

Hamilton’s Climate Action Strategy Departmental Resource Considerations

This Appendix presents resource considerations for the City of Hamilton to implement the actions identified in *ReCharge Hamilton - Our Community Energy and Emissions Plan* and *Hamilton’s Climate Impact Adaptation Plan*. Resource needs identified are considered preliminary and will be subject to further refinement.

Where additional resources are identified these estimates would be further refined and a financing strategy would be brought forward for Council consideration through the annual budget process or through separate Committee reports.

Community Energy and Emissions Plan (CEEP) – Estimated Resources for City-Led or Supported Actions (0-5 Years)

Transformations, Resilient Themes and Proposed Actions	Comments on Resource Implications
Action 1: Establish an Industrial Energy Efficiency and Decarbonization Working Group. Action 2: Establish a Clean-tech Accelerator. Action 11: Establish a Commercial Decarbonization Working Group Action 18: Technical analysis of green hydrogen potential and creation of a Hamilton ‘hydrogen hub’	It is anticipated that industry stakeholders will play a lead role in implementing these actions. Report CM22012/ HSC22046/ PED22176 is recommending that Hamilton partner in the funding of a Regional Decarbonization Hub in the amount of \$240,000 over 4 years. Any additional City initiatives in support of these actions would be brought forward through the regular annual budgeting process.

Transformations, Resilient Themes and Proposed Actions	Comments on Resource Implications
Action 4: Develop and implement Green Standards for new buildings/moving toward net zero buildings	Estimated one-time cost for the development of a new Green Standard is \$250,000 for consulting costs. Implementation would be through the development approvals process. It is anticipated that staff with specialized knowledge of green standards may be needed in the development approvals functions, which would be development fee funded positions
Action 5: Encourage solar PV on new buildings	Estimate \$50,000 to assess the impact of adding solar PV to construction program and project budget for 330 Wentworth Transit Building. Outcome of this assessment will identify additional costs and feasibility for consideration for this and future projects. Additional projects to be determined through the annual budget process.
Action 6: Design and plan for a mass deep energy retrofit program (may include retrofit delivery centre)	The development of the scope of the retrofit program is currently underway. Implementation of the program, and confirmation of scope, will be subject to future Council approval. The preliminary estimate to deliver a pilot program is \$1.35 M for 540 homes (over 4 years and dependent on delivery strategy and market penetration). This estimate will be refined as program details are developed and other funding opportunities become available. Any budget approval will be subject to the annual budget process.
Action 7: Expand and connect active transportation networks	Several active transportation projects have already been approved through the capital budget, including projects with federal funding contributions. In 2022, the City invested just over \$5 million in cycling infrastructure projects. Future projects will be subject to approval through the annual capital budget. Additional staff resources would be required to increase the rate at which projects are constructed (estimate 3.0 FTE for project management and technical staff to undertake design and construction).
Action 8: Decarbonize transit (bus fleet)	Estimated one-time cost for a technical analysis of transit infrastructure needs for electrification of bus fleet is \$150,000. Analysis would indicate future capital and/or operating costs.

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Action 10: Establish a city-wide EV strategy	Estimated one-time cost for consultants to complete an EV Strategy is \$200,000. Strategy would identify future actions and initiatives that may have resourcing implications.
Action 14: Developing the next generation electrical grid	One-time cost of \$50,000 is estimated as a first step to prepare a background report and terms of reference for a Long-Term Electricity Needs Study.
Action 15. Encourage local, alternative renewable energy ownership structures (e.g. co-ops)	Expected to be a community-led initiative. Potential resourcing implications for the Climate Change Office to support this work.
Action 16. Implement strategic renewable solar energy installations	Estimated one-time cost of \$150,000 for consultant to develop siting criteria or guidelines for solar energy installations. Estimated one-time cost of \$200,000 for a technical siting/feasibility study for a large solar energy installation.
Action 17: Technical feasibility study of expanded anaerobic digestion facilities	Estimated one-time cost of \$150,000 to undertake this study.
Action 23: Set community-wide tree planting target of 50,000 trees per year and expand tree planting programs.	Capital costs and staffing needs to be determined through further development of this action in coordination with Urban Forest Strategy, proposed Climate Change Office and community organizations. Potential costs associated with communication and education components.
Investigate and design a carbon accounting framework (carbon budget and sustainable procurement policy)	Estimating a one-time cost of \$750,000 for consulting resources and staffing for program design, and to determine ongoing staffing and resourcing needs to implement a carbon budget process.

Climate Change Impact Adaptation Plan (CCIAP) – Estimated Resources for City-Led or Supported Actions (0-5 Years)

Transformations, Resilient Themes and Proposed Actions	Comments on Resource Implications
Resilient Theme 1: Built Environment	
<p>Action 1.1: Develop requirements for the incorporation of Low Impact Development (LID) features and green infrastructure into new development and redevelopment projects, and consider watershed and landscape scales in the development of plans and objectives</p>	<p>Project is underway with existing resources.</p>
<p>Action 1.2: Develop guidelines and incentives for homeowners and landlords to improve the resilience of residential buildings to climate-related risks through upgrades and/or retrofits</p>	<p>Work will be incorporated into existing design work of building retrofits program. Any additional implementation costs will be identified through development of the program and brought forward for Council approval and through annual budget process.</p>
<p>Action 1.3: Conduct more studies or reviews to determine flooding and other risks throughout the City & develop plans (e.g. relocating sites where appropriate) to improve the resilience of infrastructure (i.e. buildings, roads, water/wastewater infrastructure, etc.) to climate-related risks from extreme weather and temperatures.</p>	<p>Flooding and Drainage Master Servicing Study includes an assessment of the impact of planned growth, land use intensification and climate change on Hamilton’s flood risk, conveyance, wet weather management etc. Resourcing needs will be developed through this process and brought forward for Council review.</p> <p>A study of geotechnical and hydrologic condition of the escarpment will identify further actions and cost estimates will be prepared and brought to Council for consideration.</p> <p>An Escarpment Resilience Study is planned by Public Works (Environmental Services) with support through the Federal Disaster</p>

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	Mitigation and Adaptation Fund. The City’s share of the cost will be approximately \$15M if the application is successful.
Action 2.1: Improve winter travel conditions through further expanding sidewalk clearing	In November 2021 Council approved Report PW19022(d) related to enhanced level of service for sidewalk clearing. Review of Pilot project approved for 2022/2023 season will inform application to other areas and additional costs would be assessed at that time.
Action 2.2: Encourage and promote safer travel practices, and alternatives through considering all users of Hamilton’s transportation network (e.g. motorists, pedestrians, cyclists, transit etc.) and working with local groups to create a communications campaign around the benefits of work-from-home.	Complete Streets framework has been approved by Council and will guide future capital projects. Individual project costs will be brought forward through annual capital budget process. Costs associated with communications and public education to be led by the Sustainable Mobility Group within Transportation Planning and Parking Division, Planning and Economic Development Department, utilizing existing resources.
Resilient Theme 2: People and Health	
<p>Action 3.1: Develop and implement a response program for vulnerable populations to protect residents from climate-related risks (i.e. extreme cold, extreme heat, etc.)</p> <p>Action 3.2: Consolidate existing vulnerable persons’ contact lists and update/expand them to guide emergency response and/or other assistance programs.</p>	Further discussion and coordination on these four actions is needed to identify the resources needed, integration with goals and objectives of corporate wide initiatives such as Equity, Diversity and Inclusion work and Urban Indigenous Strategy. There is potential to align 3.1, 3.2, 4.2 and 4.3. Any additional resources required for approval will be brought forward in future budget approval process.

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<p>Action 4.2: Evaluate and select programs for making emergency preparedness kits accessible to all residents, regardless of income (e.g. means-tested programs, subsidies or free distribution campaigns)</p> <p>Actions 4.3: Establish buddy systems/help-your-neighbour programs to implement during extreme weather events</p>	
<p>Action 3.3: Coordinate local efforts to address excessive indoor temperatures in rental housing.</p>	<p>Work is ongoing with existing resources. No additional resources are currently required. Potential future costs associated with building retrofits or education/enforcement activities.</p>
<p>Action 3.4: Align ongoing efforts within the City to continue expanding affordable housing to protect vulnerable populations to reduce climate-related impacts from extreme weather and temperatures.</p>	<p>Work is ongoing across divisions and would be further enhanced through the proposed development of a Housing Sustainability and Investment Plan. Any additional resources required for approval will be brought forward in future budget approval process.</p>
<p>Action 4.1: Create educational campaigns on communicating the risks associated with climate change (i.e. health impacts, property damage, etc.) and what residents can do to prepare.</p>	<p>Estimated \$50,000 per year (over 4 years) to undertake educational campaign by the proposed Climate Change Office. Further refinement of costs will be developed and brought forward to Council for approval through annual budgeting process.</p>
<p>Action 5.1: Work with local partners to ensure vulnerable groups are informed and adequately protected from vector-borne disease.</p>	<p>Work is ongoing with existing resources. No additional resources are currently required.</p>

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<p>Action 5.2: In conjunction with the Biodiversity Action Plan, develop an Open Space Management Plan to guide City of Hamilton Natural Open Space Stewardship, including placement and design of natural spaces to minimize contact with vectors (e.g. plants and animals (e.g. mosquitoes) that can bring diseases to human communities (e.g. Rabies, West Nile, Lyme Disease).</p>	<p>Action and resourcing to be identified in conjunction with forthcoming Parks Master Plan and/or Biodiversity Strategy. Resource requirements any budget approvals will be brought forward in future budget approval process.</p>
<p>Action 6.1 Continue to update existing municipal plans and policies to decrease health and safety risks associated with extreme weather and temperatures.</p>	<p>Cross departmental initiatives. Additional resourcing needs for individual projects to be brought forward through future budget processes.</p>
<p>Action 6.2: Explore opportunities to expand current cooling and warming centre programming and interventions.</p>	<p>Work is ongoing in several Healthy and Safe Communities Divisions. Any expansion of existing programs and initiatives will be identified through a multi-stakeholder working group led by existing staff resources. Approval of additional resources will be brought forward in future budget approval process.</p>
<p>Action 6.3: Improve monitoring, data collection, and notification surrounding flooding and extreme weather/temperatures.</p>	<p>Substantial coordination efforts required. A feasibility plan to determine components, thresholds and ongoing resources will need to be brought forward for approval in future budget approval process.</p>
<p>Resilient Theme 3: Natural Environment, Agriculture and Water</p>	
<p>Action 7.1: Continue to enhance the management and restoration of existing natural areas and seek opportunities to</p>	<p>Cross-connections with goals and objectives of Hamilton’s Urban Indigenous Strategy. The implementation plan includes the development of a Circle of Indigenous Knowledge Keepers to help</p>

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dedicate land and natural areas for conservation	inform and collaborate on these actions. Cost estimates to be determined and will be brought forward in future budget approval process.
Action 8.1: Work with local partners to continue tree planting and preservation, explore community partnerships and naturalization programs to reduce urban heat island and enhance ecosystem function	Capital costs and staffing needs to be determined through further development of this action in coordination with Urban Forest Strategy, proposed Climate Change Office and community organizations. Any budget approvals will be brought forward in future budget approval process.
Action 8.2 Implement the Urban Forest Strategy, and consider additional measures to support it or expand its impact	Capital costs and staffing needs to be determined through further development of this action in coordination with Urban Forest Strategy, proposed Climate Change Office and community organizations. Any budget approvals will be brought forward in future budget approval process.
<p>Action 9.1: Educate and encourage community to participate in growing food locally (e.g. lot level or urban farms/gardens)</p> <p>Action 9.2: Expand rain water capture (i.e. rain barrels, cisterns, etc.) as an irrigation source for more localized food production (i.e. backyard farming, urban gardens, soft landscapes, etc.)</p> <p>Action 9.3 Engage with local agricultural leaders to understand existing resources for farmers in addressing climate</p>	Food systems-wide approach be taken to implement actions (9.1, 9.2, 9.3 and 9.4). Additional capital and staffing needs to be determined further through Hamilton Food Strategy review. Any budget approvals will be brought forward in future budget approval process.

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<p>adaptation, and how the City can support or expand on those efforts.</p> <p>Action 9.4: Develop an education campaign directed at restaurant and grocery industries, local farms and other possible food sources to better reduce and divert food waste and explore opportunities to reduce food waste.</p>	
<p>Resilient Theme #4: Energy and Economy</p>	
<p>Action 10.1: Provide guidance to local businesses on how to maintain business continuity (e.g. supply chain) during extreme weather (i.e. through business continuity planning, green business practices, adaptation measures, etc.)</p>	<p>It is currently estimated this action will be led with existing staffing in Planning and Economic Development with support from Climate Change Office and support and potential being led by external community organizations. Any additional funding approvals/requests for the City will be brought forward in future budget approval processes.</p>
<p>Action 11.1: Work with local partners to conduct vulnerability and risk assessments on local energy systems and identify opportunities to increase local energy generation (e.g. microgrids) to increase reliability (potentially as part of planned CEEP priority actions around identifying renewable energy generation sites within the City)</p>	<p>Capital costs and staffing to be determined through further development of this action in coordination with external stakeholders, including the Independent Electricity System Operator, local utilities, District Energy providers, etc. Any budget request would be brought forward through a future budget approval process.</p>

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Action 11.2: Establish low-carbon back-up power systems in all City-owned facilities to serve as community hubs during emergencies, and create a policy to support and promote the use of low- or no-carbon emergency energy supplies such as batteries or energy storage for residents and businesses	Existing resources are available for components of this action but further review of this action is needed to determine resource needs and future capital costs. Budget request for any future studies to be brought forward in future budget approval process.