Appendix A: Climate Resilient Burlington - Year 3 Progress Report on 32 Actions

Appendix A provides detailed information on the progress of each of the 32 actions within Climate Resilient Burlington (CRB): A Plan for Adapting to Our Warmer, Wetter and Wilder Weather. The original plan was presented as a draft to City Council in May 2022 and approved in July 2022. Previous updates were provided in 2023 and 2024.

Below are the themes, subthemes and the number of actions associated with each theme.

- Theme 1: Resilient Built and Natural Infrastructure (13 actions)
  - Infrastructure Design and Life Cycle Management
  - Flood Management
  - Service Disruption
- Theme 2: Thriving Natural Environment (5 actions)
  - Tree Management
  - Natural Area Management
- Theme 3: Health and Well-Being (5 actions)
  - Extreme Heat and Health
- Theme 4: Disaster Resilience (5 actions)
  - Community Capacity Building
  - Citizen and Business Support Programs
- Theme 5: Strong and Resilient Economy (4 actions)
  - Agriculture
  - Local Economy

The table below provides a quick snapshot on progress for the 32 actions.

Status	Definition	# of actions 2023	# of actions 2024
Completed	Action has been fully implemented	1	3 (2 in 2024)
Underway[1]	Implementation has begun	14	13
Continuous improvement[2]	Action is continuous and has no end date	11	13
Not started	Implementation has not begun	6	2
Delayed/At Risk	Funding and/or staff resourcing required to proceed	0	1
Total # of actions		32	32

Theme 1: Resilient Built and Natural Infrastructure

Infrastructure Design and Lifecycle Management

Goal: Manage infrastructure to prepare for future climate conditions and carbon neutral goals.

Indicator: Updated design standards (policy, bylaw, etc.) and programs in progress for City infrastructure incorporating future climate conditions and carbon neutral goals[3].
Target: Increasing

Action	2024 Updates/Year 3
1-1: Expand natural asset data and incorporate priority natural assets into Burlington's Asset Management Plan Underway Completion date: 3-5 years (end of 2027) - V2F Q4 2025 for AMP update	- The 2021 Asset Management Plan (AMP) incorporated natural assets for the first time (street trees and 15 percent of park trees). A new AMP will be presented to City Council in 2025 and will include additional natural assets data identified in the Woodland Management Strategy and from the rain garden from the Plains Rd. project. - City staff were accepted into the Spring 2024 Natural Asset Management (AM) Roadmap Program, delivered by the Natural Assets Initiative in partnership with Intact Public Entities, to build

[1] "Underway" actions include pilot projects and the initial stages of projects. Additional resources could be necessary which might move some of these actions to delayed/at risk in future years.
[2] "Continuous improvement" actions could still benefit from additional resources.
[3] Revised indicator and target in 2024 to better reflect the goal. Original indicator was "% of prioritized asset categories that have assessed for future climate impacts."

Action	2024 Updates/Year 3
City lead: Amy Daca, Analyst, Asset Planning, Engineering (Eng.) Services	a high-level natural AM roadmap to start integrating natural AM considerations into overall AM practices. The project will be completed in 2025. - Following the completion of the Grindstone Creek Watershed Natural Assets Management Project report in November 2022, Conservation Halton (CH) in partnership with the cities of Burlington and Hamilton, Halton Region, Royal Botanical Gardens, and Natural Asset Initiative, engaged and worked with a consultant to complete the Advancing Natural Asset Management Practices in the Grindstone Creek Watershed study. The purpose was to better understand barriers and best practices to advance natural asset management in the Grindstone Creek watershed. A report presented to the CH Board in February 2024 highlighted challenges that will need collaboration between municipalities, CH, and other levels of government to address and overcome.
1-2: Integrate future climate impacts in Burlington's Asset Management Plan for prioritized asset categories and assess long-term infrastructure funding requirements Underway Completion date: 5-10 years (by the end of 2032) City lead: Amy Daca, Analyst, Asset Planning, Eng. Services	- Between October 2022 and December 2023, City staff from asset management (AM), linear assets, finance, and sustainability participated in a pilot cohort with 12 municipalities and supported by the Canadian Network of Asset Managers (CNAM) and a consultant to operationalize climate change in AM policies and programs. Burlington's team took a high-level look at identifying which climate hazards pose the greatest risk to the transportation service (moving people and goods in Burlington) as a pilot. In 2024, a case study about Burlington's pilot project was published by CNAM. The plan is to expand this work for the rest of the asset service categories over time.
1-3: Review and if necessary, update design standards for City infrastructure to account for future climate conditions in alignment with Federal and Provincial initiatives, and Burlington's net carbon neutral goals Continuous improvement Completion date: Ongoing City leads: Janine Yaromich, Manager, Design and Construction, Roads, Eng. Services	- The Stormwater Management Design Guidelines approved in 2020 will be revisited in 2025 to reflect current design practices, updated regulations and legislation, guidance from partner agencies and other levels of government, and new technologies. The rainfall intensity-duration-frequency (IDF) data will also be reviewed. - In December 2021, City Council approved a recommendation to draft a business case for the preparation of a green roof bylaw and green roof construction standard in 2023 (PL-07-21). Staff continue to consider how to move this work forward, in view of several provincial policy and legislative changes aimed at increasing housing supply.

Action	2024 Updates/Year 3
Cary Clark, Manager, Development and Stormwater Engineering, Eng. Services Tom Pedlar, Supervisor, Energy and Emissions, Eng. Services John Stuart, Senior Planner, Policy, Community Planning Dept.	- In April 2024, Burlington's Corporate Energy and Sustainable Buildings policy was approved by City Council (EICS-07-24) updating the 2009 policy. The policy will now follow the Canada Green Building Council's Zero Carbon Building Standard for Design rather than LEED Silver. - In July 2024, the Corporate Energy and Emissions Management Plan (CEEMP) 2024-2029 (EICS-08-24) was approved by City Council. Like the previous version, the CEEMP continues with a pathway to achieve the City's net carbon neutral goal for City operations by 2040. - Deep energy retrofit studies were completed in 2023 for Brant Hills Community Centre (CC), Appleby Ice Centre, Fire Stations 2 and 7 and the Burlington Seniors Centre. Detailed design work took place for the CCs in 2024. The designs and construction will reduce operational carbon in the City's existing facility portfolio and include the next net metered solar array on Brant Hills CC. - A second round of deep energy retrofit studies began in 2024 and will be completed in early 2025 for Nelson Recreation Centre, Tansley Woods Community Centre, Sims Square, and the Burlington Animal Shelter. This round includes considerations for climate resilience planning. - In response to a 2022 City Council request, Burlington Enterprises Corporation (BEC) presented the Burlington Distribution Sustainability Plan in July 2024 highlighting how BEC is preparing its distribution system and operations for the future, identifying new infrastructure needs, adopting climate adaptation measures to improve resilience, and supporting community climate action.

Flood Management

Goal: Evaluate resilience of infrastructure under future climate conditions.

Short term indicator: Percentage of City with future climate informed flood mapping for creeks. Target: 95% by 2027.

Action	2024 Updates/ Year 3
1-4: Develop Lake shoreline flood management strategy augmenting existing plans to incorporate future climate projections and impacts to protect City assets (parkland and infrastructure) Underway Completion date: 5-10 years (end of 2032) City leads: Marion Rabeau, Manager, Design and Construction, Eng. Services Umar Malik, Stormwater Engineer – Development, Eng. Services	The shoreline improvement work is currently being conducted on a site-by-site basis instead of an overarching strategy. Projects are prioritized by current site conditions and risks of shoreline flood impacts. - Walker's Line: Renewal of the site was completed in February 2024. The work included a shoreline assessment. - Appleby Place: Renewal of the site was completed in 2024 and included shoreline reconstruction.
1-5: Enhance creek flood protection plan - Review and if necessary update regulatory flood hazard maps reflecting future climate risks and integrating the mapping in land use planning studies Continuous improvement Original completion date: 3-5 years (end of 2027) Revised completion date: Ongoing City lead: Umar Malik, Stormwater Engineer - Development, Eng. Services	- In 2024, four stormwater/flood studies and six creek rehabilitation projects were constructed. - In May 2024, City staff mapped sections of major urban roads in Burlington that are adjacent to regulated watercourses and are within the floodplain and spill zones. The purpose was to use the latest hydrologic modelling to determine the areas vulnerable to flooding during major storm events. Since the City's roads are designed to carry overland flow during major events, inundation is expected and is part of the overall drainage design. This information will assist emergency services and operations staff in responding to flooding situations and being aware of the flooded sections of the roads while responding to emergency calls during a flood event. - In 2023, the City completed a Phase 2 Flood Hazard Assessment for downtown Burlington and the Burlington GO Major Transit Station Area (MTSA) incorporating future climate risks within flood events up to the 1:100-year storm. In late 2023, the City in collaboration with CH, initiated a Flood Hazard Impacts and Mitigation Assessment providing a high-level evaluation of the stormwater systems in and around the Burlington GO MTSA, Downtown, and the Hager-Rambo Diversion Channel. In December 2024, recommendations and preliminary costs were provided to City Council.

Action	2024 Updates/ Year 3

	- In February 2024, Conservation Halton's (CH) Board of Directors endorsed the recommendations in the Watershed Climate Change Vulnerability and Risk Assessment. Based on the findings, CH developed a Watershed Climate Resiliency Plan which was then integrated into the Watershed-Based Resource Management Strategy (Watershed Strategy) at a high level. The Watershed Strategy was approved by CH's Board of Directors in October 2024.
	- CH regulates development in spill flood hazards (spills). Spills occur when floodwaters leave a watercourse, its valley and floodplain, and continue to flow overland in multiple directions before rejoining the same watercourse downstream or spilling into another watershed. In November 2022, CH's Board endorsed the Spills Flood Hazards Policy Directions Report and in September 2024, they endorsed draft spills policies and a supporting technical companion document and staff report (p. 38) for public engagement. Final policies will be submitted to the CH Board for approval in 2025.
	- Modelling for East Burlington Creeks Flood Hazard Mapping including Shoreacres and Sheldon Creeks is complete and will be incorporated into CH's flood forecasting system in 2024-2025. Burlington's climate adjusted IDF (intensity, duration, frequency) information was applied when determining the future 1:100-year flow.
	- Future plans include adding Roseland, Rambo and Hager, Hager-Rambo Diversion, Indian and Falcon Creeks to the flood forecasting system (tentatively planned for 2026-2028).
	- Modernization of Flood Forecasting and Operations is ongoing at CH with a focus on enhancing Watershed Monitoring and Flood Forecasting and Warning System.
	  - Watershed Monitoring includes equipment upgrades, installation and planning for new monitoring stations to increase spatial coverage (e.g., rain gauges, stream gauging stations), partner collaboration (funding and data/information sharing), new software system for near real-time monitoring, alarming, analysis, and enhanced data management.
	  - Flood Forecasting and Warning System includes ongoing efforts to improve ability to forecast potential flooding events associated with climate change, including looking at increased lead times specifically for smaller urban watersheds dominated by localized convective type storm events, and greater detail regarding spatiality of events. The system uses a cloud-based

Action	2024 Updates/ Year 3
	software platform using continuous watershed hydrologic models and integrated gridded numerical forecast predictions to generate forecast flood flow hydrographs. The system also uses models to generate forecast flood inundation mapping at flood sensitive locations. - On Apr. 1, 2024, Ontario Regulation 162/06 was replaced with Ontario Regulation 41/24 and associated sections of the *Conservation Authorities Act* were proclaimed. CH continues to regulate all watercourses, valleylands, wetlands, Lake Ontario and Burlington Bay shoreline, and hazardous lands, as well as lands adjacent to these features. The CH regulatory allowance is now 15 m (previously 7.5 m) from the hazard limit for all valley systems to protect people and property from the risks associated with natural hazards and to prevent worsening of existing hazards or the creation of new hazards. Permission is required from CH to develop in these areas.
1-6: Enhance emergency preparedness plans and public communication of flood risk with more detailed flood hazard information - Develop emergency flood management procedures using predictive rainfall information for stormwater infrastructure Underway Completion date: 5-10 years (by the end of 2032) City lead: Robyn Heibert, Specialist, Community Emergency Management, Fire Dept.	- Conservation Halton's (CH) flood forecasting team is responsible for operating a forecasting and warning system and for monitoring and advising municipalities on flood conditions as noted under Action 1-5. CH currently collects near real-time data from 51 rain gauges within, and immediately adjacent to their jurisdiction. There are 13 rain gauges located within Burlington with additional rain gauges located near the municipal boundary. At the start of 2024, this covered approximately 74 percent of Burlington. CH's strategic objective in Momentum is to achieve 70 to 80 percent coverage across their jurisdiction by the end 2024. They are currently at 75 percent overall. - When CH issues flood messages, they are shared with City staff as appropriate depending on the flood message level, and the City's Emergency Response Plan activation level is adjusted accordingly. In addition, procedures have been developed by the City to request that the Provincial Emergency Operations Centre issue an Alert Ready notification on behalf of the City of Burlington during emergencies that present threats to life safety. - Bylaw 69-2024 Emergency and Continuity Management Program, which includes the City's Emergency Response Plan, was adopted in November 2024. The City's Emergency Response Plan outlines that the designated Public Information Officer position on the City's Emergency Control Group is responsible for ensuring that approved public information is released to the media and public about an emergency, what the City of Burlington is doing in response to the emergency,

Action	2024 Updates/ Year 3
	and what the public needs to do to stay safe, and that various emergency information tools can be used depending on the situation. - A $150K funding request was approved in the 2025 budget for an additional Emergency and Continuity Management staff position and will support the development of hazard specific emergency planning.
1-7: Enhance coordination with partner agencies and higher levels of government to ensure that flood hazard maps and protection measures are up to date to manage flood risks Continuous improvement Original completion date: 5-10 years (by the end of 2032) Revised completion date: Ongoing City lead: Umar Malik, Stormwater Engineer - Development, Eng. Services	- Report ES-04-24 "Flood hazard impacts and mitigation assessment" was presented to City Council in December 2024. The findings outline the recommended infrastructure improvements required to reduce the risks of flood hazards in the Burlington GO MTSA, Downtown and along the Hager-Rambo Diversion Channel. Reducing the risk of flooding in these areas would help mitigate flood hazard risks, build climate change resiliency, and support growth and development in the Burlington GO MTSA and Downtown. - CH continues to update their flood hazard mapping to support planning and regulations and flood forecasting operations. This mapping also informs infrastructure management decisions, emergency planning and response, prioritization of flood mitigation efforts, and infrastructure design. See actions 1-5 and 1-6 above for additional CH updates. - As noted in staff report ES-25-24, City staff will continue to work to strengthen coordination with 407, MTO, CN, Metrolinx, and Halton Region on the design, maintenance, and upgrades of their infrastructure to mitigate impacts on City residents during extreme weather events.

Service Disruption

Goal: Invest in proactive measures to prepare for increased extreme events to avoid post storm reactive costs.

Indicator: Number of new proactive measures (projects, plans, initiatives, etc.) to help increase climate resiliency and reduce damage, costs and service disruption. Target: Increasing

Action	2024 Updates/ Year 3
1-8: Develop tracking for post-storm assessment to inform recovery and future adaptation efforts including data on type and severity of event, type of damage, amount or cost of damage, debris management to improve debris pick-up, etc. Underway (Forestry) (The 2024 flood was also tracked by other departments). Completion date: 3-5 years (end of 2027) City leads: Steve Robinson, Manager, Urban Forestry & City Arborist, Roads, Parks and Forestry (RPF) Nadia Blackburn, Manager, Park Operations, RPF Matt Koevoets, Manager, Road Operations, RPF	- Forestry staff track storm damage costs through separate work orders for storms anticipated to cost over $10K and a combined work order to track smaller storms. In 2024, six larger storm events and a few one-off storms resulted in 81 tree removals and 129 limb failures. - In July 2024, the City received a significant amount of rain, especially on July 15. Key impacts included 25 road closures, damage to recreation facilities, and numerous locations of debris removal within creek segments and at culvert inlets. The cost impact of the City's response to the storms was over $2.2M. (ES-25-24)
1-9: Maintain level of service for tree pruning and enhance risk assessment protocol in areas with above-ground powerlines, near major roads, near fire stations, etc. Continuous improvement Original completion date: 3-5 years (end of 2027) Revised completion date: Ongoing City lead: Steve Robinson, Manager, Urban Forestry & City Arborist, RPF	- In 2023, the City's grid pruning program annual budget was $700K. An additional $80K was approved in 2023 for the 2024 budget year and $50K in 2024 for the 2025 budget year to help close the gap on the $500K funding shortfall required to achieve a seven-year pruning cycle from the current eight-year cycle. The Urban Forest Master Plan approved in 2024 includes an action (#16.1) to move to a five-year grid pruning cycle for urban street, rural road, and park tree assets. - Preventative grid pruning helps keep the public right of way safe by making trees more resilient to extreme weather events, ensures clearance for vehicles and pedestrians and maintains visibility of signage. Preventative maintenance reduces reactive maintenance. - Burlington Hydro has a rotating three-year tree trimming maintenance program which aims to minimize outages that are caused by tree limb contacts. Their 2023-2025 tree trimming schedule is posted online.

Action	2024 Updates/ Year 3
	- In summer 2024, tree removal along the Waterfront/Centennial Trail took place between Martha Street and Guelph Line to reduce risk posed by some tree species introduced through natural processes to critical overhead power lines servicing the downtown core. Severe weather events have led to branches falling on these lines and causing outages. The City will replant with hydro-friendly tree and shrub species maintaining biodiversity in 2025 while protecting Burlington Hydro's infrastructure. - Plans to 'formalize operational procedures for risk inspection frequency, mitigation priority, mitigation timeframes, qualifications and documentation' is included under Action 19 of the Urban Forest Master Plan. The goal is to complete a draft Standard Operating Procedure related to risk inspections and priority assignment by Q4 2025.
1-10: Invest in backup power for City infrastructure - Assess backup power needs to sustain critical services during a significant power outage including consideration of vulnerable populations - Develop a plan utilizing permanent and temporary backup power sources and partnering with community stakeholders Completed Completion date: 3-5 years (end of 2027) City lead: Miranda Fowler, Supervisor, Facilities & Buildings Asset Management, Eng. Services	Assess backup power needs for critical services: - The City has three Emergency Operations Centre locations and an evacuation centre for emergencies; two of which can serve as population shelters if needed. - The City has a total of 15 generators to provide back-up power for facilities' critical infrastructure and ensure business continuity. Thirteen of the generators are permanent and automatically detect power failure to start and two generators are portable and can be transported and hooked up during emergency situations where needed. Develop a plan utilizing permanent and temporary backup sources partnering with community stakeholders. - This sub-action has a better fit with Action 4-3 if implemented.
1-11: Develop wind risk and vulnerability mapping to communicate high risk areas, inform emergency response planning, prioritize maintenance activities, and guide community planning Delayed/At Risk	- During the annual Hazard Identification and Risk Assessment (HIRA) review in 2024 which assessed 55 hazards, high wind was assessed as the 9th highest hazard, representing an overall low level of risk based on the provincial HIRA methodology. In 2023, high wind was assessed as the 5th highest hazard and in 2021, when the CRB plan was being developed, high wind was the 2nd highest community hazard.

Action	2024 Updates/ Year 3
Completion date: 3-5 years (end of 2027) City lead: Robyn Heibert, Specialist, Community Emergency Management, Fire	- A funding request for a wind risk and vulnerability study was submitted as part of the 2024 budget planning process, intended to identify areas more vulnerable during high wind events. The results of the study will be used to update GIS mapping used during emergencies, prepare proactive public education campaigns, help inform prioritization of maintenance activities on City owned properties, and potentially help inform community planning. - The funding request for the wind risk and vulnerability study was deferred in the 2024 and 2025 budget process.
1-12: Assess snow management plan to ensure a climate lens is applied to incorporate increased frequency and severity of extreme events (e.g., heavy snow, freezing rain, wind) with consideration of impacts to vulnerable populations Continuous improvement Original completion date: 3-5 years (end of 2027) Revised completion date: Ongoing City lead: Matt Koevoets, Manager, Road Operations, RPF	Windrow Cleaning Program: - This program was permanently established in parts of the city in 2008 after a two-year pilot for those unable to clear the windrow at the bottom of their driveway and where there was no other able-bodied person living at their address to do so. The program began with a 125-registration limit and increased over the years to a limit of 200. The annual budget for this program was $20K based on five clearing services per season at a cost of $60.04 + HST per driveway. - In 2024, the program was expanded to the entire city for up to 1,000 driveways with no eligibility requirements at a cost of $125 per season. The increased cost will keep the annual budget at $20K (report RPF-16-23). Sidewalk winter maintenance near schools: - In 2024, winter maintenance for school crosswalk segments was prioritized to improve alignment with school times and help promote all-season active transportation at approximately 60 school crossing locations (RPF-01-24). This will address windrows that impede access and slippery surface conditions. Winter maintenance of City parks parking lots: - In 2024, winter maintenance was expanded to 20 City park parking lots (total of 707 parking spaces) that are not presently cleared because they are not immediately adjacent to a

Action	2024 Updates/ Year 3
	recreation facility. This will reduce unsafe conditions arising from unmaintained City park parking lots, increase access, and accommodate more park users in the winter.
1-13: Assess the impacts of projected climate conditions on all recreation services offered by the City to determine adaptive measures for long term recreational needs, including consideration for impacts on vulnerable populations. Continuous improvement Original completion date: 3-5 years (end of 2027) - V2F Q4 2025 Revised completion date: Ongoing City lead: Denise Beard, Senior Manager, Community Development, Recreation, Community and Culture (RCC)	- In June 2024, the Live and Play Plan (RCC-12-24) was endorsed in principle as the guiding document for the future development of park, recreation, and cultural facilities. Parks and facilities will be designed through a climate lens both to minimize impact on climate and to ensure residents enjoy the City's park systems as the climate changes. - In 2024 Halton Region released the executive summary of the Climate Change and Health in Halton Region report. Foodborne and waterborne illnesses and food insecurity was one of the seven key climate-related health impact categories of concern highlighted in the report. Recreational water areas (Burlington Beach) can be impacted through increased water levels, damage to beaches from intensifying waves, and storm surges. After a heavy rainstorm, it is suggested to avoid swimming for two days due to increased risk of water that contains disease-causing pathogens. Halton Region monitors Burlington Beach for such contaminants.

Theme 2: Thriving Natural Environment

Tree Management

Goal: Reduce damage to trees while increasing the value of the services they provide.

Indicator: Number of work records regarding tree removals and limb failures per storm, per year[4]. Target: Decreasing long term trend (depends on type, frequency and severity of extreme storms).

Indicator: Percentage of tree canopy cover. Target: 35% by 2060[5].

[4] Indicator modified slightly to improve access to data.
[5] Indicator updated to correspond with a new target identified in 2022-2026 Burlington's Plan From Vision to Focus.

Action	2024 Updates/ Year 3
2-1: Invest in full tree life cycle management balancing amount of planting and ongoing maintenance to improve tree survival outcomes: - "Training young trees" programming for stronger trees to withstand extremes - Forestry on-call program - Coordination with volunteers for tree maintenance - Enhanced pruning Continuous improvement Completion date: Ongoing City lead: Steve Robinson, Manager, Urban Forestry & City Arborist, RPF	- "Training young trees" programming for stronger trees to withstand extremes - The Urban Forest Master Plan (UFMP) includes Action 16.2 to 'establish a five-year young tree structural pruning cycle for new plantings.' This will be started in 2025 and will continue annually for trees that are five years post planting. Data analysis will be conducted. - Forestry on-call program - A Forestry on-call program was implemented in September 2023 with City staff and a supervisor on-call between Sept. and Dec. 1, 2023, to address a tree failure, storm event, etc. In 2024, the program ran from Apr. 1 to Nov. 30. In the off-season, staff are put on stand-by if significant winds are forecast (about three to four times a year). - Coordination with volunteers for tree maintenance - This was considered but will not proceed due to liability concerns. - Enhanced pruning - As noted under action 1-9, in 2023, the City's grid pruning program annual budget was $700K. An additional $80K was approved in 2023 for the 2024 budget year and $50K in 2024 for the 2025 budget year to help close the gap on the $500K funding shortfall required to achieve a seven-year pruning cycle, which is currently at an eight-year cycle. The UFMP includes an action to increase the pruning cycle to five years.
2-2: Incorporate a climate lens in recommendations of management decisions in the Urban Forest Master Plan (UFMP) to maximize co-benefits. Completed Completion date: 3-5 years (end of 2027 - V2F states Q2 2024)	- In April 2024, City Council approved the Urban Forest Master Plan replacing the existing plan first approved in 2010. The first Woodland Management Strategy was also approved (RPF-02-24). The City manages over 85,000 trees within its parks and right of way and is responsible for 285 hectares of woodlands. A total of 46 actions were identified in the 20-year plan including a couple of actions from the Climate Resilient Burlington plan.

Action	2024 Updates/ Year 3
City lead: Steve Robinson, Manager, Urban Forestry & City Arborist, RPF	
2-3: Invest and support implementation of UFMP Underway Completion date: 5-10 years (end of 2032) City lead: Steve Robinson, Manager, Urban Forestry & City Arborist, RPF	- In April 2024, City Council approved the Urban Forest Master Plan and the Woodland Management Strategy (RPF-02-24). Full implementation of the plans is anticipated to require an annual operating budget of $9.5M phased over several years. This is an increase of $5M from the existing base budget of $4.5M in 2024. In addition, $260K in capital is required for the purchase of IT equipment, and three vehicles to support seven full-time resources. It is estimated the City can recover a portion of the operating costs through provincial and federal grant opportunities and redirection of existing City funding previously supporting the Emerald Ash Borer program with an estimated offset of $1.8M. The total cost to implement the UFMP is estimated to be $3.2M.

Natural Area Management

Goal: Value, conserve and enhance the multiple services that natural areas provide.

Indicator: Number of green infrastructure projects[6]. Target: Increase.

Indicator: TDB through Biodiversity Plan. Target: TBD.

Action	2024 Updates/ Year 3
2-4: Invest in green infrastructure to reduce flood risk, enhance habitat connectivity and support other ecosystem services Continuous improvement Completion date: Ongoing	- In response to the October 2023 Treeing the Crosstown Trail motion, the Greening the Crosstown Trail report (RPF-04-24) was approved by City Council in June 2024 as a pilot project for a meadow habitat within 7.5 hectares of the trail from Guelph Line to Fisher Avenue. An Infrastructure Ontario application for approval to proceed with the project was submitted in December 2024. Community consultation, monitoring, and site preparation will take place in 2025. - In 2024, staff submitted a $500K funding application under the Growing Canada's Community Canopies (GCCC), delivered by FCM's Green Municipal Fund in partnership with Trees Canada, for the Prospect St. project. A response was not received in 2024.

[6] This was changed from dollars spent to number of green infrastructure projects.

Action	2024 Updates/ Year 3

City lead: Umar Malik, Stormwater Engineer – Development, Eng. Services
 	
Marion Rabeau, Manager, Design and Construction, Parks, Eng. Services
 	
Janie Yaromich, Manager, Design and Construction, Roads, Eng. Services
 	
Manager, Urban Forestry & City Arborist, RPF
	- The City is working on tree planting guidelines and soil specifications and details for structural soil cells and continuous soil trenches for improved healthy and long-lived trees.
	
	- In January 2024, the City promoted its street-side tree planting program which involves contacting City staff followed by a forestry investigator visit and the site added to the tree planting schedule if criteria is met.
	
	- In 2024, the City of Burlington supported tree plantings with:
	
	  - 2,288 caliper (larger) trees planted street side (in front of people's homes) and in manicured parks as part of the replacement tree program;
	
	  - 3,579 container trees planted at educational, skill-building community supported events with local agencies and volunteers;
	
	  - 1,200 container trees distributed through giveaways; and
	
	  - 11,800 seedlings planted in partnership with Conservation Halton (Tansley/Shoreacres).
	
	  - Educational programming regarding urban forestry health and benefits is provided by BurlingtonGreen (Ask an Arborist webinar and guided tree walks with City staff, children's activities, Burlington Tree Photo Contest, etc.)
	
	- In 2024, Conservation Halton's Landscape Restoration team carried out the following in Burlington:
	
	  - 12 projects (five plantings, three invasive pulls, and four rain gardens installed)
	  - 2,880 plants planted
	  - 19,737m^2 restored
	  - Seven species of invasives removed
	  - 0.93 km of stream restored
	  - 0.91 km of Riparian zone restored
	  - Seven volunteer restoration events (including two by the community outreach team)
	  - 145 volunteers active in Burlington
	  - 10 Landowner Grants (four for rain gardens through the Hamilton Harbour Rainwater Conservation Fund) - $24,482.68 grants awarded

Action	2024 Updates/ Year 3
	- Nine education events (ward forum events, climate resilience webinar, Niagara college workday at Hidden Valley, etc.) - 37 site visits (provide stewardship recommendations, support landowner projects, and provide info about CH grant programs) - Additional information is noted under action 2-5 below.
2-5: Establish a City-Wide Biodiversity Plan that addresses: - local effects of climate change on wildlife and biodiversity - habitat connectivity and wildlife corridors - ecosystem resilience - invasive species management - urban and rural landscaping behaviours and operations and maintenance that can support plants and wildlife - integration of citizen science - habitat restoration - ecosystem services Not started Completion date: 5-10 years (end of 2032) City leads: Steve Robinson, Manager, Urban Forestry & City Arborist, RPF	- Funding will be needed to develop a City-Wide Biodiversity Plan. In the interim, data related to biodiversity indicators will continue to be collected, assessed, and made available through various City GIS/IT applications. Staff will continue to leverage relationships with agencies that have ongoing biodiversity projects: - Biodiversity Strategy for Halton Regional Forests - Conservation Halton's (CH's) Guiding Principles for Supporting Biodiversity - Effects of Climate Change on Biodiversity within Conservation Halton's (CH) Watersheds - In February 2024, the City posted a dedicated Bird Friendly City webpage. In May 2024, Nature Canada announced that the City's designation as a Bird Friendly City was successfully renewed. In December 2024, staff added educational decals, posters and information on the TV Burlington screens at Mountainside Community Centre and City View Pavilion to educate patrons about the bird friendly glass treatment (dots) on the windows of those buildings. Skyway and Bateman community centres will also have this information posted when each facility is complete. - The annual road closure for the mating passage of the endangered Jefferson salamanders took place on King Road from North Service Road to Mountain Brow Road from March 5 to April 2, 2024. - The City of Burlington continues to work with several partners to monitor and control the spread of Marbled Crayfish, a highly invasive species. City View Park is the first place in North America where the species has been found in the wild. - Conservation Halton is carrying out Bank Swallow monitoring at Shell Park and Shorewood Promenade in Oakville over the next few years in relation to work taking place at both locations while also monitoring the Burloak Waterfront Park population as a control site.

Action	2024 Updates/ Year 3

John Stuart, Senior Planner, Policy, Community Planning Dept.	- BurlingtonGreen carried out the following activities:
	  - Continued dune restoration services at Burlington Beach with a contractor via the transplant of 1,000 native grass plants
	  - Provided biodiversity-focused educational programming (pollinator teaching garden, bird-friendly window demonstration at the Pump House, monarch butterfly display, hands-on seed ball activities, guided bird walk, local birding webinar, invasive plant removal workshops, pollinator see packets giveaways, native plant sale, etc.)
	  - Eight-month long educational shoreline litter and microplastics clean-ups

Theme 3: Health and Wellbeing

Extreme Heat and Health

Goal: Provide City services to support the community during extreme heat events.

Indicator: Number of aquatic facilities (pools, misters and splash pads) per 10,000 residents. Target: Maintain the 2024 ratio as the population grows.

Indicator: Percentage of urban community within walking distance to a public space cooling facility. Target: 100% by 2035.

Action	2024 Updates/ Year 3
3-1: Develop program to support vulnerable populations in installing and maintaining cooling systems Underway Completion date: 5-10 years (end of 2032) City lead: Lynn Robichaud, Manager, Environmental Sustainability, Eng. Services	- In May 2024, City Council approved the extension of the Better Homes Burlington (BHB) pilot program to continue to offer the concierge service for an additional year (EICS-10-24). City staff promoted the following income eligible programs through the BHB concierge service in 2024: Energy Affordability Program, Home Winterproofing Program, Low-Income Energy Assistance Program, and Oil to Heat Pump Affordability Program.
3-2: Identify gaps in public space cooling by assessing utilization of current cooling facilities and by identifying the type of cooling supports	- In late 2023, Community Development Halton was retained to engage residents about heat vulnerability including whether they had access to air conditioning where they lived, how they stay cool on heat warning days, whether they have heard of and accessed the City's cooling

Action	2024 Updates/ Year 3
and accessibility needs of the community especially for vulnerable populations Completed Completion date: 1-2 years (Q4 2024) City lead: Denise Beard, Senior Manager, Community Development, RCC	centres. Between May and August 2024, they connected with older adults, newcomers to Canada, those whose first language is not English, people living in low income, unhoused, and/or living with age related vulnerability and disability or chronic health conditions. The report will help inform communications about cooling centres and potential new sites. - In 2024 Halton Region released the Climate Change and Health in Halton Region report. Extreme temperature is one of the seven key climate-related health impact categories of concern highlighted. Actions included how to stay cool and prevent heat-related illness, and a note about accessing municipal cooling centres.
3-3: Conduct an Urban Heat Island assessment to inform infrastructure design guidelines, shade structures, cooling facilities and UFMP Underway Completion date: 3-5 years (end of 2027 - V2F identifies target as Q4 2026) City lead: Fleur Storace-Hogan, Coordinator, Sustainability Projects, Eng. Services	- The Urban Forest Master Plan story map shows maps with mean surface temperature, impervious surfaces and canopy equity in Burlington. Providing canopy cover and greening within 100 metres of where people live, work and play can reduce the risk of heat related illness and death during extreme heat events. Canopy cover is not equally distributed across the city. As a result, benefits from the urban forest are not experienced equitably across Burlington's neighborhoods. Households with lower incomes, minority groups, older adults, children, and those with certain health conditions are more vulnerable to the effects of climate change and may benefit more from having trees near where they live and work. Additional information is available in the 2022 State of the Urban Forest Report. - A component of the Community Development Halton report noted under action 3-2 included some mapping of socio-economic data that will be helpful to complete this action. - In 2025, staff plan to expand on this work incorporating the data from the 2022 State of the Urban Forest Report, the Community Development Halton report and publicly accessible data to help identify areas that are at greater risk from extreme heat events.
3-4: Explore the feasibility of updating the Property Standards Bylaw to include requirements to keep indoor temperatures from exceeding a maximum threshold Not started	- Sustainability staff have been monitoring updates from local municipalities (Mississauga, London, Hamilton and Toronto) to consider potential best practices to apply in Burlington.

Action	2024 Updates/ Year 3
Completion date: 3-5 years (end of 2027) City lead: Adam Palmieri, Manager of Bylaw Enforcement, Bylaw Compliance Dept.	

3-5: Incorporate shade (natural and built) and opportunities for cooling with water play as well as water fountains and bottle filling stations for access to free hydration into park development
 	
Continuous improvement
 	
Completion date: Ongoing
 	
City lead: Marion Rabeau, Manager, Design and Construction, Parks, Eng. Services
	- In 2024, the following projects incorporated shade and opportunities for cooling:
	  - New shade structures at Queensway Park and Lansdown Park.
	  - New splash pad at Lansdown Park.
	  - New drinking fountains at Lampman Park and Lansdown Park.
	  - Most park renewals also included the addition of trees.

Theme 4: Disaster Resilience

Community Education and Resilience

Goal: Build capacity in the community to prepare for and respond to more extreme events and long-term climate stresses.

Indicator: Percentage of urban area connected to a resilience hub within walking distance (15 min). Target: 100% by 2040.

Indicator: Key locations for rural resilience hubs established. Target: Two by 2032.

Action	2024 Updates/ Year 3
4-1: Enhance emergency notification and communications plan incorporating needs of vulnerable populations Underway Completion date: 3-5 years (end of 2027)	- In 2022, Alert Burlington, a community emergency notification system was launched. In the event of a community emergency, notifications will be sent to subscribers who can choose to receive Alert Burlington notifications in several languages, which results in individuals who are not fluent in English (including but not limited to newcomers) being able to receive alerts in their preferred language. As of Dec. 31, 2024, Alert Burlington had

Action	2024 Updates/ Year 3
City lead: Robyn Heibert, Specialist, Community Emergency Management, Fire	5,257 subscribers, which represents a 31% increase from Dec. 31, 2023. The program will end in 2025, and emergency alerts will be issued through the national Alert Ready system. - In February 2024, staff presented City Council with a new Emergency and Continuity Management Program Bylaw, repealing the previous bylaw 46-2019 (BFD-02-24), which was subsequently replaced by Bylaw 69-2024 following organizational restructuring in June 2024. - In May 2024, a Council workshop on media training was held. The purpose was to help prepare Council members to fulfill the Political Liaison Officer position on the City's Emergency Control Group during large-scale emergencies or disasters by providing media relations best practices and media interview skills. - For Emergency Preparedness Week (May 5-11, 2024), staff held two in person emergency preparedness education sessions at the Central Branch of Burlington Public Library and the Burlington Seniors' Centre, including information about emergency preparedness considerations for individuals with disabilities and seniors. - A funding application was submitted to the Ontario Resource Centre for Climate Adaptation (ORCCA) Staff Capacity Program in December 2023 to fulfill this action, but staff did not receive funding through this program. Staff are investigating other options.
4-2: Develop a Community Climate Resilience Education Program focusing on high climate risks Help residents understand climate science, risks, adaptation actions, funding opportunities and relevant City initiatives Continuous improvement Original completion date: 1-2 years (Q2 2024 in V2F) Revised completion date: Ongoing City lead: Fleur Storace-Hogan, Coordinator, Sustainability Projects, Eng. Services	- A Climate Action in Burlington video was launched in January 2024 to highlight the work the City has done to date regarding climate mitigation and adaptation. The video was viewed over 15 thousand times in 2024. - A flood prevention and emergency preparedness campaign was ready to launch in July 2024. However, this was postponed due to the July 15/16 flood. Components of the campaign were carried out in a different format through cross promotion between the home flood prevention and flood recovery webpages, a related blog post, media releases, and a flood prevention and emergency preparedness information card for distribution at events. - Two sessions, one for staff in October and one for the public in November, were offered to promote how to help reduce or eliminate stormwater runoff from flowing into municipal sewer systems and local creeks. The November session was co-hosted with BurlingtonGreen as part of the Resilient Homes webinar series. - The City continued to promote existing programs: - Home Flood Protection Program

Action	2024 Updates/ Year 3
	- Plumbing Permit Fee Grant Program - Halton Region Enhanced Basement Flooding Mitigation Program - Healthy Neighboursheds series (Spring and Fall) - Rainwater Conservation Fund - Home Efficiency Rebate Program - Home Winterproofing Program - After the July 2024 flood, Halton Region released a series of short videos to promote their Enhanced Basement Flooding Mitigation Program. The videos are available at halton.ca/flood. - In addition to activities noted in other sections, BurlingtonGreen launched a 200,000 eco-actions by 2030 city-wide campaign in 2024. The goal is to have those living, working, or learning in Burlington share their eco-actions from a pre-selected list and/or add their own in the hopes of inspiring others to also take action to protect and care for our environment.
4-3: Enhance funding and supports for community and neighbourhood social resilience programs in urban and rural communities - Establish Resilience Hubs across the City - Establish a help line to support vulnerable populations during and after extreme events - Train residents in emergency preparedness Underway Completion date: 3-5 years (end of 2027) City lead: Denise Beard, Senior Manager, Community Development, RCC	- Establish Resilience Hubs across the City - A Manager of Neighbourhoods is required for neighbourhood social resilience programs, such as establishing resilience hubs similar to OakvilleReady and Climate Ready Hamilton, in Burlington. Staff will continue to pursue funding opportunities. - Establish a help line to support vulnerable populations during and after extreme events - The City currently promotes 311 for all residents. - Train residents in emergency preparedness - For Emergency Preparedness Week (May 5-11, 2024), the City's Community Emergency Management Specialist held two in person emergency preparedness education sessions at the Central Branch of Burlington Public Library and the Burlington Seniors' Centre, which included information about emergency preparedness considerations for individuals with disabilities and seniors. Approximately 40 people attended the sessions.

Action	2024 Updates/ Year 3
	- The City has three community hub locations with capacities for up to 12 and 18 people (depending on the location) at Appleby Ice Centre, Haber Community Centre, and Tansley Woods Community Centre, and one neighbourhood hub at St. Christopher Catholic Elementary School with capacity for up to 40 people. The hubs are available for community groups to provide free activities, programs or events to Burlington residents. These hubs can potentially be used for training related to this program in the future but are not large enough to serve as community care centres during emergencies (the hubs/meeting rooms, not necessarily the facility as a whole).

Citizen and Business Support Programs

Goal: Encourage climate adaptation actions from citizens and businesses.

Indicator: Uptake of citizen and business climate adaptation support programs. Target: Increase.

Action	2024 Updates/ Year 3
4-4: Promote and augment existing programs for home and business climate resilience retrofits Continuous improvement Completion date: 3-5 years (end of 2027) City lead: Fleur Storace-Hogan, Coordinator, Sustainability Projects, Eng. Services	- A one year Solar Panel Building Permit Grant was approved in March 2024 covering the cost of a building permit for solar systems installations in Burlington (EICS-02-24). A total of 23 building permit fees were waived through this grant. This grant was not approved for extension in the 2025 budget. - Between 2014 and 2024, $567K in building permit fees were waived through Burlington's Plumbing Permit Fee Grant Program, $118K of which was in 2024. - Between 2014 and 2024, a total of 1,606 subsidies were provided through Halton Region's Enhanced Basement Flooding Prevention Subsidy Program totaling over $3.1M, $594K of which was in 2024 (275 subsidies). An additional 1,170 homes participated in Halton Region's Targeted Downspout Disconnection Program which ran between 2016 and 2019.[7] - City staff continued to promote the Home Flood Protection Program which was fully subscribed in 2024 (18 in-person assessments), Plumbing Permit Fee Grant Program and Halton Region's Enhanced Basement Flooding Prevention

[7] This Data was provided by The Regional Municipality of Halton and the Region assumes no responsibility or liability for its use or accuracy.

Action	2024 Updates/ Year 3
	Subsidy Program on the City's flood prevention website, Take Action Burlington blog, an information card distributed at events, and through the Better Homes Burlington concierge service. - The City and BurlingtonGreen cohosted a Climate Resilient Homes webinar series in November 2024 including a presentation on residential solar panels and heat pumps. BurlingtonGreen's location at the Pump House in Beachway Park provides a heat pump demonstration opportunity. They also promote reducing personal greenhouse gas emissions through their online Make the Switch resources.
4-5: Enhance existing policies, programs and education programming for private stormwater management practices - Encourage increased permeability on public and private sites - Continue existing program to encourage property owners to remove stormwater from the wastewater system - Encourage ongoing inspection and maintenance of potential flood risks on property Continuous improvement Original completion date: 3-5 years (end of 2027) Revised completion date: Ongoing City lead: Umar Malik, Stormwater Engineer, Development, Eng. Services	- Encourage increased permeability on public and private sites - Sustainability staff coordinated a staff lunch and learn session in October 2024 with Conservation Halton on residential stormwater management practices such as permeable pavement, rain gardens, etc. A similar public session was cohosted with BurlingtonGreen in November 2024 which also included a component on the City and Region's programs to reduce the risk of basement flooding. - Continue existing program to encourage property owners to remove stormwater from the wastewater system and encourage ongoing inspection and maintenance of potential flood risks on property. - As noted in action 4-2, after the July 2024 flood, Halton Region released a series of short videos to promote their Enhanced Basement Flooding Mitigation Program. The videos are available at halton.ca/flood. - As noted in action 4-4, City staff continued to promote the Home Flood Protection Program which was fully subscribed in 2024 (18 in-person assessments), Plumbing Permit Fee Grant Program and Halton Region's Enhanced Basement Flooding Prevention Subsidy Program on the City's flood prevention website, Take Action Burlington blog, an information card distributed at events, and through the Better Homes Burlington concierge service. The burlington.ca/floodprevention page includes links to other sources of information providing homeowners some do-it-yourself maintenance tips.

Theme 5: Strong and Resilient Economy

Agriculture

Goal: Support agricultural community in preparing for climate change.

Indicator: TBD through the Agricultural Action Plan. Target: TBD.

Action	2024 Updates/Year 3
5-1: Pursue approval to develop a Burlington Agricultural Action Plan that includes a climate lens and considers opportunities to complement partner agency initiatives. Consider actions such as: - Supporting the agricultural community in implementing best management practices including improvements to rural drainage - Enhancing monitoring of, and implementing projects to improve water quality - Researching how climate change will impact food crops and other agricultural products and potential opportunities for new crops - Flood management and emergency response planning for livestock - Assessing the cumulative effects of non-agricultural development uses in prime agricultural areas, with respect to preserving agricultural system integrity Underway but alternative resources will be required at the local level Completion date: 3-5 years (end of 2027 - V2F states Q4 2025)	- The Burlington Agricultural and Rural Affairs Advisory Committee's (BARAAC) workplan was presented to City Council in April 2024. The workplan included support for the preparation of an "Agricultural Action Plan" through: o companion "State of Agriculture" report summarizing the 2021 Census of Agriculture data relevant to the City of Burlington o identification of priority metrics/indicators for Burlington o relevant Burlington case studies, and potentially peer case studies o an approvals process map - The City has experienced some setbacks in completing this initiative. The initial strategy was to complement Halton's existing Rural Agricultural Strategy. However, with Bill 23 resulting in the transition of upper-tier planning responsibilities to the local level, Halton Region is no longer implementing its Rural Agricultural Strategy. City staff are evaluating alternative resources to complete a locally focused Agricultural Action Plan.

Action	2024 Updates/Year 3
City lead: John Stuart, Senior Planner, Policy, Community Planning	
5-2: Expand the opportunities to support local food production across the City of Burlington (such as community gardens, rooftop gardens, backyard gardening, etc.) Continuous improvement Completion date: Ongoing City lead: Denise Beard, Senior Manager, Community Development, RCC	- In 2024, four plots were added in two existing gardens for a total of 235 plots. An additional 37 plots are planned for a new garden at Nelson Park in 2027. A $39,352, budget request (pg. 68) was approved for 2025 for additional staff (0.6 person) to maintain existing community garden service and support expansion. - In June 2024, City Council approved a motion to consider an expansion of the Community Gardens program through the 2025 Budget process and the potential addition of community gardens as part of the Crosstown Trail greening initiative (RPF-04-24). The community garden expansion was not approved for 2025 and a community garden as part of the Crosstown Trail was reviewed by staff and was not recommended. - In 2024, Halton Region released the executive summary of the Climate Change and Health in Halton Region report. Foodborne and waterborne illnesses and food insecurity was one of the seven key climate-related health impact categories of concern highlighted in the report. The report noted that 13% of Halton households were food insecure between 2018-2020 (Canadian Income Survey) and about 7% of Halton children aged one to 17 were food insecure (2019 Canadian Health Survey on Children and Youth).

Local Economy

Goal: Support and develop resilient local supply chains to help withstand impacts associated with extreme climate events outside of Burlington

Indicator: Number of new local supply chain partners. Target: 10 by 2032.

Indicator: Number of new products piloted. Target: 10 by 2032

Action	2024 Updates/ Year 3
5-3: Assess the feasibility of sourcing and providing preference to local suppliers in contracts to increase resilience with supply chain disruptions Underway Completion date: 3-5 years (end of 2027) City lead: Izabela Goclik, Manager, Innovation and Entrepreneurship, Burlington Economic Development (BED)	- While there is limited progress to report at this stage, the 2024 merger between TechPlace's co-location partner Haltech and Hamilton's Innovation Factory has significantly expanded TechPlace's access to a network of over 800 startup businesses. - TechPlace will collaborate with Innovation Factory (IF) to develop a strategic approach for building clusters and facilitating pilot projects with local businesses. These efforts aim to adapt innovations originating from TechPlace and IF, creating a scalable model that can be applied more broadly to strengthen local supply chains and foster resilience. - There have already been a few instances where successful connections were made with local businesses, City employees, and local educational institutions, resulting in members collaborating effectively. TechPlace staff are observing better acceptance of, and willingness to adopt and test, locally grown solutions, which is an encouraging sign of the potential for scaling this approach. For example, TechPlace is working with Metrolinx to encourage visitors to use GO Transit and public transportation to visit. This includes signing agreements and collaborating with employers to coordinate and design transit tours that improve workplace accessibility and connectivity.
5-4: Investigate the feasibility to develop a business innovation ecosystem where locally developed products can be tested to encourage the development of local supply chains and innovative products Underway Completion date: 3-5 years (end of 2027) City lead: Izabela Goclik, Manager, Innovation and Entrepreneurship, BED	- TechPlace continues to work with local startups, providing space, connections, programming, and mentorship. The business innovation ecosystem is thriving, with over 500 members. - TechPlace actively collaborates with local tourism and small business sectors, aligning their strategies to support one another. Additionally, they are engaging various City departments to strengthen this ecosystem further. - While the foundation for the business innovation ecosystem has been established, the next step is to focus on corporate innovation by building partnerships with corporate and municipal stakeholders. These partnerships will enable the validation of pilot projects, securing buy-in from the City, corporations, and other local businesses. This approach will ensure locally developed products are not only tested but also supported for broader adoption, fostering resilient local supply chains and driving innovation.