A Pathway for Hamilton to Become a Living City

How our community can accelerate equitable, abundant, and thriving green infrastructure

Green Communities Canada

Green Venture

Table of Contents

Introduction

This document was created to illustrate a pathway for how our community can become a Living City: a place with equitable, abundant and thriving green infrastructure. It is based on the Framework for Living Cities – a document that shows how cities across North America and Europe have successfully implemented green infrastructure (GI), and synthesizes key strategies and actions to help other cities do this, too. Based on an extensive scan of academic research, grey literature, and case studies, the *Framework for Living Cities* presents a number of practical strategies that local governments have used to integrate GI into city-building in ways that: (1) prioritize equity, (2) support abundant implementation across the landscape, and (3) ensure GI is thriving and delivering its full range of benefits. It also points practitioners to resources and tools to help them integrate these strategies into their own policy and operational contexts.

This document, a Living Cities Policy Pathway, applies the strategies laid out in the Framework to the policy and operational context of Hamilton, ON.

It:

1. assesses how much progress has made toward implementing equitable, abundant, and thriving GI, and
2. provides an overview of recommendations that our community can take to continue to make progress on green infrastructure.

The information contained here and the recommendations made in this Pathway are based on a review of policies and programs that relate to GI.

What is a Living City?

Living Cities are places where green infrastructure–parks and green spaces; green stormwater facilities like bioswales, rain gardens, and permeable pavements[1]; urban forests and natural heritage systems; wetlands and meadows; green roofs and walls–is equitable, abundant, and thriving.

As cities grow and develop, we lose natural land cover to hardened surfaces like roads, buildings, and compacted soils. As a result, urbanized areas are less able to infiltrate rainwater and snowmelt, generating excess runoff that can result in increased flooding. When the land is less able to hold onto moisture, it also is less able to regulate temperature, since evapotranspiration has a cooling effect. Hard engineered surfaces like asphalt and concrete reflect heat back into the surrounding areas, compounding this problem. This is why cities are often warmer than the surrounding countryside during hot summer days– from 2 to 8°C warmer.[2]

Both flooding and heat waves are becoming more common as climate change takes hold, and the loss of natural land cover makes cities even more vulnerable to these weather extremes. Green infrastructure (GI)–both naturally existing GI and constructed GI–is critical to making cities more resilient to climate change. And, unlike grey infrastructure–engineered systems like stormwater sewers that serve a single purpose–GI also delivers a number of other social, economic, and environmental co-benefits, as shown on the following page.

[1] Also called Low Impact Development, or LIDs

[2] Heisler, G. M., & Brazel, A. J. (2010). The urban physical environment: Temperature and urban heat islands. Urban ecosystem ecology, 55, 29-56.

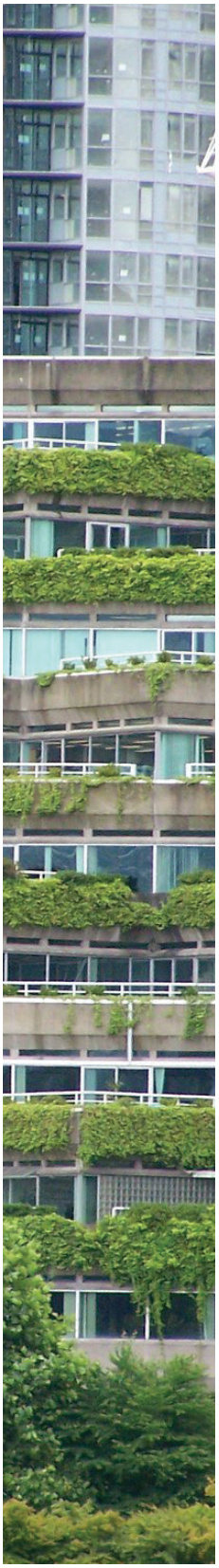
Benefits of Green Infrastructure

There is ample research that speaks to the multiple benefits of green infrastructure. There are also many cities around the world that have successfully implemented GI to provide municipal services and solve a number of other problems. But despite the strong case for GI, it remains limited in implementation and poorly integrated into land-use planning and decision-making in most municipalities in Canada. A number of policy, technical, financial, and social barriers inhibit its uptake and success and prevent most Canadians from reaping the benefits of GI where we live. For the full benefits of GI to be felt in Canadian cities, it must be equitably implemented, abundant throughout the landscape, and thriving.

Living Cities are places where this is happening, or that are committed to making this happen. Living Cities are implementing or have plans to implement evidence-based approaches to mainstream GI and transform their communities into healthy, livable, vibrant places to live.

These are communities that are committed to:

1. Involving communities and prioritizing GI for environmental equity and reconciliation;
2. Setting requirements and standards in policies, plans, and bylaws for GI;
3. Laying the groundwork for systemic integration of GI throughout city operations;
4. Growing support for GI among members of the public and key stakeholders;
5. Ensuring GI can thrive over the long term by building partnerships and finding champions to maintain and steward GI.



Why We Need GI

If Hamilton were to commit to implementing equitable, abundant, and thriving green infrastructure, it would become an even more vibrant, beautiful, sustainable, and healthy place to live. It would also help to shield residents from some of the worst impacts of climate change, especially those residents who are disproportionately impacted. Below, we detail some challenges facing Hamilton and how GI could help to address these.

Climate Challenges

Hamilton, like all other Canadian cities, is already experiencing the impacts of climate change. Hamilton's City Council declared a climate emergency on March 27, 2019, recognizing the significance of the risks and vulnerabilities climate change presents. The 2022 Climate Science Report evaluates the projected impacts that Hamilton is currently facing and is expected to face in the future. With the exception of summer, precipitation will rise across most seasons, with the greatest increased precipitation occurring in the winter and spring seasons. Rainfall events in Hamilton are anticipated to rise in intensity, length, and frequency by the 2050s.[3] Hamilton will also see rising temperatures in all seasons, most notably in summer, while maximum annual temperatures and heat wave lengths reach new highs.[4] Increasing levels of heat have widespread implications on human health. A growing number of studies around the world are noting a link between morbidity and heat waves, especially in urbanized areas. Between 1948 and 2008, the average annual temperature in Ontario has increased by approximately 1.5°C, and it is expected that temperatures will continue to climb over the next century, by as much as 3-8°C.[5] As noted in the section above, heat waves are often felt more intensely in urban centers. Green infrastructure, especially trees and assets that enable as much water as possible to be retained in the landscape, are critical to helping keep cities cool during these heat events.

[3] ICLEI Canada. (2021). Climate Science Report for the City of Hamilton. Retrieved from https://www.hamilton.ca/sites/default/files/2022-10/climate-change-impact-adapatation-plan-science-report.pdf

[4] Ibid

[5] Ontario MInistry of Health and Long-Term Care (2016). Ontario Climate Change and Health Modelling Study.https://www.health.gov.on.ca/en/common/ministry/publications/reports/climate_change_toolkit/climate_change_health_modelling_study.pdf

Development Challenges

Hamilton is the fifth largest city in the province of Ontario, with a population of 569,353 residents reported in 2021.[6] Urbanization and land-use change have been prominent trends over the past few decades. Hamilton has experienced significant population growth and economic development, which has led to notable shifts in its urban landscape. The city's population increased by 6.0% between 2016 and 2021, outpacing the national average. The City of Hamilton has a diverse economy and acts as an important manufacturing hub in Ontario. The iron and steel industry sector are among the most important industrial activities in Hamilton. Recent population growth has driven increased demand for housing and infrastructure, resulting in the conversion of these formal industrial and brownfield areas into residential and commercial spaces.

Social Challenges

Green infrastructure is not dispersed equitably in Hamilton, meaning climate risks are not shared equally among the population. Specifically, the areas bordering the industrial sector and Central Hamilton are, on average, much less green than the rest of the city. These same neighbourhoods are more likely to face higher land surface temperatures due to climate change, and some are more susceptible to flooding. Neighborhoods with less green space and higher surface temperatures are typically denser and more populated than others neighbourhoods. A number of these areas also have a larger proportion of low-income residents than the rest of the city on average.

One way to measure greenness is through the evaluation of urban forestry. Although the distribution of the urban forest varies around Hamilton, in contrast to other Ontario municipalities, Hamilton ranks at the bottom of the scale for canopy cover.[7] The **Urban Hamilton Official Plan** (UHOP) aims to enhance canopy cover over the city from 21.2% to 30%.[8] This is based, in part, on research indicating that 30% canopy cover is the minimum percentage that ensures that residents benefit in terms of their health and wellbeing, in addition to supporting ecosystems. In comparison to most other cities, Hamilton has much lower amounts of canopy cover in Residential (especially Low Density Residential), Industrial, and Institutional land uses. However, canopy cover in Commercial and Open Space land uses, is comparable to levels reported by other jurisdictions.

[6] Statistics Canada. 2023. (table). Census Profile. 2021 Census of Population. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released March 29, 2023. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E (accessed September 6, 2023).

[7] City of Hamilton. (2020). Draft Urban Forest Strategy. Retrieved from: https://pub-hamilton.escribemeetings.com/filestream.ashx?DocumentId=258792

[8] City of Hamilton. (2013). City Wide Systems and Designations. In *Urban Hamilton Official Plan*. Retrieved from https://www.hamilton.ca/sites/default/files/2023-08/uhop-volume1-chapterc-citywidesystems-aug2023.pdf

Work That Has Been Done

Climate Change Adaptation

Hamilton has been active in developing strategies and actions to become a more environmentally friendly, sustainable city that is resilient to climate change impacts. They have been a member of FCM's Partners for Climate Protection program since 1994. A climate emergency was declared by the Hamilton City Council on March 27, 2019, recognizing the significance of the impacts from climate change. Their commitment to climate change adaptation deepened with the development of an extensive Climate Action Strategy that was approved in 2022, which includes both a **Community Energy and Emissions Plan** (CEEP) to achieve net-zero emissions by 2050 and a **Climate Change Impact Adaptation Plan**.[9] The CEEP presents a GHG emissions inventory for the year 2016 and business-as-planned (BAP) scenarios to 2050. It sets a series of targets and pathways to guide decarbonization policies, measures, and actions by 2050 and highlights the importance of doing so in an equitable manner (i.e., considering low-income and marginalized communities).

In 2021, ICLEI Canada produced a **Climate Science Report for the City of Hamilton**[10] to help inform the development of the **Vulnerability and Risk Assessment Report**, as well as the Climate Change Impact Adaptation Plan.[11] The Vulnerability and Risk Assessment Study was completed in 2021 and was instrumental in the development of the Impact Adaptation Plan, which was published in 2022.[12] It presents a list of 27 adaptive actions that are prioritized by urgency. Under the 'Built Environment' theme, the first action recommends the development and incorporation of low impact development and green infrastructure in new development and other redevelopment projects.

Urban Forestry

Hamilton has over 5.2 million trees and a current canopy cover of approximately 21.2%.[13]As an effort from the city to integrate various urban forest related policies, Hamilton developed an **Urban Forest Strategy** (UFS), which was approved by council in 2023. The UFS introduced an increased canopy cover target of 40% by 2050. The strategy acknowledges that urban trees are an important part of Hamilton's green infrastructure inventory that provide numerous ecosystem benefits. There have been multiple diverse policies adopted in Hamilton to address deforestation, reforestation, and maintenance of urban forests, including:

- Reforestation Policy *Municipally Owned Lands
- City of Hamilton Public Tree By law (No. 15 125)
- Public Tree Preservation and Sustainability Policy (August 10th, 2015)
- Regional Municipality of Hamilton Wentworth Woodlands Conservation By law (R00054)
- Tree Protection Guidelines for Development Sites
- Forestry and Horticulture Design and Preservation for Working in the Public Right of Way V1 (2017)
- By law to Promote the Conservation and Sustainable Use of Woodlands on Private Property with the Urban Boundary of the City of Hamilton (No. 14 212)
- The Corporation of the Town of Ancaster Tree Protection By Law (No. 2000 118)
- Town of Dundas Tree Protection By law (No. 4513 99)
- City of Stoney Creek Tree By law (No. 4401 96)

[9] City of Hamilton. (2022). Hamilton's climate action strategy. Retrieved from: https://www.hamilton.ca/home-neighbourhood/environmental-stewardship/environmental-plans-strategies/hamiltons-climate
[10] ICLEI Canada. (2021). Climate Science Report for the City of Hamilton.
[11] City of Hamilton. (2022). Climate Change Impact Adaptation Plan. Retrieved from: https://pub-hamilton.escribemeetings.com/filestream.ashx?DocumentId=335401
[12] Ibid
[13] City of Hamilton. (2020). Draft Urban Forest Strategy. Retrieved from: https://pub-hamilton.escribemeetings.com/filestream.ashx?DocumentId=258792

Work That Has Been Done

Stormwater Management

A series of policies have been developed by Hamilton to manage stormwater, that consider green infrastructure as a method. In 2007, the City of Hamilton published the **Stormwater Management Plan**.[14] While the Stormwater Management Plan does not explicitly mention the term green infrastructure, it does refer to various types of green infrastructure such as rain gardens, wetlands, and grass swales, among others. The Stormwater Management Plan was replaced by the **Water, Wastewater, and Stormwater Master Plan** (W/WW/SWM)[15] in 2023. The W/WW/SWM has a goal to inform the development of infrastructure considering future growth scenarios by the year 2051 and includes a scenario for the newly adopted decision on no urban boundary expansion. It is currently unclear if or how green infrastructure will be considered as part of the new Water, Wastewater, and Stormwater Master Plan, and if the plan will provide a linkage between similarly connected work (e.g., the Climate Change Impact Adaptation Plan).

Equity-serving groups, like Environment Hamilton and Green Venture, have advocated for an equitable stormwater fee, that assists the municipality in renovating aging stormwater infrastructure and developing infrastructure that considers the impacts of climate change.[16] Previous proposals to introduce stormwater fees were controversial. The idea was first proposed in 2009, was ultimately rejected in 2015, revived in 2019, and in 2023, the City was assessing whether a more equitable stormwater funding mechanism could be implemented. If successful, the proposed stormwater fees would come into effect September 1, 2025.[17]

In November of 2023, the City asked for residential feedback at online and public hearings regarding the new potential stormwater incentive program. They categorized feedback from residents based on property size with Residential and Small Multi-Residential grouped together and Industrial, Commercial, Institutional (ICI) & Large Multi-Residential Property Owners/ Operators forming the second group, and the final group is Agricultural Property Owners. This stratification will allow the city to tailor the future stormwater incentive program to account for different property types and lot sizes.

Hamilton has introduced various LID practices throughout the city as a form of stormwater management. In 2017, the city utilized a rain garden in a traffic calming bump-out, at the intersections of Bay Street North and Simcoe Street.[18] Several locations throughout the city have implemented Trench Drains, using infiltration trenches to fix areas with poor drainage as well as to reduce runoff volumes.[19] Soakaway pits, bioswales, pervious pavers, and a storm chamber are other examples of LID that have been implemented.[20]

[14] City of Hamilton. (2007). Stormwater Management Master Plan. Retrieved from: https://www.hamilton.ca/city-council/plans-strategies/master-plans-studies/stormwater-management-master-plan

[15] City of Hamilton. (2022). Water, Wastewater, and Stormwater Master Plan. Retrieved from: https://www.hamilton.ca/city-councilplans-strategies/master-plans-studies/water-wastewater-and-stormwater-master-plan

[16] Environment Hamilton. (2022). Stormwater. Retrieved from: https://www.environmenthamilton.org/stormwater

[17] City of Hamilton. (2023). Stormwater Funding Review. Retrieved fromhttps://www.hamilton.ca/home-neighbourhood/house-home/home-water-services/water-rates/stormwater-funding-review

[18] City of Hamilton. (2022). Low Impact Development. Retrieved from https://www.hamilton.ca/home-neighbourhood/water-wastewater-stormwater/stormwater-management/low-impact-development

[19] Ibid

[20] Ibid

Work That Has Been Done

Other noteworthy initiatives that have helped to support the integration of equitable, abundant, and thriving green infrastructure into functional city-building and decision-making include:

- **Urban Hamilton Official Plan:** Has a defined section on green infrastructure, which identifies that *"Increasing the amount of green infrastructure in the City is a cost-effective, resilient approach to reducing the impacts of a changing climate and provides a range of environmental, social and economic benefits."* Policy 5.6.1 states that green infrastructure will be encouraged by the adoption of low-impact development approaches such as: i) rainwater harvesting, rain gardens, and bioswales; ii) permeable pavements; and iii) green roofs.[21]

- **Hamilton Parks Master Plan:** A document outlining various recommendations and achieving the city's goal of equitable provision of municipal parks throughout the city. Identifies opportunities to implement green infrastructure in city parks, which would provide ecological benefits and climate adaptation, among other co-benefits.

- **Clean & Green Hamilton Strategy:** gives context and direction for the development of policies, programmes, and initiatives that promote and improve cleanliness, aesthetics, and environmental stewardship throughout Hamilton neighbourhoods.[22]

- **Hamilton Community Climate Change Action Plan:** was developed in 2015, with members of the Hamilton community, and led by the Community Climate Change Steering Committee as well as members who composed eight different community task forces. The Infrastructure Task Force proposed several directions that support green infrastructure, notably to "transition to the use of green infrastructure to make use of natural ecological processes", and "reduce the impacts of new developments and manage stormwater runoff through Low Impact Development". Proposed potential medium- and long-term opportunities under these include reviewing planning policies to encourage diversification and decentralization of infrastructure to make it more resilient and responsive to local needs, updating infrastructure guidelines to include GI, incorporating bioretention swales in roadway construction, integrating engineered soils, develop LID standards, and showcasing successful projects that used the City's Innovative Stormwater Source Control Policy.[23]

- **City Energy and Emissions Plan:** suggests an annual tree-planting goal of 50,000 trees throughout the entire community, involving collaboration from the City, local Conservation Authorities, the general public, and the private and not-for-profit sectors. Additionally, the City commits to incorporating land use planning policies and regulations that prioritize the preservation of the existing tree canopy cover from 2022 to 2050.

- **Hamilton Climate Action Strategy:** In 2022, Hamilton staff brought together the City Energy and Emissions Plan (CEEP) and Climate Change Impact Adaptation Plan (CCIAP) together under Hamilton's Climate Action Strategy (HCAS), a coordinated strategy to address mitigation and adaptation.

- **Urban Indigenous and Implementation Strategy**: The strategy aims to advance reconciliation and enhance the City's relationship with Indigenous communities by promoting understanding of their histories, cultures, experiences, and contributions. The coordinating circle identified 17 specific actions to be taken by Hamilton in response to the 2015 Truth and Reconciliation Commission of Canada: Calls to Action report. These include adopting the UNDRIP, involving Indigenous people in municipal decision-making, consulting with urban Indigenous peoples, enabling outdoor spaces, respecting indigenous ecological knowledge, and acknowledging traditional indigenous territory.

[21] City of Hamilton. (2013). City Wide Systems and Designations. In *Urban Hamilton Official Plan*. Retrieved from https://www.hamilton.ca/sites/default/files/2023-08/uhop-volume1-chapterc-citywidesystems-aug2023.pd

[22] City of Hamilton. (2012). Clean and Green Hamilton Strategy. Retrieved from http://www2.hamilton.ca/NR/rdonlyres/F5722B37-F29B-4D2F-96F9-41F24C1ECAE7/0/PW07056a.pdf

[23] City of Hamilton. (2015). Hamilton Community Climate Change Action Plan. Retrieved from https://uccrnna.org/wp-content/uploads/2017/06/81_Hamilton_2015_Taking-Action-on-Climate-Change-in-Hamilton-A-Community-Plan.pdf

Challenges and Gaps

Equity and Encouraging Residents to Implement GI

While there are several policies relating to green infrastructure in Hamilton, it is not yet completely clear where green infrastructure is located, and where the under-natured areas of the city are. The lack of mapping results in an inability to complete a comprehensive analysis of how to prioritize social benefits and equity during future GI implementation. Mapping of GI assets can assist the City of Hamilton to better understand how to prioritize GI to address environmental concerns and hazards such as flooding, and will be essential to develop an accompanying understanding of how to prioritize GI for equitable outcomes.

While some existing action items involve responding to challenges in an equitable manner (e.g., CEEP and Climate Change Impact Adaptation Plan), these may be hindered by not having sufficient information on communities within the City of Hamilton that lack access to green spaces. In other words, making decisions on the most suitable green infrastructure can also be guided by identifying which neighbourhoods and communities are situated in under-natured areas.

A first initiative has been led by Green Venture under the Hamilton Tree Equity Project, where a database of inventoried trees on CityHousing Hamilton property has been built. This initiative can inform the City of where CityHousing Hamilton properties lack trees and have a low species diversity by city ward.

Some studies have been carried out by the City of Hamilton to identify how challenges will be distributed; however, there are more opportunities to build upon the existing work, to further identify how vulnerable members and marginalized communities will be affected. One example of this initiative is the Vulnerability and Risk Assessment carried out by the City of Hamilton. This is a good initial exercise that supports other initiatives, such as the climate change adaptation plan. There are opportunities to improve this work, such as identifying vulnerability and disaggregating risks by communities in each city ward. The Urban Forest Strategy also considers equity dimensions in how vulnerable communities may benefit from GI, which also supports the statement on identifying under-natured areas mentioned above.

Municipal GI Implementation

While various departments of the City of Hamilton have adopted strategies, plans, partnerships, and programs compatible with green infrastructure considerations, there is no single strategy or plan focused on green infrastructure for the City of Hamilton. The city could benefit from developing an overarching strategy that links pre existing documents, and considers targets and actions to normalize green infrastructure in urban planning and development.

The City of Hamilton has adopted several initiatives as a response to climate change and while these efforts are commendable, it is noted that none of the current climate change strategies and plans (e.g., CEEP and Climate Change Impact Adaptation Plan) make explicit considerations to how green infrastructure can act as a tool to support the identified goals.

The Urban Hamilton Official Plan, UFS, Parks Master Plan, and Community Climate Change Action Plan all explicitly identify the importance of green infrastructure as a tool. This signals progress of Hamilton evolving into a Living City. However, through interviews we found many disconnects and areas of opportunity within the diverse departments of the City to build capacities on what green infrastructure is, and how green infrastructure can be integrated into urban planning and implementation processes.

Living Cities Assessment: How Are We Doing?

This table offers an assessment of how our community has or is working toward implementing evidence-based strategies that support equitable, abundant, and thriving green infrastructure. The strategies are taken from the Pathways to Living Cities Framework–and are based on extensive research and case studies from across North America and Europe.

The more “grey” is the shade, the more we are at the start of its journey; the more “green” is the shade, the more we have made progress on the strategies to advance the respective pillars of equity, abundance, and thriving. The table below provides a high-level summary of the progress that has made and some notable gaps.

Equitable

Not everyone has the same access to GI and its benefits. Research has shown that neighbourhoods with higher proportions of marginalized residents–e.g. low-income people, BIPOC groups, etc.--tend to have less GI compared to other neighbourhoods. Living Cities actively work to address this inequity by prioritizing GI in areas of high environmental and social need. Six key strategies can help to achieve this, broken down into two overarching categories, as detailed below.

Prioritize GI for Environmental Equity	How are we doing? 
What does this mean? 1. Identify under-natured areas; 2. Understand the distribution of social and environmental challenges in these neighbourhoods; 3. Engage people in GI planning and decision-making; 4. Employ policy tools to enhance accessibility and avoid displacement.	***Work Done:*** The city has made a good start to identifying under-natured areas, especially as it relates to canopy cover and urban forestry. The newly published Parks Master Plan followed a two-phase engagement process to determine residents' needs and wishes for parks, as well as to identify barriers. The Climate Change Vulnerability and Risk Assessment identified potential climate change impacts that Hamilton is likely to face. ***Gaps:*** Although work has been done to enhance equitable access to green space, more could be done to better understand social challenges and how these interact with climate risks and hazards.

Advance Reconciliation with GI

How are we doing?

What does this mean?

1. Support Indigenous-led green infrastructure;
2. Build municipal-indigenous partnerships to advance GI.

Work Done: The City of Hamilton has published a Urban Indigenous Strategy as a commitment to reconciliation. The UIS identifies actions to be carried out by the City of Hamilton as a response to the 2015 Truth and Reconciliation Commission of Canada: Calls to Action report. The various actions to be taken by Hamilton include the adoption of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), involving Indigenous people in municipal decision-making, enabling the creation of outdoor spaces for Urban Indigenous People, respecting and considering indigenous ecological knowledge, and acknowledging traditional indigenous territory in Hamilton.

Gaps: While there are a few examples of Indigenous-led green infrastructure in Hamilton, the recommendations in the Urban Indigenous Strategy offer opportunities for the city to better enable and resource Indigenous-led GI.

Abundant

GI is most effective at delivering services and its multiple co-benefits when it is implemented widely across the landscape: a few street trees provide some stormwater management and cooling benefits; an urban forest provides much more. Living Cities work to make GI “the new normal”, using it as an infrastructural default whenever and wherever possible. Eight key strategies to do this are listed below, in three overarching categories.

Set Requirements for Standards for GI

How are we doing?

What does this mean?

1. Provide a public mandate for GI through policy instruments;
2. Align GI implementation with other strategic priorities (e.g. public health, climate change adaptation).

Work Done: Hamilton has a framework of policies to protect existing GI, with opportunities to complement the existing suite. There are a number of strategies under development related to GI that could protect and expand GI in the community. The Climate Change Impact Adaptation Plan includes recommendations for aligning GI with other strategic priorities. For example: “*Identify and prioritize green infrastructure sites as part of stormwater management planning, including a vulnerability assessment.*”

Gaps: Although there is a recognition of GI in high-level plans, there are no GI-focused strategies or precise objectives to measure these commitments (other than for urban forestry). On-the-ground change is taking longer than it would if there was a cohesive strategy with standards, targets and bylaws.

Lay the Groundwork for Systemic Integration

What does this mean?

1. Build knowledge and technical capacity among practitioners involved in urban development;
2. Use valuation approaches and asset management to integrate GI into city-wide decision-making;
3. Introduce and expand funding mechanisms (e.g. stormwater fees);
4. Collect and improve GI data and monitoring;

How are we doing?

Work Done: Preliminary steps to build municipal GI knowledge have been identified but not yet implemented. For example, the UFS has a recommendation of developing an intergovernmental working group to support UFS implementation. Within the Adaptation Impact Plan, there is a recommendation to incorporate Green Infrastructure into future asset management planning, as well as to introduce funding mechanisms such as incentives for homeowners, such as rebates. Starting in September of 2025, a stormwater fee will replace the current inequitable stormwater funding model. Several strategies such as the Urban Forest Strategy, Climate Change Adaptation Plan, and Clean & Green Hamilton Strategy include actions to establish baselines and inventories to assist in GI data collection and monitoring.

Gaps: While this has been recommended in the above mentioned plans, the City currently lacks adequate data on the ecosystem services provided by GI, as well as a methodology to include GI into budgetary, land-use, and infrastructure related decisions. There are currently little to no incentives for industry to build green infrastructure.

Grow Support for GI

What does this mean?

1. Seek support from higher levels of government;
2. Facilitate community-based action.

How are we doing?

Work Done: City of Hamilton collaborates with NGOs to support proposed biodiversity and restoration actions in an ad-hoc fashion. Recently published strategies, including the draft Biodiversity Action Plan, identify several planned actions to support public communication on GI. The City has been quite successful in receiving funding from higher levels of government to support its climate adaptation work, which has positive impacts on GI implementation.

Gaps: Hamilton facilitates community-based action by collaborating with NGOs regarding requests for pollinator gardens, community food gardens, or urban tree planting, in public parks and greenspaces and by offering some programs for private landowners (eg. Protective Plumbing Program which supports downspout disconnections). There are no clear mechanisms to support community-led green infrastructure actions outside parks or approved tree planting sites.

Thriving

If GI is not properly protected, planned for, designed, constructed, maintained, and monitored, it will not be able to deliver its full range of benefits (or, the benefits it provides will not be given due consideration in city decision-making processes, and opportunities to implement GI may be missed). Living Cities work to ensure GI can thrive over the long term by setting GI up for success. Three key strategies can help accomplish this, as detailed below.

Create GI that Flourishes Over the Long Term

What does this mean?

1. Build partnerships and find champions to bring GI goals and operations into alignment;
2. Pick indicators and monitor over time to understand how GI is delivering services;
3. Support and adequately fund GI maintenance and operations.

How are we doing?

Work Done: Green Venture and Environment Hamilton play a large role in GI projects in the city. Individual champions are also supported by various initiatives (e.g. rain barrel installations, dismantling downspouts). Newly established plans, such as the UFS include measures that will establish some baselines and indicators that will be monitored.

Gaps: While Green Venture and Environment Hamilton play a large role as community champions for GI projects within the city, there is a lack of internal champions within the municipal structure to advance GI. It would be beneficial to establish cross-departmental working relationships (e.g. through the implementation of the Urban Forest Strategy and Adaptation Plan) to identify and support more champions within the municipal government.

The absence of GI monitoring has resulted in a knowledge gap in the lifespan cost requirements of GI, undermining the City's capacity to appropriately preserve and maintain GI. Apart from what is proposed for urban forestry, GI monitoring and measuring is not done in a systematic or performance-based manner.

Summary of Key Recommendations Along Pathway

The graphic below provides some key short, medium, and long-term actions that Hamilton can take to embed equitable, abundant, and thriving green infrastructure into its city-building strategy.

For a more fulsome and detailed list of recommendations, **see the full assessment**.