership, plan, policy, procedure, program, or project)
- Timeline (ongoing, 1-2 years, 3-5 years, or 5-10 years)
- Estimated additional cost to implement (low, medium, or high)
- Lead and supporting City department(s)
- Community connections
- Related initiatives

In addition to progress reports to City Council, staff also report through the Carbon Disclosure Project (CDP) and the Global Covenant of Mayors (GCoM) on the City's climate actions and commitments. In November 2022, we received our first A grade through the [CDP](#), recognizing the completion of Climate Resilient Burlington and associated actions. The City is also in compliance with [GCoM](#) (joined in 2020), receiving all three adaptation badges after the approval of the CRB plan.

CRB Governance

Since approval of the CRB plan, the Sustainability Project Coordinator has made ten presentations to City departments/management teams to ensure awareness of the plan.

Due to the interconnected nature of this plan, the CRB Implementation Team representing the lead departments has begun meeting to:

- Provide a forum to share progress from those leading and/or coordinating the implementation of the CRB plan actions,
- Ensure alignment between the CRB plan actions and other corporate and community initiatives through ongoing updates, and
- Contribute to the annual progress report on the CRB plan to City Council.

Conservation Halton staff are also participating on the team given many of the direct linkages between their mandate and the CRB plan. Additional membership is pending. Annual progress reports will be presented to City Council. The CRB Implementation Team will help ensure that momentum towards implementation continues and that staff increasingly use a climate lens when developing plans, strategies and actions.

CRB Progress Highlights

Work towards implementing actions in the CRB plan is taking place as noted in Appendix A. Some highlights include:

- Canadian Network of Asset Managers (CNAM) [Applied Climate Action Cohort](#): Operationalization of Climate Change Through Asset Management – Burlington staff participating with 12 other municipalities across Canada
- Burlington's draft [Urban Forest Master Plan](#) (UFMP) 2023-2043; the 2022 [State of the Urban Forest](#) and [Urban Forest story map](#) work; tree replacement program; community supported planting events, third party planting and giveaways to grow the tree canopy on private and public lands
- [Cootes to Escarpment EcoPark System](#) – restoration project at City View Park
- [Alert Burlington](#) – a public notification system for community emergencies
- Climate Resilience Education campaign – promotion on how to reduce flooding risk through the [Home Flood Protection Program](#) and the [Plumbing Permit Fee Grant Program](#)

Strategy/process/risk

City staff and community stakeholders involved in the development of the CRB plan were engaged to provide updates on actions related to the CRB plan.

Risk

Climate change adaptation is defined in [Canada's National Adaptation Strategy](#) as “planning for and acting on the anticipated impacts of climate change. It involves making changes to how we live and what we do before climate change impacts happen

(anticipatory) as well as being ready to respond to increasingly likely and frequent extreme events (reactive).” Further, adaptation actions will help us to build our resilience or “our capacity to prepare for, respond to, and recover from impacts and disruptions.”

The primary purpose of the CRB plan was to identify actions to manage the highest projected risks associated with our changing climate. The 2022-2032 action plan focuses on where the City can take a lead or play a significant role in managing the risks. Working collaboratively to implement actions within the plan can help align, augment or integrate climate actions into existing City initiatives. Not implementing the plan will increase the financial, social and environmental risk to our corporation and the community due to projected warmer, wetter and wilder weather.

Lack of resiliency to the impacts of our changing climate has been noted as a risk to achieving several objectives in the strategic plan, Vision 2040, as identified through the City’s risk management processes.

As noted by David Phillips, Senior Climatologist, Environment and Climate Change Canada in October 2021 at the CRB project launch: “Our motivation to do something about climate change should not be based on what we’ve seen but what we’re going to see. We need to move from a culture of disaster recovery to one of risk preparedness.”

A risk for implementing the CRB plan exists if adequate staffing and financial resources are not available.

Options Considered

Extensive consultation was involved in developing the final 32 actions in the CRB plan as noted in staff reports [EICS-02-22](#) and [EICS-12-22](#). As noted above under ‘Risk,’ doing nothing is not an option to prepare for the impacts of climate change.

Financial Matters:

Total Financial Impact

The CRB plan was completed within the Council approved budget. As we move into the implementation phase, it is anticipated that additional funding will be required for some actions. Such requests will be brought forward for review and consideration through the annual budget process by lead service areas and/or departments. To keep up with the changing climate and associated risks and vulnerabilities, the City will revisit and renew the CRB plan every five years, pending budget approval.

Source of Funding

As noted above and in Appendix A, there are many actions being implemented which will help reduce our risk and increase our resiliency to our warmer, wetter and wilder weather. Some examples of program costs include:

Initiative	Cost	Source
Action 1-2: Canadian Network of Asset Managers (CNAM) Applied Climate Action Cohort : Operationalization of Climate Change Through Asset Management	\$1,995 + HST	Capital Order RA0248: Asset Management Plan Update
Action 2-1: Burlington's Urban Forest Master Plan (UFMP) 2023-2043 and Woodlands Management Strategy	\$288K + HST	Forestry Reserve Fund
Action 2-1: Spring and Fall 2022 tree giveaway events (725 trees)	\$30/tree	On average, 72 percent from Tree Planting Initiatives Reserve Fund (\$18,175 in 2022) with remaining from Forest Health operating budget
Action 2-1: Tree planting events	\$25/tree	On average, 50 percent from Tree Planting Initiatives Reserve Fund (\$9,175 for Spring Community Planting Event in Millcroft and \$15,850 for Third Party Planting in 2022) with remaining funds from Forest Health operating budget
Action 2-1: Young Tree Pilot Study	\$7,430	Tree Planting Initiatives Reserve Fund
Actions 2-4 and 2-5: Cootes to Escarpment EcoPark System – City View Park restoration project	\$30K	Funding to be reimbursed through Parks Canada National Program for Ecological Corridors
Action 4-1: Alert Burlington	\$34K + HST per year	Year 1 costs from the Emergency Management Reserve fund and years 2 and 3 from the ITS operating budget
Action 4-2: Plumbing Permit Fee Grant Program	\$422,736 (2014-2022)	Tax Rate Stabilization Reserve Fund 2014-2022. Operating budget 2023 and beyond
Home Flood Protection Program	\$5K	Stormwater Capital Budget

Other Resource Impacts

While Sustainability staff in the EICS department will report annually on progress, the actions within the plan involve eight City departments who are direct leads for one or more actions as well as supporting departments and community connections.

Cost of climate change

As noted in previous staff reports ([EICS-02-22](#) and [EICS-12-22](#)), adapting to climate change is more economical than not adapting to climate change. The [Canadian Climate Institute](#) released a series of five reports on the costs of climate change. One of those reports stated that “for every \$1 spent on adaptation measures today, [\\$13-\\$15](#) will be returned in years ahead in direct and indirect benefits.”

Severe weather continues to be very costly in Canada with [\\$3.1 billion in insured damage in 2022](#), the third worst year on record (after 2016 (Fort McMurray fire) and 2013 (Alberta and GTA floods and GTA ice storm)). The past five years (2018-2022) were all listed on Canada’s top 10 highest insured loss years on record. According to the [Canadian Climate Institute](#), “since 2010, the costs of weather-related disasters and catastrophic events have amounted to about [5 to 6 percent](#) of Canada’s annual GDP growth, up from an average of 1 percent in previous decades.”

Last year’s events included the Ontario and Quebec derecho in May (\$1B – the [sixth largest storm on record](#)), Hurricane Fiona in September (\$800M), the Western Canada summer storms in July and August (\$300M), the Eastern Canada bomb cyclone in December (\$180M), the Eastern Canada late-winter storm in February (\$140M), the BC winter storm and king tide in December (\$80M), the Manitoba and Northwestern Ontario flooding in April (\$60M), and the Ontario and Quebec severe storms in June (\$50M).

Local impacts

Severe weather can also be very costly locally such as the 2013 ice storm and the 2014 flood as noted in previous staff reports ([EICS-02-22](#) and [EICS-12-22](#)). The May 21, 2022, derecho storm (a long-lived, fast-moving thunderstorm that causes widespread wind damage) impacted Burlington resulting in almost \$500K to clean up tree debris. Burlington Hydro [reported](#) that 24,566 customers representing 35.7 percent of their total customer base were impacted by the storm taking nine hours to restore 90 percent of the customers who lost power. Additional utility companies had to be brought in to assist including North Bay Power, Canada Niagara Power and Niagara Peninsula Energy. [Halton Region](#) also provided additional waste collection services and waived the yard tipping fee to help residents clean up.

Burlington Hydro [reported](#) a second major event on August 21, 2022 due to thunderstorms where 8,209 customers representing 11.9 percent of their total customer base lost power. Ninety percent of customers had their power restored in about eight and a half hours.

A few other notable Burlington weather events in 2022 included a blizzard resulting in a two day school closure in January, a truck rollover on the Skyway as well as closure of Conservation Halton parks due to high winds in March, heat waves with humidex daytime readings of 38°C in May and 44°C in June and nighttime readings of 31°C in July, park field closures in August due to rain and unsafe conditions, and City facility closures due to extreme weather such as winter storms.

Climate Implications

In [Canada](#), extreme heat events are the most deadly weather related events, [flooding](#) is one of the most costly and widespread hazards, and [wildfires](#) and their associated [smoke](#) are increasingly threatening communities.

A summer 2022 [online poll](#) of 5,200 homeowners and renters commissioned by the Insurance Bureau of Canada found that Canadians believe governments should:

- Do more to adapt to climate change to better prepare for more frequent and intense natural disasters such as flooding, forest and wildfires, extreme heat, tornadoes, extreme wind and hurricanes;
- Act now by investing in climate adaptation and community resilience; and
- Immediately set climate adaptation targets to drive action and ensure progress.

National Adaptation Strategy

On Nov. 24, 2022, Canada's [National Adaptation Strategy](#) (NAS) was released for a 90 day final review. The [Government of Canada Adaptation Action Plan](#) was also released, which is the federal government's plan to implement the NAS, along with announcing [\\$1.6 billion in new federal funding](#) aligned with the NAS's five priority areas.

The five key systems identified in Canada's NAS align very well with the five themes in the CRB plan. In addition to long term transformational goals and medium-term objectives for each of the five systems, there are foundational objectives necessary for effective adaptation. These are knowledge and understanding, tools and resources, and governance and leadership. A series of short-term adaptation action plans outlining priorities for the next five years will also be developed.

A few proposed targets identified in the National Adaptation Strategy include:

Infrastructure

- Starting in 2024, resilience to climate change impacts is factored into new federal infrastructure funding programs

- By 2030, 80 percent of public and municipal organizations have factored climate change adaptation into their decision-making processes
- By 2030, robust guidance, codes and standards covering the top climate change risks for key public infrastructure systems are available and to be adopted by all infrastructure decision-makers

Disaster Resilience (by 2025)

- 60 percent of Canadians are aware of the disaster risks facing their household because of climate change
- 50 percent of Canadians have taken measures to respond to climate change risks facing their household

Nature and Biodiversity

- Conserve 25 percent of our lands and waters by 2025 and 30 percent of each by 2030, working to halt and reverse nature loss by 2030 in Canada
- Identify and support at least three ecological corridors by 2026, to improve ecological connectivity between protected and conserved areas

Economy and Workers

- By 2027, 75 percent of the members of professional associations (i.e., civil engineers, planners, landscape architects, and accountants) have the capacity to apply climate change adaptation tools and information and communicate the business case for adaptation measures to their clients
- By 2027, 80 percent of highly exposed businesses include adaptation to climate change in plans and strategies to strengthen their competitiveness

Health and Wellbeing

- By 2026, 80 percent of health regions will have implemented evidence-based adaptation measures to protect health from extreme heat
- By 2030, health systems have identified risks, developed adaptation plans, and are measuring progress towards climate-resilience

Knowledge and Understanding (a foundational objective)

- By 2024, Canadians better understand how to use relevant information to support adaptation decision making

Federal Government Budget 2023

The 2023 federal budget announced steps towards [supporting natural disaster resilience](#) including: improving disaster insurance with plans to develop a [low-cost flood](#)

[insurance program](#) aimed at protecting households at high risk of flooding without access to adequate insurance; raising awareness of flood risks by creating a publicly accessible online portal to access information on exposure to flooding; and modernizing federal disaster assistance by identifying high-risk flood areas and incentivizing mitigation efforts.

Engagement Matters:

Engagement was a key component when developing the [CRB plan](#) involving stakeholders from 12 City departments, 17 community groups as well as community members. Continuous engagement will remain imperative if we are to successfully implement the 32 actions within the plan. This will be accomplished through a cross departmental team, comprised primarily of staff who were involved in the development of the CRB plan, and ongoing communication with community stakeholders through the Climate Action Plan Stakeholder Committee which will have an expanded mandate to include mitigation and adaptation.

Since Council approval of the plan, the Sustainability Project Coordinator has made presentations to over 80 City staff at ten departmental management meetings which depending on the department included supervisors, managers and directors (RCC, Fire, Building and Bylaw, Engineering, EICS (all facility assets staff), RPF, Community Planning, Burlington Economic Development, Corporate Communications and Engagement, and Corporate Strategy and Risk) to ensure awareness that implementation of the CRB plan is a corporate responsibility with eight departments having a lead role for one or more actions and many other departments playing a supporting role.

In addition, sustainability staff also presented the City's climate plans to community groups including the [PROBUS Club of Burlington](#), the Rotary Club of Burlington, the Bay Area Climate Change Council's community event "[Your City. Taking Action. Climate Priorities for Burlington and Hamilton](#)" and the [Burlington Sustainable Development Advisory Committee](#).

Sustainability staff also coordinated a staff lunch and learn and co-coordinated a community event called [Manage Rain Where It Falls](#).

Since Council approval of the CRB plan, sustainability staff have published multiple [Take Action Burlington](#) blog posts which speak to initiatives related to climate adaptation or preparing for our warmer, wetter and wilder weather (e.g., flood protection programs and subsidies; year round landscaping and other practices to manage rain where it falls, reduce impacts on our natural environment and increase biodiversity; emergency preparedness; urban forestry; etc.). Many of these posts were also

promoted through the City's social media channels, City Council's social media channels and/or newsletters, and promoted by blog followers through their networks.

This report will also be posted on the [Get Involved Burlington CRB project page](#) and at burlington.ca/climatechange.

Conclusion:

Implementing the actions within the Climate Resilient Burlington plan will help us to prepare for and manage the risks associated with our warmer, wetter and wilder weather.

Respectfully submitted,

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Appendices:

A. Climate Resilient Burlington Year 1 Progress Update

Report Approval:

All reports are reviewed and/or approved by Department Director, the Chief Financial Officer and the Executive Director of Legal Services & Corporation Counsel.