Appendix A: Climate Resilient Burlington Year 1 Progress Update

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: Percentage of prioritized asset categories that have been assessed for future climate impacts. Target: 100% by 2032

Action	Progress Update (May 2023)
1-1: Expand natural asset data and incorporate priority natural assets into Burlington's Asset Management Plan Completion date: 3-5 years City lead: Engineering (Eng.) Services	The 2021 Asset Management Plan (AMP) included the urban forest, a living asset for the first time. As this is an evolving field, a dollar value (almost $300 million) was only placed on the structural replacement cost and not on the ecological and economic value of the urban forest. Additionally, only street trees and those park trees inventoried (estimated to be about 15 percent of park trees) were included and no woodlots which may be four to five times higher than documented City trees. In the next AMP, the findings of the State of the Urban Forest (2022) report, which valued the services from the urban forest at more than $8 million annually for stormwater, air quality improvement and carbon sequestration using i-Tree Canopy, will be incorporated. The Municipal Natural Assets Initiative (MNAI), with support from the Greenbelt Foundation, partnered with the cities of Burlington and Hamilton, Conservation Halton and the Royal Botanical Gardens on the Grindstone Creek Watershed Natural Asset Project, the first of its kind in Ontario. A report released in December 2022 estimated the value of stormwater management services alone at over $2 billion in engineered infrastructure replacements, not including operational costs. An additional $34 million of co-benefits is provided each year through recreation, erosion control, habitat biodiversity, atmospheric regulation, and climate mitigation. The City is one of nine agency partners that are part of the Cootes to Escarpment EcoPark System (C2E). In 2022, an Ecosystem Service Valuation project was completed to better understand the importance of the partner owned properties through funding from the Greenbelt Foundation. The estimated total value of the ecosystem services provided by the properties range from $112 to $232 million per year through carbon sequestration/storage, water flow management, recreation, education, biodiversity and habitat preservation, air quality and climate regulation (urban heat reduction).

Action	Progress Update (May 2023)
1-2: Integrate future climate impacts in Burlington's Asset Management Plan for prioritized asset categories and assess long-term infrastructure funding requirements Completion date: 5-10 years City lead: Eng. Services	Burlington is one of 13 municipalities participating in the Canadian Network of Asset Managers (CNAM) Applied Climate Action Cohort: Operationalization of Climate Change Through Asset Management. The objective of the program is to advance the assessment of climate change on Burlington's asset management program. Preliminary work is underway to integrate the impacts of climate hazards on community levels of service within the transportation service area.
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 Completion date: Ongoing City lead: Eng. Services	City staff are updating the Corporate Energy and Sustainable Buildings Policy to ensure it is aligned with the Council approved target for City operations to be net carbon neutral by 2040. City facilities are being designed and constructed to have a net zero or low carbon footprint, such as the City Park Pavilion (new), former Robert Bateman High School (retrofit) and Skyway Arena and Community Centre (redevelopment). 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. Options are being considered taking into account a number of unplanned provincial planning policy changes aimed at increasing housing supply. The City of Burlington was one of the first municipalities in southern Ontario to develop Stormwater Management Design Guidelines in 1977. The Guidelines were updated and approved by City Council in 2020 with a commitment to regularly review and update them to reflect current design practices, updated regulations and legislation, guidance from partner agencies and other levels of government, and new technologies. The City will also review rainfall intensity-duration-frequency (IDF) data on a 5-year cycle to ensure that the applied values continue to be reasonable and appropriate, including the potential effects of climate change.

Flood Management

Goal: Enhance resilience of infrastructure exposed to high flood risk.
Short term indicator: Percentage of City with future climate informed flood mapping for creeks. Target: 95% by 2027.
Long term indicator: Percentage of critical infrastructure exposed to high flood risk. Target: Decreasing long term.

Action	Progress Update (May 2023)
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)	Halton Region’s Burlington Beach Regional Waterfront Park Technical Studies (to support the future Master Plan implementation) are nearing completion. Future implementation of the Master Plan will include improvements to increase resilience of the shoreline at the beach.

Action	Progress Update (May 2023)
Completion date: 5-10 years City lead: Eng. Services	Three of the City's Windows-to-the-Lake are being enhanced in addition to Port Nelson Park. Work includes shoreline restoration and parkette improvement.
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 Completion date: 3-5 years City lead: Eng. Services	The City regularly undertakes municipal class environmental assessments to address erosion concerns, where Capital Creek Improvement projects are in progress for 12 creeks (environmental assessment, detailed design and/or construction). Every 5 years, there is a comprehensive creek inventory which includes walking along the entire 130 km of urban creeks to outline where rehabilitation is needed. The next one is scheduled for 2025. Over the past few years, Conservation Halton has embarked on a major review and update of regulatory mapping (e.g., floodplain mapping, wetland mapping, watercourse mapping, etc.) some of which is more than 20 years old. Updated floodplain mapping helps 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. East Burlington Creeks – In 2021, flood hazard mapping studies were launched for East Burlington Creeks to update flood hazard mapping and modelling for Tuck, Shoreacres, Appleby and Sheldon Creeks in Burlington and Oakville. A public engagement session was hosted in October 2021 and a second engagement session was hosted on June 6, 2023, with comments permitted until July 6 2023. Lower Rambo Creek – The City of Burlington completed a Phase 1 Flood Hazard and Scoped Stormwater Management Assessment for downtown Burlington and the Burlington GO Major Transit Station Area (MTSA). The Phase 1 study revealed a flood hazard in the Lower Rambo watershed that is greater than previously understood. As a result, a Phase 2 study was undertaken to further refine the flood hazard mapping. The study is now complete and becomes the best available information for decision making when development is contemplated in Burlington GO and Downtown intensification areas. Under Ontario Regulation 162/06, Conservation Halton regulates all watercourses, valleylands, wetlands, Lake Ontario and Burlington Bay shoreline, and hazardous lands, as well as lands adjacent to these features. The purpose of the regulation is 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. Conservation Halton's regulation now applies to identified flood (i.e.,

Action	Progress Update (May 2023)
	floodplain and spill areas) and erosion hazards, as well as a 7.5 metre regulatory allowance, in the Lower Rambo Creek watershed. Permission is required from Conservation Halton 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 Completion date: 5-10 years City lead: Fire	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. CH currently collects near real-time data from 43 rain gauges within their jurisdiction. There are 12 rain gauges located within Burlington with several additional rain gauges located near the municipal boundary. At the start of 2023, 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 70 percent overall. There is currently one watershed (Grindstone Creek) integrated into CH's real-time flood forecasting and warning system which is currently under development. CH's strategic objective is to integrate an additional four to eight watersheds within their jurisdiction by the end of 2024 with proposed watersheds in Burlington including Tuck, Appleby, Shoreacres and Sheldon creeks. When Conservation Halton issues flood messages, they are shared with City staff as appropriate depending on the flood message level such as operational staff, stormwater management staff, Crisis Management Team members, Emergency Control Group members and Emergency Operations Centre support personnel. Conservation Halton publicly reports this information on their Twitter account and the City also shares via their Twitter account.
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 Completion date: 5-10 years City lead: Eng. Services	Conservation Halton 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 Conservation Halton updates. In 2022, the Government of Canada released their Adaptation Action Plan. One of the actions within the plan is to prepare for, respond to, and recover from climate-related disasters by ensuring that all Canadians have access to free, up-to-date and authoritative flood hazard maps by investing up to $164 million over five years and working with the provinces and territories to increase Canada's resilience to flooding by expanding the Flood Hazard Identification Mapping Program.

Service Disruption

Goal: Invest in proactive measures to prepare for increased extreme events to avoid post storm reactive costs.
Indicator: Dollars spent on response and recovery of extreme events by type and severity
Target: Decreasing long term trend (depends on type, frequency and severity of event)

Action	Progress Update (May 2023)
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. Completion date: 3-5 years City lead: Roads, Parks and Foresty (RPF)	Major storms can result in staff being temporarily redirected to address emergency issues and trigger weeks of cleanup and a large backlog in service requests which can cause drops in other levels of service. For Forestry, in addition to the funds directed to the initial clean-up, extreme events often draw capacity away from planned activities like pruning, planting and stumping. In 2022, severe weather storms in April, May and December resulted in costs of $542,017.36 directed to cleanup of tree debris, with the majority due to the derecho storm that May. When a power outage is classified as a "Major Event" (usually weather related, beyond the control of the distributor and is unforeseeable, unpredictable, unpreventable and/or unavoidable) Burlington Hydro must file a public report with the Ontario Energy Board. One of the questions that must be answered is "what actions, if any, will be taken to be prepared for, or mitigate, such Major Events in the future?"
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. Completion date: 3-5 years City lead: RPF	The City's current level of service for grid tree pruning is a seven-year cycle though the actual is currently around eight or nine years. Risk inspection is also completed at the time though it also occurs as part of some service requests and through incidental field inspections by staff. According to industry best practices, a municipality should have a formalized risk management policy and should have the resources in place to support a coordinated risk management direction across all classes of urban forest asset. As such, this will be one of the recommendations within the Urban Forest Master Plan to be addressed within the first five years. 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.
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	The City has three Emergency Operations Centre locations and an evacuation centre for emergencies; two of which can serve as population shelters if needed.

Action	Progress Update (May 2023)
- Develop a plan utilizing permanent and temporary backup power sources and partnering with community stakeholders Completion date: 3-5 years City lead: EICS	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.
1-11: Develop wind risk and vulnerability mapping to communicate high risk areas, inform emergency response planning, prioritize maintenance activities, and guide community planning Completion date: 3-5 years City lead: Fire	The 2021 Hazard Identification and Risk Assessment (HIRA) identified wind as the second highest ranked community hazard after cyber-attacks. It was recommended that "all higher risk hazards identified in the assessment that have a higher risk associated with public safety, the environmental, and regulatory impact should be covered in the emergency management program for the City and should be reviewed to ensure that associated mitigation programs are adequate to deal with emergencies associated with the hazards (e.g., flood, winter weather, fire/explosion hazards)."
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 Completion date: 3-5 years City lead: RPF	Vision to Focus 2018-2022 included a key action to "review snow cleaning service levels for all mobility modes (e.g., trails, sidewalks, bike lanes and roads)." The September 2021 winter services update report (RPF-18-21) presented opportunities for improved snow clearing on walkway linkages to various schools, with implementation dependent on agreements with both school boards. Further opportunities to increase winter service coverage to off-road facilities and better align winter maintenance services with the ideal pedestrian network is being undertaken as part of the City's Integrated Mobility Plan review (CS-10-22 Appendix A pg. 13).
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. Completion date: 3-5 years City lead: Recreation, Community and Culture (RCC)	This work will be considered under the Parks and Recreation Master Plan. A consultant has been retained and work will be completed in Q1 2024. All event organizers hosting festivals and events in Burlington must fill out an Event Emergency Management Plan. If the event is outdoors, organizers must include how they will mitigate the risk or their plans if the weather changes. This plan is vetted by all emergency services and mimics Incident Management System protocols.

Theme 2: Thriving Natural Environment

Tree Management

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

Indicator: Number of major limb failures and catastrophic tree failures per storm, per year. Target: Decreasing long term trend (depends on type, frequency and severity of extreme storms).

Indicator: Percentage of tree canopy cover. Target: 35% by 2040.

Action	Progress Update (May 2023)
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 Completion date: Ongoing City lead: RPF	In November 2022, the City of Burlington partnered with industry leaders for a Young Tree Pilot Study. The purpose of the three-year study is to assess the beneficial effects of fungi and bacteria that are added to the soil of transplanted young trees in the hope of improved growth and survival. Burlington's street tree pruning program formally targets a seven-year pruning cycle. In recent years, this target has not been achieved due to program capacity and budgetary limitations. Inventory and risk management information is stored on the City's work management software. The Urban Forest Master Plan will recommend a 5-year grid cycle which would help to establish better structure in trees making them more resilient during storm events. In 2022, City of Burlington supported tree plantings with 1,770 caliper (larger) trees planted as part of the replacement tree program and 2,450 container trees were planted in community supported planting events (1,725) or distributed through giveaways (725). In 2023, 500 trees were given away in April and 500 trees are planned to be given away in September. BurlingtonGreen is increasing the urban tree canopy coverage by planting an additional 500 trees in 2023. They also provide community education and skill-building for tree stewardship/maintenance/pruning through their annual TLC (Tree Loving Care) event hosted in partnership with the Burlington's forestry staff. In 2022, Conservation Halton: • restored 77 hectares of wetlands, forests and other natural areas • improved 12 kilometers of creek and stream habitat • planted more than 82,200 trees and shrubs • managed 21 invasive species and • monitored 477 environmental sites across its watershed jurisdiction, including Burlington.
2-2: Incorporate a climate lens in recommendations of management decisions in the Urban Forest Master Plan (UFMP) to maximize co-benefits: - Research to determine tree canopy coverage and assess species vulnerable to climate change - Consider shade for extreme heat, water retention for stormwater management,	Our Forest: City of Burlington's Urban Forest Master Plan (UFMP) 2023-2043 will be presented to City Council in 2023. A climate lens was used when developing the plan as climate change has implications for all aspects of Burlington's urban forest management. The plan explains how UFMP goals will advance climate adaptation and mitigation in the City. Burlington's city-wide canopy cover using 2018 data is estimated to be 30 percent, covering more than 5,500 hectares (22 percent in the urban area and 36 percent in the rural area). As part of the UFMP, American Forest's Tree Equity Score methods were adapted using data available through Canadian Census and are highlighted in the Urban Forest Story Map. Canopy cover is not equally

Action	Progress Update (May 2023)
supporting biodiversity and carbon sequestration - Consider rural areas, vulnerable populations and equity in prioritizing investments - Maximize ecosystem services Completion date: 3-5 years City lead: RPF	distributed across the city so benefits from the urban forest are not experienced equitably across Burlington's neighborhoods. Households with lower incomes, minority groups, seniors, children, and unemployed people are more vulnerable to the effects of climate change and may benefit more from having trees near where they live and work. Forestry staff are starting to work with Halton Region Public Health staff on planting in areas with low tree equity scores. Pilot projects are anticipated in 2024. The 2022 State of the Urban Forest report valued services from Burlington's urban forest at more than $8 million annually for stormwater, air quality improvement and carbon sequestration using i-Tree Canopy. The Tree Protection and Canopy Enhancement Policy provides direction regarding tree protection, maintenance, and canopy enhancement practices across the City, in order to support the growth of the urban forest and to achieve a canopy cover target of 35 percent by 2041.
2-3: Invest and support implementation of UFMP Completion date: 5-10 years City lead: RPF	Information to support this will be part of the UFMP update in Q4 2023.

Natural Area Management

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

Indicator: Dollars spent on green infrastructure projects. Target: Increase.

Indicator: TDB through Biodiversity Plan. Target: TBD.

Action	Progress Update (May 2023)
2-4: Invest in green infrastructure to reduce flood risk, enhance habitat connectivity and support other ecosystem services Completion date: Ongoing City lead: Eng. Services	Note: Action 1-1 includes the valuation of some green infrastructure in Burlington. Plains Road protected bikeway project which is scheduled to be completed in 2023 includes the installation of a rain garden at the intersection of Howard Road and Plains Road West, featuring 18 new trees and a variety of different grass species and flowers. In April 2023, staff provided an update on the Cootes to Escarpment EcoPark System Pilot Ecological Corridor Program (ES-06-23), a voluntary alliance of nine government and not-for-profit agencies, including the City of Burlington, collaborating to protect, connect and enhance ecologically significant lands between the Niagara Escarpment and Cootes Paradise Marsh recognized for their biodiversity, cultural significance, and recreational value.

Action	Progress Update (May 2023)
	On Jan. 26, 2023, Parks Canada publicly approved the $3.5 million budget for an EcoPark System pilot program helping to advance the goals of the Cootes to Escarpment 2021-2030 Strategic Plan and provide immediate funding for key initiatives on partner-owned lands. As part of the $3.5 million budget, a $30,000 project at City View Park has been approved. The significant restoration project will expand the existing ecological corridor along the Escarpment and include enhancement of a 7-hectare area within the park at the top of the Escarpment, that is designated as an ecological restoration zone. The initial restoration effort completed in 2012 will benefit from improvements under the Pilot toward the long-term goal to create a healthy woodland forest. On April 12, 2023, Bruce Trail Conservancy did a controlled burn at Fisher's Pond Nature Reserve (in a field north of Dundas St. between Cedar Sprints Rd. and Guelph Line) to allow for growth and regeneration of native grasslands while reducing invasive species.
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 Completion date: 5-10 years City leads: Community Planning and RPF	While the City does not have a biodiversity plan, there are several actions underway as noted in other actions within this appendix including: - A new Urban Forest Master in Q4 2023 which includes 2022 State of the Urban Forest, a story map, and a Woodland Management Strategy (2023) - A partner in the Cootes to Escarpment EcoPark System and its related projects including the Pilot Ecological Corridor Program - Recognition as a Bird Friendly City by Nature Canada in 2022 and by the Government of Canada in December 2022 at COP15 - Recognized as a Tree City of the World in 2023 by the Food and Agriculture Organization of the United Nations and Arbor Day Foundation - Enhanced protection of the endangered Jefferson salamanders since 2012 with the closing of a section of King Road to allow for their annual spring breeding migration. In 2023, the closure took place between March 16 and April 12. - Ecological data collected for Major Transit Station Areas through supporting Environmental Impact Assessments – Ecological Land Classification communities, some wildlife observations. - Comments provided on changes to Provincial Policy related to: Ontario Wetland Evaluation System (OWES), ecological offsetting. Awaiting updated Provincial Policy Statement/Growth Plan Natural Heritage policies to better understand potential new Provincial directions on offsetting and natural heritage system protection. BurlingtonGreen is improving local biodiversity through the Green Up at Home opportunity, various community outreach activities and online resources, hosting of invasive plant removal activities, and the distribution of native, pollinator seeds to community members to plant throughout Burlington.

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: TBD through Parks Master Plan.

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

Action	Progress Update (May 2023)
3-1: Develop program to support vulnerable populations in installing and maintaining cooling systems Completion date: 5-10 years City lead: Environment, Infrastructure and Community Services (EICS)	Enbridge Gas and Canada's Greener Homes Grant have partnered to provide the Home Efficiency Rebate Plus program with up to $10,000 in rebates towards eligible retrofits such as home insulation, windows and doors, heat pumps and renewable energy systems. The Canada Greener Homes Loan provides up to $40,000 in a 10 year interest-free financing for eligible products and installations for a retrofit recommended by an energy advisor. Income qualified homes are eligible for a free home energy assessment and free energy efficient upgrades including insulation, draft proofing and a smart thermostat through the Home Winterproofing Program.
3-2: Identify gaps in public space cooling by assessing utilization of current cooling facilities and by identifying the type of cooling supports and accessibility needs of the community especially for vulnerable populations Completion date: 1-2 years City lead: RCC	No updates. Work on this initiative is pending until there is staff in place for Neighbourhood Development.
3-3: Conduct an Urban Heat Island assessment to inform infrastructure design guidelines, shade structures, cooling facilities and UFMP Completion date: 3-5 years City lead: EICS	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. As noted under action 2-2, 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, seniors, children, and unemployed people are more vulnerable to the effects of climate change and may benefit more from having trees near where they live and work. Forestry staff are starting to work with Halton Region Public Health staff on planting in areas with low tree equity scores. Pilot projects are anticipated in 2024. Additional information is available in the 2022 State of the Urban Forest Report.

Action	Progress Update (May 2023)
	Nature Based Solutions proposed a 3-30-300 rule where there are three trees visible from every home, 30 percent tree cover canopy in every neighbourhood, and every home is 300 metres away from the nearest public park or greenspace. While Burlington's overall canopy target is 35 percent, the draft UFMP is recommending a secondary target of 30 percent for the urban area (currently at 22 percent in the urban area).
3-4: Explore the feasibility of updating the Property Standards Bylaw to include requirements to keep indoor temperatures from exceeding a maximum threshold Completion date: 3-5 years City lead: Building and Bylaw	City staff are monitoring the May 15, 2023 motion at the Special Public Health Committee meeting in Hamilton directing the following staff to report back in Q4 2023: - Licensing and Bylaw Services Division staff on identifying the 2024 priorities and timelines for the development of new bylaws including an Adequate Temperature Bylaw; - Health and Safe Communities staff on the feasibility of the development of a municipal program to support low-income tenants with the cost to run an air conditioning unit to support retrofits of private purpose-built rental housing; and - Healthy and Safe Communities and Public Health on the feasibility of tracking heat-related deaths and illnesses in Hamilton.
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 Completion date: Ongoing City lead: Eng. Services	This continues to be top of mind in park development.

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 or 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	Progress Update (May 2023)
4-1: Enhance emergency notification and communications plan incorporating needs of vulnerable populations Completion date: 3-5 years	In 2022, Alert Burlington, a community emergency notification system was launched. In the event of a community emergency, notifications will be sent to anyone subscribed and within the affected area via text, email or phone message, as per the preference identified in the registration. This is available in multiple languages.

Action	Progress Update (May 2023)
City lead: Fire	A one-page article was translated to the City's top 10 non-English languages and distributed by Halton Multicultural Council for Emergency Preparedness Week, 2023.
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 Completion date: 1-2 years City lead: EICS	An education program is forthcoming. In the meantime, EICS staff continue to engage with staff and the community on climate change: - Presented to the PROBUS Club of Burlington (October 2022), the Rotary Club Burlington Lakeshore (February 2023), the Bay Area Climate Change Council's community event "Your City. Taking Action. Climate Priorities for Burlington and Hamilton" (April 2023), and the Sustainable Development Advisory Committee (May 2023). - Presented to ten City departmental management team meetings between November 2022 and May 2023. - Coordinated a staff lunch and learn (October 2022) and a community webinar (March 2023) called Manage Rain Where it Falls. Since Nov. 2015, EICS staff have published over 190 posts at TakeActionBurlington.ca. Many of the posts are now focused on climate change. Home Flood Protection Program - Since 2017, the City has offered the Home Flood Protection Program with varying levels of subsidies. Currently a 50 percent subsidy is offered to residents who wish to learn more about how to reduce the flood risk of their home and if they do flood, how to reduce damage. A total of 20 subsidies are available in 2023. - This program along with the following two initiatives are being promoted via the City's social media channels between May and August 2023. Plumbing Permit Fee Grant Program - This program, which has been available since 2014, provides residents with financial support for improvements taken in homes or businesses to reduce the risk of basement flooding. A total of $80,000 was approved for 2022-2023. Halton Region Enhanced Basement Flooding Prevention Subsidy Program - This program makes it easier and more affordable for residents to undertake home improvements to reduce the risk of flooding. Subsidies of 50 to 100 percent are available depending on the program. In December 2022, the Guide to Tree Protection was released to help residents navigate the City's Private Tree Bylaw and to provide general information about tree protection.

Action	Progress Update (May 2023)
	Conservation Halton offers residents many educational opportunities related to climate change: - Released two fact sheets: "Managing invasive plants in your landscape" and "Planning your native landscape" in 2022. - Offered a winter 2022 and spring 2023 Healthy Neighboursheds series to educate residents on low impact landscaping where residents work with nature to create gardens and help manage rainwater to prevent flooding while also attracting pollinators. Landowner assistance programs are available to support projects that improve water quality, habitat and stormwater management. - In 2023, a report on the effects of climate change on Halton's biodiversity will be released which explores how our local biodiversity is and will continue to be affected by climate change and what land managers (including Conservation Halton), municipalities/ planners and individuals can do about it. It is intended to be used as a resource to help make the connections between climate change and the adaptation required at both landscape and site-specific scales to support biodiversity. - Launched in 2021, Green Space: Newcomer Youth Climate Forum provides youth aged 14-29 with an opportunity to learn how to collect environmental data, discover ways to address climate change and gain confidence to take leadership roles. The youth also have an opportunity to take part in nature-based climate solutions, such as invasive species removal, seed collection and native species planting.
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 - Restart and increase funding for Community Support Fund - Increase funding for Neighbourhood Community Matching Fund Completion date: 3-5 years City lead: RCC	The City has two Community Hubs available for community groups to provide free activities, programs or events to Burlington residents. These hubs can be used for training related to climate adaptation and resilience in the future.

Citizen and Business Support Programs

Goal: Encourage climate adaptation actions from citizens and businesses.
Indicator: Update of citizen and business climate resilience retrofits. Target: Increase.

Action	Progress Update (May 2023)
4-4: Promote and augment existing programs for home and business climate resilience retrofits Completion date: 3-5 years City lead: EICS	In 2023, the Better Homes Burlington energy retrofit pilot program will be launched providing up to 20 Burlington homeowners up to $10,000 in loans to support the implementation of air source heat pumps. Air source heat pumps, which can provide both heating and cooling, not only reduce energy consumption and GHG emissions, as they use electricity, but also improve resident comfort, especially in the summer months. The City continues to promote existing programs as noted in actions 3-1 and 4-2 including: - Home Efficiency Rebate Program - Home Winterproofing Program - Home Flood Protection Program - Plumbing Permit Fee Grant Program - Halton Region Enhanced Basement Flooding Mitigation Program
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 Completion date: 3-5 years City lead: Eng. Services	As noted under action 4-2, the City continues to promote what residents can do on their property to Manage Rain Where it Falls through webinars and through promotion of Conservation Halton's Healthy Neighboursheds series as well as the Take Action Burlington blog. Through the Rainwater Conservation Fund, Conservation Halton supported urban landowner projects that divert and infiltrate rainwater into the ground on their property with up to $2,500 or 50 percent of the project costs. Between 2021 and 2022, two raingarden projects and one permeable driveway installation were supported in Burlington. BurlingtonGreen provided an Eco Home tour (in person and online) which included highlights about the home's permeable driveway and converting turf to a drought-tolerant, biodiverse rain garden.

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	Progress Update (May 2023)
5-1: Pursue approval to develop a Burlington Agricultural Action Plan that includes a climate lens and considers	On Feb. 15, 2023, the Burlington Agricultural and Rural Affairs Advisory Committee (BARAAC) approved its 2023 Work Plan. The following BARAAC work plan deliverables are supportive of CRB action 5-1:

Action	Progress Update (May 2023)
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 Completion date: 3-5 years City lead: Community Planning	- Host a 2021 Census of Agriculture workshop - Support the preparation of a "State of Agriculture" staff report summarizing the 2021 Census of Agriculture data relevant to the City of Burlington - Identify any rural-specific needs that could be flagged for annual City budget consideration in November (2024 budget and onwards). The 2021 Census of Agriculture workshop was hosted on Apr. 19, 2023 and work on the State of Agriculture report will begin in Q3 of 2023. The State of Agriculture report will establish key considerations for a future proposal to develop a Terms of Reference for an Agricultural Action Plan. BurlingtonGreen, along with individual community members and various groups, continue to advocate for the protection of at-risk prime farmland in Halton.
5-2: Expand the opportunities to support local food production across the City of Burlington (such as community gardens, rooftop gardens, backyard gardening, etc.) Completion date: Ongoing City lead: RCC	City owned community gardens - The total number of community garden plots available for the 2023 growing season is 231. - The Burlington Food Bank continues to operate seven plots and the west fence border at Maple Park community garden and the north fence border at Central Park while NextDoor Social Space operates plots at the Francis Road Trail community garden. - A plot was added to Ireland Park in 2022 for a total of 43 for the 2023 season and the design for three accessible plots was improved. - A new 37 plot community garden is scheduled to be constructed at Nelson Park in 2024 and operating in 2025 pending operating and capital budget approval. Other community gardens - The temporary Grow4Change urban garden at Brant St. and Ghent Ave. continues to operate on developer land with an extension to operate granted for 2023 and 2024. - St. Christopher's Church was awarded a Neighbourhood Community Matching Fund in 2022 to purchase and install about 50 square feet of mobile mats to improve access to their community garden as well as accessible tools and soil amendments. All the harvest goes towards St. Christopher's Community Market (food bank) and into their hot community meals.

Action	Progress Update (May 2023)
	- City staff offer consultation services for school, faith based and not for profit organizations where possible. The Burlington Downtown Business Association donated over 50 hay bales after a 2022 fall event and local businesses donated plants and seeds to many of Burlington's community gardens.

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.

Action	Progress Update (May 2023)
5-3: Assess the feasibility of sourcing and providing preference to local suppliers in contracts to increase resilience with supply chain disruptions Completion date: 3-5 years City lead: Burlington Economic Development (BED)	BurlingtonGreen established a comprehensive user-friendly Shop Local Buy Green online tool to aid the community in sourcing local eco-focused products and services.
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 Completion date: 3-5 years City lead: BED	TechPlace continues to work with emerging technology companies to help them access test customers regionally. Discussions are beginning on ecosystem mapping for the regional Agritech/Agribusiness ecosystem to develop a potential cluster focus as part of the TechPlace 2.0 business model.