

City of Hamilton

GREEN BUILDING STANDARDS

FINAL REPORT

SEPTEMBER 2024

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Prepared by	Nadia Dowhaniuk	Nadia Dowhaniuk	
Prepared by	Jacqueline Da Rocha	Jacqueline Da Rocha	Jacqueline Da Rocha
Prepared by	Bolaji Olanrewaju	Bolaji Olanrewaju	
Prepared by	Fatma Osman	Fatma Osman	Fatma Osman
Reviewed by	Kirsten MacKenzie	Kirsten MacKenzie	Kirsten MacKenzie
Reviewed by	Robert Rappolt	Robert Rappolt	
Approved by		Maeri Machado	Maeri Machado
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SIGNATURES

Approved by

Maeri Machado, P.Eng, LEED AP, WELL AP, ENV SP
Director, Climate Change, Resilience & Sustainability

Reviewed by

Kirsten Mackenzie, LEED AP BD+C, ENV SP
Technical Lead - Sustainability

Robert Rappolt, MCIP, RPP
Senior Planner – Planning

Prepared by

Jacqueline Da Rocha, B.A.Sc, LEED AP BD+C, ID+C, ENV SP
Project Manager – Sustainability

Bolaji Olanrewaju, M.A.Sc., Fitwel Amb., LEED® GA, ENV SP
Senior Analyst - Sustainability

Nadia Dowhaniuk, MCIP, RPP
Senior Planner – Planning

Fatma Osman, M.A.Sc, CPHC, LEED GA , ENV SP
Analyst - Sustainability

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- Appendix A:** Green Building Standard Guidebook
- Appendix B:** Green Building Standards Checklist
- Appendix C:** Phase 2 Baseline Report
- Appendix D:** Phase 3 Report
- Appendix E:** Focus Group #1 Consultation Summary Report
- Appendix F:** Green Building Standards Engagement Snapshot

1 INTRODUCTION

WSP was engaged by the City of Hamilton (the City) to support the creation of a Green Building Standard (GBS), which includes green building development requirements for Part 3 and Part 9 buildings, i.e., low-rise, mid-rise, and high-rise residential, institutional, commercial, and industrial uses. The GBS will be applied to all site plan and plan of subdivision development applications within the urban area moving forward, which will include an assessment tool (GBS Guidebook and GBS Checklist tool) to form part of the submission requirements for planning applications.

The GBS will aid in evaluating development applications through the lens of sustainability, energy, and climate resilience by providing performance requirements across a range of Impact Categories. The development of the GBS is a critical part of the City's ability to achieve Hamilton's Climate Action Strategy to become a net-zero greenhouse gas (GHG) community by 2050. These building standards were influenced by the City's current sustainability initiatives and priorities, and provincial, regional policies and regulations.

The project was delivered over the following key stages of development including associated deliverables:

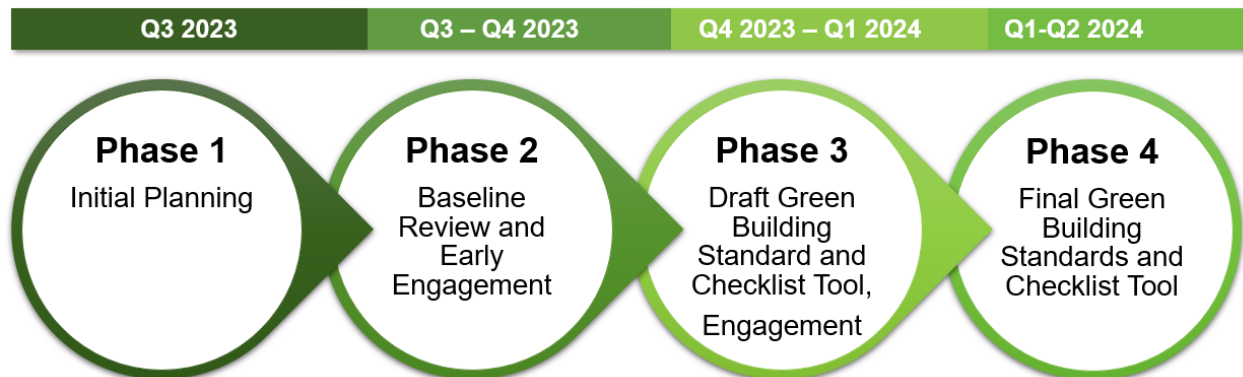


Figure 1-1 Green Building Standards Timeline

In Phase 2 an engagement session (GBS Workshop #1) with internal interested parties was conducted to identify key considerations for the GBS. The session outcome included identification of a set of sustainability Impact Categories and related sub-topics, and a follow-up survey to interested parties requesting that these Categories and sub-topics be ranked based on what interested parties considered a high priority to the City and community. In November 2023, WSP issued the final “Green Building Standard Baseline Review Report” (the Baseline Report). The Baseline Report summarized an assessment of relevant City policies and plans, as well as an assessment of peer municipalities.

In Phase 3 a second engagement session (GBS Workshop #2) with internal and external interested parties was conducted. WSP developed worksheets for each of the sub-topics identified in Phase 2, which included preliminary performance requirements to guide the discussions and collect feedback during the workshop. All feedback collected during and following the workshop was used to develop the draft Impact Categories, Performance Requirements and Metrics that form the GBS. The final recommendations were presented in the Phase 3 report issued by WSP on February 12, 2024. Draft content for the GBS Guidebook and Checklist tools were prepared following the Phase 3 report. An engagement session (GBS Workshop #3) with the development industry was conducted on April 24, 2024, to engage the development industry in a discussion regarding the proposed Performance Requirements and Metrics and the feasibility of the GBS.

Also, a GBS Implementation Workshop and GBS Public Open House were conducted by WSP, which occurred in parallel with Phase 3 of this project. The purpose of the GBS Implementation Workshop was to discuss opportunities and/or challenges with the implementation of the GBS. The GBS Public Open House provided members of the public with an opportunity to learn about the GBS, specifically how the GBS will be an important tool used by the City to achieve sustainability objectives. Input received during the GBS Implementation Workshop and GBS Public Open House have been recorded and reported on in this GBS Report.

Lastly, in Phase 4, a final version of the GBS Report, GBS Guidebook, and Checklist tools were prepared. These documents incorporate feedback from the development industry, the public, and City staff.

1.1 How To Read This Report

The intent of this report is to summarize the work completed to date, provide a brief description of each component of the GBS and provide recommendations for implementation of the GBS. The following sections are included in this report:

- **Section 2: Green Building Standards:** This section provides a summary of the structure of the GBS, and a brief description of each Impact Category and Performance Requirement. Details for each Performance Requirement can be found in Appendix A Green Building Standard Guidebook.
- **Section 3: Engagement Summary:** This section summarizes engagement activities undertaken by the Project Team to consult and engage on the GBS throughout the project.
- **Section 4: Implementation:** This section provides recommendations for the City to implement the GBS internally.

Additionally, the following information is provided in the Appendices of this report:

- **Appendix A Green Building Standard Guidebook:** This document is a publicly available tool intended to be used during the development application process to provide guidance on the requirements of the GBS. Details, documentation requirements and references are included for each Performance Requirement.
- **Appendix B Green Building Standards Checklist:** Simple checklist tool for applicants to identify where their new development meets the requirements of the GBS.
- **Appendix C Phase 2 Baseline Review Report:** This report offers a summary of provincial, regional, and City of Hamilton policies, plans, and strategies related to sustainability, energy and climate resilience applicable to the development of the GBS. It also reviews applicable Conservation Authority policies and regulations. The comprehensive policy review identifies principles and key considerations to inform the development of the GBS.
- **Appendix D Phase 3 Report:** This report summarizes work completed in Phase 3 of the project, including engagement session preparation, and feedback and outcomes from the workshop.
- **Appendix E Consultation Summary Report:** Consultation Summary Report prepared to summarize the Focus Group #1 session and feedback received.
- **Appendix F Green Building Standards Engagement Snapshot:** Summary of engagement events and key messages heard during engagement throughout the GBS.
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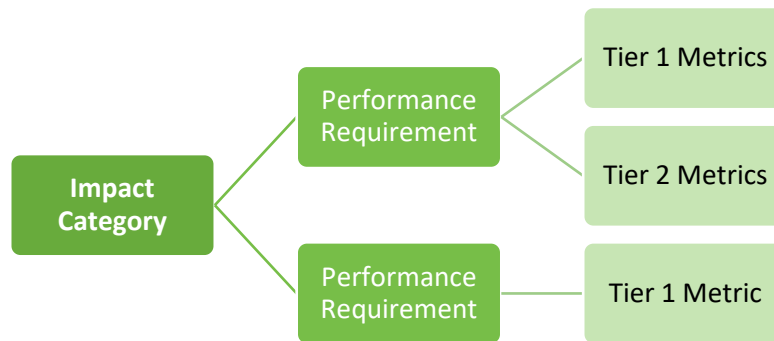
2 CITY OF HAMILTON GREEN BUILDING STANDARD

The GBS is intended to apply to all site plan applications and plan of subdivisions within the City of Hamilton urban area¹. Compliance with the GBS is expected for all Part 3² and Part 9³ building types.

The GBS is comprised of five Impact Categories, each focusing on a sustainability concept relevant to the City’s sustainability and climate goals and objectives. Outlined within each of the Impact Categories are a number of Performance Requirements that support the intent of the Impact Category. Each Performance Requirement will have one or more Metrics that quantifies or qualifies achievement. The GBS structure is visually represented in Figure 2-1.

Metrics are classified as Tier 1, which is mandatory for all applicable development applications, or Tier 2 which are optional. Tier 1 Metrics mandate a minimum level of sustainability performance for all new development in the urban area subject to the applicable Planning Act applications in the City, and support achievement of municipal sustainability goals and objectives. In many cases, the Tier 1 Metrics align with related City of Hamilton by-laws, guidelines and strategies. Tier 2 Metrics allow applicants to demonstrate an enhanced level of sustainability performance.

Figure 2-1 GBS Structure



2.1 Applicant Resources

A **Green Building Standards Guidebook** will provide necessary information for applicants on each Performance Requirement and Metric. The Guidebook will include relevant details for understanding and implementing each Metric, list suggested documentation to demonstrate compliance, and include references for information or guidance. The Guidebook will reference related by-laws, guidelines and strategies, and include hyperlinks to the sources. A copy of the Guidebook is included in Appendix A.

¹ The City of Hamilton urban area is the area inside the urban boundary. Refer to the **Urban Hamilton Official Plan** for details.

² This refers to all mid to high-rise residential and all non-residential developments and refers to buildings that are subject to Part 3 of Division B of the Ontario Building Code, per Article 1.1.2 O.Reg. 332/12: Building Code.






³ This refers to low-rise residential developments and refers to buildings that are subject to Part 9 of Division B of the Ontario Building Code, per Article 1.1.2 O.Reg. 332/12: Building Code.

A **Green Building Standards Checklist** will act as a simplified tool for applicants to indicate which Performance Requirements and Metrics are applicable to their new development, and confirm compliance is met. A copy of the Checklist is included in Appendix B.

2.2 Impact Categories

The GBS is grouped into five unique Impact Categories. The Performance Requirements outlined under each Impact Category support the overall objective of the sustainability concept, however there are interconnections and co-benefits between many of the Performance Requirements. Figure 2-2 below presents the Impact Categories and Performance Requirements that fall under each Category.

Figure 2-2: Green Building Standards Impact Categories and Performance Requirements

1	2	3	4	5
 Energy and Carbon	 Ecology and Biodiversity	 Water	 Waste Management and Materials	 Community and Urban Design
Energy Performance	Native Species Planting	Reduced Water Use	Construction Waste Reduction and Management	Promotion of Public and Active Transportation
Embodied Carbon	Tree Planting	Benchmarking and Reporting	Operational Waste Reduction and Management	Services within Walking Distance
Refrigerant Leakage	Bird Friendly Design	Water Metering	Material Reuse	Bicycle Facilities
Building Energy Resilience	Light Pollution	Stormwater Management		Accessible Design
On-Site Renewables	Climate Positive Landscape Design			Urban Agriculture
District Energy				Heat Island Effect
Building Systems Commissioning				Community Sustainability Outreach
Air Tightness Testing				Celebration of Heritage and Culture
Energy Metering				
Benchmarking and Reporting				
Electric Vehicle Charging Infrastructure				
Electric bicycle Charging Infrastructure				

A brief description of each Impact Category and Performance Requirement is included in this section. The detailed Performance Requirements and Metrics associated with each are provided in Appendix A.

2.2.1 Energy and Carbon

The Energy and Carbon Impact Category focuses on improving energy performance and reducing greenhouse gas (GHG) emissions during building operations. In each of the peer municipal standards reviewed in Phase 2, energy was invariably found to be a predominant focus area, and while carbon targets were not always explicitly separated from energy targets, the two are closely related and were typically addressed. This Impact Category links GHG reduction goals with energy efficiency, highlighting their role in eco-friendly building practices. By setting strict benchmarks for energy use, encouraging the use of renewable energy, and establishing goals for operational efficiency, this category aims to reduce energy consumption and GHG emissions throughout the building life-cycle.



Energy Performance

This performance requirement aims to promote energy-efficient buildings that lower operating costs, reduce GHG emissions, and improve building resilience. Tier 1 and Tier 2 Metrics have been established for both Part 3 and Part 9 development types, aligning with various municipalities.

For Part 9 buildings, Tier 1 requires the achievement of the ENERGY STAR® for New Homes standards version 17.1. Optional Tier 2 requires buildings to comply with more ambitious standards, CHBA Net Zero Home Labelling Program or Passive House Standards, aligning with the green building guidelines in cities like Toronto, East Gwillimbury, Ottawa, Richmond Hill, Vaughan, and Brampton.

For Part 3 buildings, specific targets were set for Total Energy Use Intensity (TEUI), Thermal Energy Demand Intensity (TEDI), and GHG Emission Intensity (GHGI) at both Tier 1 and Tier 2 levels. TEUI is a measure of a building's energy use as a function of its size and a lower TEUI corresponds to a more energy-efficient building. TEDI is a measure of a building's heating energy demand as a function of its size, requiring project owners to improve heating efficiency through optimal orientation, solar access, envelope performance, and passive design to reduce TEDI. A lower TEDI represents a higher level of energy efficiency. GHGI is a measure of the GHG emissions associated with a building's energy use, as a function of its size. A lower GHGI indicates that a building emits fewer GHG emissions, with a GHGI of 0 representing a net zero building.

Feedback from interested parties during the workshop suggested that the TEUI, TEDI, and GHGI requirements for mid to high-rise developments should be aligned with the requirements outlined in the City of Toronto Green Standards (TGS) version 4. Consequently, the established targets for Tier 1 and Tier 2 in TEDI, TEUI, and GHGI have been adjusted to match the TGS v4 requirements. This tier-based approach is consistent with other municipalities like Brampton, Richmond Hill, Toronto, Vaughan, Whitby, Ajax, and Ottawa.

For Part 3 Buildings⁴ where TEDI, TEUI and GHGI targets are not listed, Tier 1 Metrics include developing a whole-building energy model, as well as designing and constructing the building to meet National Energy Code of Canada for Buildings (NECB) 2020 Tier 1. The Tier 2 Metrics require either developing

⁴ Part 3 Buildings: Buildings that are subject to Part 3 of Division B of the Ontario Building Code, per Article 1.1.2 O.Reg. 332/12: Building Code. This includes buildings exceeding 600 m² in building area or exceeding three storeys in height.

a whole-building energy model, as well as designing and constructing the building to meet the National Energy Code of Canada for Buildings (NECB) 2020 Tier 2.

Certification under the current version of the Canada Green Building Council's Zero Carbon Building Design Standard is included as an acceptable Tier 2 alternative compliance path for any Part 3 Building.

Embodied Carbon

This performance requirement is focused on promoting reductions in embodied carbon as part of a broader strategy to decrease overall carbon emissions. Embodied carbon refers to the life-cycle GHG emissions arising from manufacturing, transportation, installation, maintenance, and disposal.

For Part 9 buildings, a mandatory Tier 1 Metric has been established to conduct an upfront embodied emissions (A1 – A3) assessment for the structure and envelope, in accordance with the CaGBC Zero Carbon Building Standard, using the Building Emissions Accounting for Materials (BEAM) tool, or equivalent. For Part 3 building types, a whole building life cycle assessment of the building's structure and envelope is required for the A1-A5, B1-B5 and C1-C4 life cycle stages in accordance with the CaGBC Zero Carbon Building Standard. This Metric is progressive, surpassing City of Toronto's Tier 1 but aligning to the Tier 2 within the Toronto's Green Standards Version 4.0. It is also consistent with future proposed embodied carbon Metrics from the Town of Caledon.

The Tier 2 Metric encourages projects to demonstrate a 5% minimum reduction in embodied carbon compared to a baseline. This applies across all building types, including Part 3 and Part 9 buildings.

Refrigerant Leakage

This performance requirement requires buildings to develop an approach for monitoring refrigerant leakage during operation of the building to raise awareness on potential leakages and create a process to enable future reporting. Refrigerants are GHGs that last a short time in the atmosphere but trap a large amount of heat, accelerating the impact of climate change. However, refrigerants are commonly used in Heating, Ventilation and Cooling (HVAC) equipment, such as heat pumps, and can contribute to climate change when they leak into the atmosphere or are improperly disposed of at their end of life. The increasing popularity of low carbon solutions like heat pumps increases the risks for potential refrigerant leaks, and necessitates better processes for reducing leaks.

Building Energy Resilience

This performance requirement focuses on ensuring that Part 3 buildings (mid to high-rise residential developments only) are equipped with backup power for essential systems and a refuge area for occupants during power outages caused by extreme weather events. It introduces a voluntary, Tier 2 Metric that encourages buildings to have a designated area with heating, cooling, lighting, potable water, and backup power for essential systems lasting 72 hours. This Metric aligns with suggestions from stakeholders who emphasized the importance of climate resilience and adaptation measures, including backup power and refuge areas, as part of the Tier 2 Metric. Adopted by cities like Brampton, Vaughan, Ottawa, Pickering, and Toronto, this approach not only meets basic safety needs during emergencies but also encourages the use of low or zero-carbon backup power sources.

On-Site Renewables

This performance requirement promotes the adoption of cost-effective renewable energy solutions to mitigate climate change and reduce the on-site carbon footprint.

For Tier 1 Metrics, Part 9 buildings (Plan of Subdivision applications only) are required to prepare a community energy plan demonstrating energy emissions and resiliency targets on a community scale. Also, all building types are required to be designed for solar readiness⁵. Applicants are referred to the Natural Resources Canada (NRCan) Solar Ready Guidelines and the National Renewable Energy Laboratory's Solar Ready Buildings Planning Guide for solar readiness and PV-ready provisions.

Tier 2 Metrics, which are optional, requires designing and installing on-site renewable energy systems for Part 9 buildings, to supply at least 10% of the building energy load. This Tier 2 Metric has been increased for this development type in support of the Hamilton's Climate Action Strategy, which includes a 2031 target for all new homes to have 30% annual load coverage by solar PV. Alternatively, the Tier 2 Metric requires that 20% of the building's total energy demand is fulfilled through geo-exchange (geothermal or ground source heat pumps).

For Part 3 buildings, Tier 2 Metrics require designing and the installation of on-site renewable systems to ensure at least 5% of the building's total energy load is met through either one or a combination of PV, solar thermal, biogas, and wind energy sources. Alternatively, the Tier 2 Metric requires that 20% of the building's total energy demand is fulfilled through geo-exchange (geothermal or ground source heat pumps). The Tier 2 Metrics is consistent with Hamilton's Climate Action Strategy, which has a target for all new commercial buildings to include rooftop solar PV panels by 2026.

Feedback from interested parties highlighted a preference for geothermal energy due to its local availability, efficiency, and cost-effectiveness, noting its stable output compared to the more variable solar and wind energy.

The Metrics within this performance requirement align with the City's goal to achieve net-zero greenhouse gas emissions by 2050, which emphasizes the use of renewable energy as a key strategy.

District Energy

This performance requirement promotes the use of district energy systems to lessen the environmental and economic impacts of fossil fuel dependence. It encourages connections to existing low-carbon district energy networks to reduce carbon emissions and achieve GHGI limits.

Tier 1 requires assessing the feasibility of shared energy solutions, such as developing low-carbon thermal networks or connecting to existing or planned district energy systems, alongside identifying needs for district energy readiness. This is in line with practices in Whitby and Ottawa, and includes creating a Community Energy Plan for subdivision applications to outline community-scale energy emissions and resilience goals. Further guidance is expected to be included in the upcoming City of Hamilton Terms of Reference (ToR) Community Energy Plan. The Tier 2 Metric encourages voluntary connections to an existing district energy system or designs for future connections where such systems are anticipated. This Metric aligns with initiatives in Aurora, East Gwillimbury, Langford, and Ottawa. Workshop feedback favoured classifying district energy connections as a Tier 2 Metric due to practical

⁵ Solar Readiness refers to incorporating specific design modifications and considerations into new attached and detached homes. These changes are made to facilitate the future installation of solar thermal systems or solar photovoltaic systems.

limitations on mandating building hookups, although some participants suggested categorizing it as Tier 1, mirroring Whitby's approach.

The Metrics of this performance requirement align with the City's plan to decarbonize and expand the downtown district energy system, as indicated in Action 19 - Decarbonize and Expand District Energy of the City of Hamilton's Community Energy and Emissions Plan.

Building Systems Commissioning

This performance requirement aims to encourage the design of energy-efficient buildings with lower operating costs and reduced greenhouse gas emissions from building operations. This performance requirement has one Tier 2 Metric, which involves conducting best practice commissioning, following the guidelines set out in the LEED BD+C v4.1 Fundamental Commissioning and Verification prerequisite. This aligns with municipalities such as Brampton, Vaughan, Richmond Hill, Toronto, Whitby, and Ajax, who have designated building systems commissioning as a Tier 2, voluntary Metric.

Air Tightness Testing

This performance requirement is designed to reduce air leakage, thereby lowering greenhouse gas emissions from building operations and enhancing the thermal comfort of occupants. During discussions, stakeholders agreed that air tightness testing should be a Tier 2, voluntary requirement, in line with practices in municipalities such as Brampton, Ottawa, Richmond Hill, Ajax, and Toronto. However, some participants advocated for it to be a mandatory Tier 1 requirement, given its frequent adoption in new developments. In response to this feedback, a mandatory Tier 1 Metric was established, requiring the submission of a letter describing the approach to enhance building envelope's quality and airtightness. This letter must outline the project's strategy for achieving air tightness, including details on any planned testing procedures. Tier 2 involves conducting a comprehensive whole-building air leakage test, with results to be documented and reported. This structured approach aims to improve building performance by prioritizing air tightness from the planning phase through to construction and final testing.

Energy Metering

This performance requirement focuses on fostering greater energy awareness to encourage behaviors that lead to energy efficiency and consumption reduction. Implementing continuous tracking and benchmarking of energy use ensures that buildings adhere to their intended design goals for energy performance. To facilitate this, the requirement outlines Tier 1 and Tier 2 Metrics that are applicable across a wide range of building and development types.

Tier 1 mandates the installation of electricity and/or thermal sub-meters for all energy end-uses that account for more than 10% of the building's total energy consumption. Tier 2, while optional, extends this concept further for buildings with multiple tenants. It requires the provision of energy submetering for each commercial or institutional tenant space and each residential suite.

While cities like Vaughan, Richmond Hill, Ottawa, and Brampton have made the installation of sub-meters for energy end-uses voluntary, feedback from stakeholders indicated that energy sub-metering should be a fundamental requirement for all buildings.

Benchmarking and Reporting

This performance requirement aims to promote energy and water conservation by enabling continuous monitoring and reporting, thereby allowing the City to effectively monitor emissions from new developments. Tier 1 Metrics apply to buildings larger than 50,000 square feet ($\approx 4645 \text{ m}^2$), requiring enrollment in the ENERGYSTAR® Portfolio Manager. This tool tracks the energy and water consumption of new developments during their operational phase, in line with Ontario Regulation 506/18. The Tier 2 Metric encourages all new developments, regardless of size, to also enroll in ENERGYSTAR® Portfolio Manager for monitoring energy and water usage. This practice aligns with initiatives in cities such as Ottawa and Toronto, promoting broader adoption of energy and water consumption tracking.

Electric Vehicle Charging Infrastructure

This performance requirement aims to encourage the use of electric vehicles (EVs) through the provision and installation of EV charging stations, to support GHG reduction targets, and improve air quality. Tier 1 Metrics align with the City of Hamilton Zoning By-law No. 05-200, stipulating that all Part 9 (Non-Residential) developments must make at least 50% of their parking spaces EV-ready. For Part 3 & Part 9 (Residential) developments, the established Metric is that 100% of parking spaces are EV-ready. Tier 2 expands this requirement, encouraging at least 10% of all parking spaces in Part 9 (Non-Residential) developments to include Electric Vehicle Supply Equipment (EVSE). Similarly, for Part 3 & Part 9 (Residential) developments, the established Metric requires providing at least 20% of all parking spaces with EVSE. During discussions, it was noted that the City is in the process of developing an EV strategy. Interested parties suggested that the final Metrics of this requirement should align with the future EV strategy to ensure consistency and support the City's broader environmental goals.

Electric Bicycle Charging Infrastructure

This performance requirement focuses on reducing air pollution and GHG emissions from car usage by encouraging low-emission transportation through electric bicycles. This also reduces reliance on fuel and also reduces traffic congestion, noise pollution, and the strain on infrastructure. A Tier 1 mandatory Metric within this framework mandates the installation of energized outlets (120V) for electric bicycle charging at 15% of bicycle parking spaces. This approach aligns with cities like Pickering and Toronto, which have also classified this measure as a Tier 1 Metric. Additionally, municipalities such as Ottawa and Aurora have included this as a voluntary Metric, reflecting a range of commitments to promoting active transportation and sustainable urban mobility.

2.2.2 Ecology and Biodiversity

Ecology and Biodiversity focuses on the preservation, restoration, and enhancement of the natural environment within the development area. In each of the Standards reviewed, landscaping strategies to promote biodiversity and enhance the natural spaces were included. Common requirements in this topic include native species and tree planting, prohibiting invasive species, and bird-friendly design. The performance requirements within this impact category foster ecological health and biodiversity, and also significantly contribute to the enhancement of urban forests, elevate biodiversity levels, and mitigate urban heat islands. By prioritizing these measures, developments can achieve a balance between urban uses and environmental preservation, ensuring sustainable habitats for both wildlife and human communities.



Native Species Planting

This performance requirement is designed to preserve the long-term health of landscape designs and minimize impacts on wider natural ecosystems. Tier 1 requires that 50% of new landscaping areas use native or adapted plant species, while strictly prohibiting the planting of invasive species. Tier 2 expands the threshold to 75% of new landscaping areas with native or adapted species and includes the installation of permanent signage to educate about the native species planted on-site. Furthermore, to support the City's "Bee City" initiative, developments are encouraged to restore or preserve at least 30% of the site with native vegetation, incorporating at least two native flowering species that bloom at different times during the growing season, promoting biodiversity and ecological health. The selected Metrics support the City of Hamilton's Urban Forest Strategy, Draft Biodiversity Action Plan, and Climate Change Impact Adaptation Plan.

Tree Planting

The tree planting performance requirements aim to preserve and enhance natural heritage, support biodiversity, mitigate heat island effects, and manage stormwater. Tier 1 Metrics focus on protecting healthy, mature trees within the project area in accordance with the City of Hamilton Tree Protection Guidelines. This includes ensuring each planted tree has access to sufficient soil volumes to grow and providing a watering and maintenance program for at least the first four years post-planting. Applicants are encouraged to reference the City of Hamilton Street Tree Planting Policy on street tree planting practices.

A Tier 2 Metric has been included for alignment with the City of Hamilton Urban Forestry Strategy's target of 40% tree canopy cover. If pursued, developments are required to plant trees to achieve a 40% canopy cover on the site, calculated based on a mature canopy width.

The intent of this performance requirement also aligns with the specific sections of the City of Hamilton's Urban Forest Strategy, Street Tree Planting Policy, Tree Protection Guidelines, and the City of Hamilton's Private Tree Protection By-Law which is currently under development.

Bird Friendly Design

In April 2022, the City became the 6th certified Bird Friendly City in Canada. As part of this commitment, the City has taken steps to reduce threats to wild birds, conserve bird habitat, and educate the public about birds.

This performance requirement aims to prevent bird collisions with buildings by requiring bird-friendly design measures. A key piece of feedback from interested parties during the workshop emphasized the importance of classifying all bird-friendly Metrics as a high priority. The Tier 1 Metrics include designing the project in accordance with the guidance laid out in the Canadian Standard Association's (CSA) A460:19 Bird-Friendly Design Standards. This aligns with received feedback during the organized workshop, and from FLAP Canada, a Canadian-based Non-governmental Organization (NGO) devoted to safeguarding migratory birds in the built environment through education, policy development, research, rescue, and rehabilitation. Additionally, this corresponds with the Metrics used by other municipalities like Ajax, Toronto, Brampton, and Richmond Hill. Adhering to the CSA standard positions the City alongside numerous municipalities across the province committed to safeguarding birds by preventing collisions with buildings.

Light Pollution

This performance requirement aims to reduce nighttime glare, light trespass, and light pollution, addressing their negative impact on energy efficiency, local residents, and nocturnal wildlife. Additionally, workshop feedback emphasized the importance of these Metrics for bird-friendly design. The Tier 1 mandatory Metrics require that all exterior lighting fixtures be Dark Sky compliant, ensuring rooftop and façade lighting is directed downward, and switched off between 10 p.m. and 6 a.m. Additionally, it mandates the use of lighting controls in non-residential spaces to cut light spillage by 50% from 11 p.m. to 5 a.m., further mitigating light pollution and its associated impacts.

Climate Positive Landscape Design

This performance requirement focuses on encouraging GHG reductions through thoughtful landscape design. It introduces a Tier 2 voluntary Metric that involves using the Climate Positive Design's Pathfinder: Landscape Carbon Calculator⁶. This tool helps calculate both the embodied carbon of materials used in landscape projects and the carbon sequestration potential of the landscape design. This approach aligns with recommendations from interested parties and practices in municipalities such as Toronto and Aurora. The Climate Positive Landscape Design Challenge provides guidance for improving the impact of site design projects on the environment.

2.2.3 Water

The Water Topic focuses on reducing potable water use for indoor and outdoor water uses, water metering, as well as rainwater management. Reducing potable water use, harvesting and re-using stormwater, and managing the quantity and quality of stormwater are all common themes in this topic. Each of the municipal standards reviewed during Phase 2 includes requirements that address one or more of these themes.



Reduced Water Use

This performance requirement promotes water conservation by using efficient water fixtures, balanced irrigation practices and reducing overall water consumption.

Tier 1 requires all indoor water-consuming fixtures to be high-efficiency WaterSense® or meet specific maximum flow requirements. The Tier 2 optional requirements include the use of water fixtures that obtain a 40% reduction over the baseline fixture (per LEED BD+C v4 guidance) for indoor consumption. In addition, outdoor potable water used for irrigation is to be reduced by 60% (per LEED BD+C v4 guidance) and greywater and/or rainwater systems are to be designed to capture and reuse water for irrigation and/or indoor flushing fixtures. Whitby Green Building Standard makes it optional under Tiers 2, 3, and 4, to reduce potable water use for irrigation by 60%-100%. This aligns with the City of Pickering's Tier 2 Metric, which sets an indoor potable water consumption reduction of 30% better than the Ontario Building Code baseline and requires the design of a non-potable water system for outdoor reuse purposes.

⁶ Climate Positive Design Pathfinder Tool

Benchmarking and Reporting

This requirement promote energy and water conservation through ongoing monitoring and reporting, and increased visibility for the City to track water consumption of new developments.

Tier 1 requires the enrollment of the project in ENERGYSTAR® Portfolio Manager to track energy and water consumption of the new development during operations in accordance with O. Reg. 506/18 for buildings 50,000 square feet or larger. Tier 2 expands the requirement of enrolling the project in ENERGYSTAR® Portfolio Manager to track the energy and water consumption of the new development during operations to include all buildings. The enrolment in ENERGYSTAR® Portfolio Manager is required under Tier 2 requirements for both Toronto and Ottawa.

Water Metering

This requirement promotes awareness for water consumption to reduce usage and encourage behaviors that lead to water efficiency and consumption reduction. Implementing continuous tracking and benchmarking of water consumption ensures that buildings adhere to their intended design goals for energy performance.

This Metric is a Tier 2 voluntary required for buildings with multiple tenants to provide water submetering for each commercial or institutional tenant and per residential suite. Water Metering supports water efficiency efforts by monitoring and benchmarking water use over time. Received feedback suggested that this Metric be a Tier 1 Metric; however, to be consistent with the energy metering Metric, it has been determined as Tier 2.

Stormwater Management

This requirement addresses stormwater and watershed management to minimize the impact of polluted runoff flowing into water streams and to alleviate the strain that stormwater places on municipal infrastructure.

Tier 1 mandatory Metric requires projects to provide long-term controls for Erosion and Sediment Control (ESC) in conformance with the Greater Golden Horseshoe Area Conservation Authorities 2006 Erosion and Sediment Control Guideline. The "Greater Golden Horseshoe Area Conservation Authorities' Erosion and Sediment Control Guideline for Urban Construction" is intended to be applied within all member municipalities encompassed within the Greater Golden Horseshoe Area (GGHA) watersheds to protect and preserve the water quality, aquatic and terrestrial habitats, and form and function of their natural water resources. Additionally, Tier 1 requires applicants to demonstrate compliance with the upcoming City of Hamilton Green Standards and Guidelines for Low-Impact Development. Requirements regarding stormwater management appear in several peer municipalities' green standards such as Toronto, Ajax, Vaughan, and Brampton.

The Tier 2 Metric encourages applicants to design for future rainfall data instead of historical rainfall to account for the impacts of climate change and increase the climate resilience of the building. Examples of acceptable calculation methods to determine future rainfall is provided.

2.2.4 Waste Management and Materials



The Waste and Materials topic focuses on reducing waste generation during construction and the operational phases of development. Reducing waste can contribute to the reuse of existing materials and decrease demand for raw materials. In addition, managing operational waste facilitates waste recycling and decomposing practices, contributing to waste diversion and material reuse can ultimately positively impact the environment and natural resources. In each of the peer municipal standards reviewed in Phase 2, waste management has been observed to be an integral focus area and has been addressed through a combination of mandatory and voluntary performance requirements.

Construction Waste Reduction and Management

This performance requirement encourages the reduction of waste generation and encourages the safe and proper disposal of waste generated during building construction. Diverting waste from landfills reduces the extraction of virgin natural resources and minimizes land, water, and air pollution.

Tier 1 requires the management of construction and demolition waste in accordance with O. Reg. 103/94. Tier 1 also requires the development and implementation of a construction waste management plan for non-hazardous construction, and demolition waste and to demonstrate a diversion rate of 50% or more.

Tier 2 increases the threshold of waste diversion rate to 75%. The cities of Ajax, Pickering, and Toronto also have similar mandatory and optional strategies for waste diversion.

Operational Waste Reduction and Management

This performance requirement facilitates the safe and proper disposal of waste generated during building operations. Mandatory Tier 1 Metrics for this performance requirement include designing Part 9 (residential) developments to meet the requirements in Section 3.5 of the City of Hamilton Waste Design Requirements for Design of New Developments and Collections document. In addition, all Part 3 (residential) and Part 9 developments are required to design unit kitchen cabinets to accommodate space for the segregated collection of recyclables, organics, and garbage. The City of Toronto includes this Metric as an optional performance requirement.

Material Reuse

This performance requirement encourages the reuse of existing materials to support total carbon reductions and reduce demolition and construction waste.

This voluntary Tier 2 Metric requires developments to maintain the existing building structure and envelope for 30% of the existing floor area OR using existing interior non-structural elements for at least 30% of the entire completed building, including additions. Feedback from interested parties during the workshop has emphasized the importance of including Material Reuse Metrics in the standard. This aligns with municipalities such as Brampton, Aurora, and Toronto, which have designated material reuse as a Tier 2, voluntary Metric. Additionally, LEED BD+C Core and Shell have dedicated a credit to encouraging the reuse of building materials.

2.2.5 Community and Urban Design



The Community and Urban Design Topic focuses on the design elements that promote a sense of place in the community by emphasizing the importance of preserving heritage and cultural features, raising awareness of local food production, promoting healthy practices and inclusion, as well as educating residents on sustainability features in their community and ultimately creating communities that are healthy and resilient.

Promotion of Public and Active Transportation

This performance requirement reduces air pollution and GHG emissions related to car use by promoting active transportation. Active transportation also reduces fuel dependency, traffic congestion, noise pollution, and infrastructure. Tier 1 Metrics require the development of a Transportation Demand Management (TDM) Plan and demonstrate a 25% reduction in single occupancy auto vehicle trips generated by the proposed development. It also requires the construction of a network of suitable cycling facilities and multi-use paths within the development, which also connects to the bicycle network, and implement recommendations of the City's Transportation Master Plan and/or Cycling Master Plan. In addition, it requires the provision of safe and direct routes that encourage the use of active transportation modes and connect to transit, commercial areas, community facilities, and parks.

The City of Hamilton's Transportation Demand Management Plan and Cycling Master Plan are to be consulted when developing designs pertaining to public and active transportation.

Services within Walking Distance

This performance requirement encourages developments to locate the building(s) within 800 metres walking distance of a transit station, public amenities, or public parks or recreational trail. The municipalities of Whitby, Brampton, Richmond Hill, and Vaughan include similar Metrics for services within walking distance within their voluntary requirements. This Tier 2 Metric emphasizes the importance and the health benefits attained by designing communities that promote an active lifestyle.

Bicycle Facilities

This performance requirement reduces air pollution and GHG emissions related to car use and encourages a more active lifestyle. The City of Hamilton Zoning By-law No. 05-200 already implements minimum requirements for bicycle parking, which specifies minimum requirements for short and long-term bicycle parking areas for different building use types, including mixed-use, commercial, institutional, and industrial use, as well as university and college use.

The optional Tier 2 Metric adds an additional 20% long-term and short-term bicycle parking spaces beyond the Tier 1 minimum space requirements. The municipalities of Ajax, Brampton, Pickering, Toronto, Richmond Hill, and Vaughan require mandatory parking spaces for short and long-term use.

An additional Tier 2 Metric is available, encouraging the inclusion of dedicated bike share locations onsite and engaging in a contract with the Hamilton Bike Share program.

Accessible Design

This performance requirement is designed to support persons with disabilities in the built environment. The Tier 1 Metric requires meeting the Accessibility for Ontarians with Disabilities Act (AODA) Integrated Accessibility Standards, sections 80.16 to 80.31 inclusive, for pedestrian infrastructure. Pedestrian accessibility design features such as curb ramps and depressed curbs (designed according to AODA standards), are examples of strategies that improve the experience of residents with disabilities. This Metric has been added to address feedback from interested parties on the importance of designing accessible public spaces, which would promote inclusion in the community.

Urban Agriculture

The intent of Urban Agriculture is to raise awareness around local food, reduce environmental and economic impact from the transport of food, and increase green space. The Metric is a Tier 2 performance requirement for residential buildings to provide 0.5 m² per dwelling unit of garden space and for institutional buildings to provide space for urban agriculture and/or community gardens. Garden space is defined as land and/or an alternative mechanism with a growing medium that will be used to cultivate plants for food. This requirement Metric aligns with that of Ajax, Brampton, and Richmond Hill, which includes voluntary Metrics promoting local gardens and urban agriculture through the allocation of spaces in residential areas for gardening and food production. Furthermore, this aligns with Recommendation 6 of the City of Hamilton's Food Strategy, which is aimed at supporting and creating diverse ways for people to grow food and participate in urban agriculture activities. Interested parties have emphasized the importance of community-driven initiatives, referencing the "Brampton Backyard Garden Program" as an example.

Heat Island Effect

This performance requirement is designed to lower ambient surface temperatures and mitigate the urban heat island effect. Tier 1 mandates that at least 75% of available roof space must feature one or a combination of green roofs, cool roofs, and solar PV installations. Additionally, it requires using one or a combination of heat island reduction strategies for at least 50% of the site's non-roof hardscape areas. Tier 2 extends the effort by requiring 75% of all hardscapes, such as roads, sidewalks, and driveways, to be treated with heat island reduction measures.

Following input from interested parties, the requirement references the TGS v4 strategies for mid and high-rise residential and non-residential buildings. Examples of such strategies include the use of high-albedo paving materials (with a minimum solar reflectance of 0.33 or SRI of 29), shade from existing or new tree canopies, and shade from structures that also generate energy. Feedback also highlighted the challenges of using permeable pavers in Ontario's winter conditions. Thus, they were excluded from the final strategy list for heat island reduction. Although permeable pavers remain an important objective for stormwater management purposes and low impact development measures, which is reflected in provisions within Zoning By-law 05-200.

The intent of this performance requirement supports specific sections of the City of Hamilton's Urban Forest Strategy, Biodiversity Action Plan, Climate Change Impact Adaptation Plan, and Community Energy and Emissions Plan.

Community Sustainability Outreach

This performance requirement promotes green building features and supports the continued involvement of tenants or homeowners.

The Tier 1 Metric requires applicants to distribute a building-specific sustainability handout to all new homeowners and tenants, outlining sustainability features including information on native and invasive species, in alignment with the City of Hamilton Biodiversity Action Plan. Additional examples of features include green building materials, waste management programs, bicycle facilities, and transit stop locations. In addition, the Metric also requires familiarizing tenants and homeowners with the building's green building feature through an on-site review.

Celebration of Heritage and Culture

This performance requirement contributes to a sense of place in the community and amplifies shared values.

The Tier 1 Metric of this requirement includes design features that encourage connecting with natural and cultural heritage and the incorporation of public art. Metrics have been coordinated with Cultural Heritage staff for alignment with the existing Heritage Permit process. Feedback from interested parties highlighted the importance of this Metric to the City's residents and recommended making it a Tier 1 mandatory requirement. The requirement has been changed to a Tier 1 requirement as a result of that feedback.

The Tier 2 Metrics focus on introducing beautification measures/amenities that beautify stormwater management features, such as ponds (e.g. public art, interpretive signage). Municipalities such as Richmond Hill, Whitby and Vaughan have been promoting the conservation of natural and cultural heritage through their green standards through a combination of mandatory and voluntary requirement Metrics.

3 ENGAGEMENT SUMMARY

This section summarizes engagement tactics and approaches undertaken by the Project Team to inform development of the GBS. This section also presents key input and feedback received throughout the project. The overall objective was to engage interested parties through an iterative process designed to receive input and feedback on key aspects of the GBS.

It is crucial that the Project Team reports back on input received throughout the project. The engagement process was important to ensure interested parties had appropriate opportunity to provide meaningful input, and to demonstrate how the feedback received has been used to inform the GBS. Importantly, for each engagement and consultation touchpoint described in this section, details and outcomes are clearly described to demonstrate evolution of the project.

3.1 Engagement Tactics and Approaches

This section provides additional details about the engagement tactics and approaches leveraged by the Project Team throughout the course of the project. These include:

- Two (2) in-person focus groups, one with internal City staff, and a second with City staff, developers and builders, community organizations, and post-secondary institutions;
- One (1) virtual workshop with City staff focused on implementation of the GBS;
- One (1) workshop with interested parties in the development industry;
- One (1) virtual public open house;
- Additional one-on-one meetings with City staff working in various departments and with different subject matter expertise;
- A project webpage dedicated to the GBS posted on Engage Hamilton; and
- Two (2) online surveys posted to the GBS webpage on Engage Hamilton.

These engagement tactics and approaches are summarized in the subsections below.

3.1.1 Focus Group #1

Purpose

The purpose of Focus Group #1 was to engage City staff on the Project and obtain feedback on the preliminary topic areas for the GBS.

Date, and Location

Focus Group #1 was hosted in-person at City Hall in the City of Hamilton on October 18th, 2023 from 2:00pm to 4:00pm.

Participants

Twenty City staff from a range of divisions, including Planning, Building, Climate Change, Public Health, and Public Works Department participated in Focus Group #1.

Tactics and Approaches

The Project Team began Focus Group #1 with a brief presentation to set the stage for the project. Following the presentation, WSP facilitated an activity designed to receive feedback for the preliminary topic areas and proposed sub-topics. The activity was structured as a “World Café” wherein six tables were each assigned one of the six preliminary topic areas identified through background research.

Stationary, sticky notes, chart paper, and supporting materials were provided at each table to help facilitate the discussion and for staff to document their ideas. While at each table, staff were asked to consider and record their responses to two key questions within a ten minute time period, after which staff rotated tables and moved to the next preliminary topic area.

Focus Group #1 concluded with a brief review of next steps. An online survey was distributed to staff afterwards to capture additional comments, input, and feedback regarding the preliminary topic areas and the project broadly.

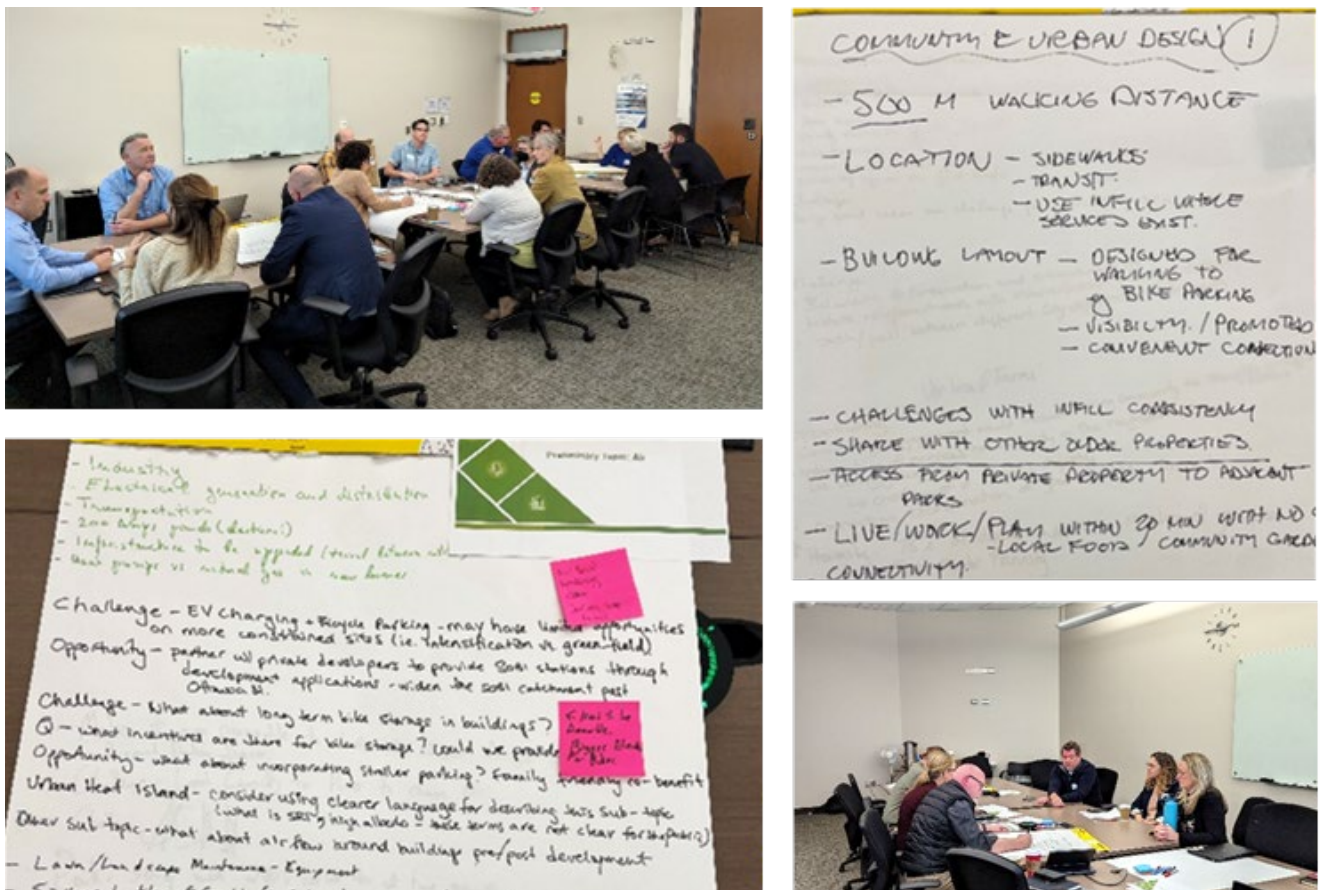


Figure 3-1: Snapshots from Focus Group #1 and preliminary feedback received for two of the six preliminary topic areas.

Outcome(s)

Input received during Focus Group #1 was used by the Project Team to inform and prioritize impact categories and performance requirements for the GBS. Feedback received during Focus Group #1 and through the survey were captured in a Consultation Summary delivered to the City in November 2023.

3.1.2 Focus Group #2

Purpose

The purpose of Focus Group #2 was to receive feedback from interested parties on the preliminary performance requirements for the GBS.

Date and Location

Focus Group #2 was facilitated in-person on December 12th, 2023 from 1:30pm to 3:30pm at CityLab in the City of Hamilton.

Participants

Interested parties invited to participate in Focus Group #2 included:

- City staff working in zoning, development planning, development engineering, site plan, policy planning, heritage, building, water and wastewater systems, urban design, public health, and the office of climate change;
- External interested parties included representatives from advocacy groups such as Birdsong Hamilton, the West End Home Builders' Association, and Environment Hamilton; and
- Other interested parties, such as staff from McMaster University.

Over 20 individuals from the groups identified above attended Focus Group #2. Additional interested parties who were invited but unable to attend provided written feedback to the Project Team via email.

Tactics and Approaches

Focus Group #2 began with a concise presentation delivered by the Project Team. The presentation covered background information, context, objectives, timelines and next steps in the project. Detailed worksheets were distributed to interested parties prior to Focus Group #2. These worksheets served as a key discussion tool used during Focus Group #2.

Following the presentation, the Project Team facilitated a 90 minute workshop wherein interested parties were grouped at one of five tables based on their stated expertise and interests. Each table was allocated one topic (e.g., Water, Air, etc.), with the exception of one table, which was assigned two topics. Participants rotated through three tables and topics based on their interests, allocating a total of 25 minutes per table. The worksheets distributed in advance of the Focus Group were used to facilitate discussion.

Focus Group #2 concluded with the Project Team dedicating time for general questions from interested parties and a discussion about next steps.

Outcome(s)

Input and feedback received during and after Focus Group #2 was used by the Project Team to inform Performance Requirements and Metrics in the GBS. Input received also identified the need for subsequent follow up discussions with City staff to further refine Performance Requirements and Metrics.

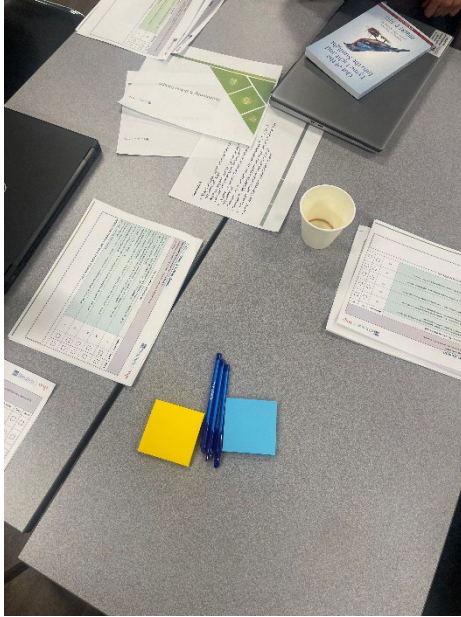


Figure 3-2: Snapshots from Focus Group #2, including the worksheets (left) and workshop discussions (right).

3.1.3 Implementation Workshop

Purpose

The purpose of the Implementation Workshop was to facilitate a discussion with staff to understand opportunities, challenges and gaps that may result from implementation of the GBS. The Implementation Workshop is an important opportunity to facilitate a discussion with staff about implementation of the GBS. For example, updating and reviewing internal planning processes, communicating the GBS to interested parties, training staff and applicants, and/or resourcing third-party review.

Date and Location

The Implementation Workshop was hosted on the virtual platform Teams on February 15th, 2024 from 10:00am to 12:00pm.

Participants

Participants included City staff who had previously been invited to and participated in Focus Group #1 and Focus Group #2. Additional City staff members were invited to participate based on their area of expertise. For example, City staff who work on the City's Site Plan requirements were invited to provide input on the application review process.

Tactics and Approaches

During the Implementation Workshop, City staff were asked a series of questions about current implementation processes, and potential challenges or opportunities related to implementation of the GBS, including required documentation. The Implementation Workshop was facilitated using a PowerPoint presentation and an Info Sheet, which was shared as an interactive Word document following

the Implementation Workshop. Participants also received an updated copy of the Performance Requirements and Metrics.

Input received during the Implementation Workshop and by participants up until and including February 23rd, 2024 helped to inform recommendations prepared by the Project Team for the City to assist with implementation of the GBS.

Outcome(s)

Responses to questions used to guide discussion during the Implementation Workshop have been used to inform recommendations for the City to consider when implementing the GBS. These recommendations have been summarized and detailed in Section 4 of this Report.

3.1.4 Discussions with City Staff

Purpose

The purpose of the additional discussions and consultation with City staff was to collect additional information and feedback from City staff who are supporting projects with ties to the GBS or are directly referenced by the GBS.

Date and Location

Consultation was conducted multiple times throughout the Project. All consultation was conducted via virtual meetings.

Participants

Planning and Economic Development, Sustainable Mobility Planning, Water Resources, Infrastructure Planning, Cultural Heritage Planning, and Office of Climate Change Initiatives.

Tactics and Approaches

During consultation with City staff, the Project Team asked questions to collect information and feedback from the City staff. Meeting notes were collected by the Project Team for consideration in developing the GBS.

Outcome(s)

The GBS Performance Requirements and Metrics were developed using the information and feedback collected as part of the Staff Consultation. Additionally, the GBS Guidebook includes references and details informed by these discussions.

3.1.5 Development Industry Workshop

Purpose

The purpose of the Development Industry Workshop was to receive critical feedback from interested parties about the draft Performance Requirements and Metrics. The Development Industry Workshop focused on three key areas:

1. To verify if Tier 1 (mandatory) Metrics were feasible from a technical, logistical, etc. perspective;
2. To verify if Tier 2 (optional) Metrics were appropriate, or if there were opportunities to reassign as Tier 1 (mandatory); and
3. To discuss and understand if there were Tier 1 or Tier 2 Metrics already being included as part of active or planned development applications.

Feedback and input received was used to inform updates to the Performance Requirements and Metrics.

Date and Location

The Development Industry Workshop was hosted on the virtual platform Teams on April 24th, 2024 from 2:00pm – 4:00pm.

Participants

Interested parties from the development industry were invited to join the Development Industry Workshop.

Tactics and Approaches

A draft version of the GBS Guidebook and Checklist tool were distributed to participants in advance for review. During the Development Industry Workshop, the Project Team presented a brief presentation to reintroduce the project purpose, objectives, and timeline.

After the presentation, the Project Team facilitated an interactive discussion with participants using the virtual platform MURAL. The MURAL included the draft Performance Requirements and Metrics for each Impact Category. Participants were invited to provide their feedback and input by:

- Inputting their feedback directly into the MURAL;
- Providing comments and asking questions using the chat function in Teams; and
- Providing their comments verbally, which were recorded in MURAL by the Project Team.

Input received during the Development Industry Workshop and by participants up until and including May 8th, 2024 helped to inform refinements to the GBS.

Outcome(s)

Input received through the Development Industry Workshop was used to refine and further confirm the Performance Requirements and Metrics, specifically the appropriateness and suitability of Tier 1 versus Tier 2 Metrics.

3.1.6 Engage Hamilton Webpage and Surveys

Purpose

The purpose of the webpage and survey was to provide information to the public, such as the Draft Green Building Standards and staff reports and presentations, and obtain broad public feedback.

Date and Location

The webpage and surveys were launched on April 8, 2024. The survey was closed on May 7, 2024. The webpage can be found at <https://engage.hamilton.ca/green-building-standards>.

Participants

Approximately 675 people interacted with the webpage between April 8th, 2024, and May 8th, 2024. 123 participants completed the survey.

Tactics and Approaches

The webpage included a general introduction to the project, a status report on the GBS project, and a section on the City's commitment to public engagement. The webpage also included a project timeline, contact information for City staff as well as links to the Draft GBS, a recording of the Public Open House, and survey.

The survey questions asked participants to rate the Impact Categories, and provide comments for the Impact Categories and Performance Requirements.

Outcome(s)

Responses from the survey were used to support and validate the Impact Categories and Performance Requirements.

A majority of participants rated positive impacts on the natural environment as the most important outcome of the GBS. The Energy and Carbon Impact Category, followed by the Ecology and Biodiversity Impact Category, were seen as key to achieving that objective.

When given the opportunity to provide feedback, survey respondents had many suggestions for additional Performance Requirements, including but not limited to requiring apartments and commercial buildings to participate in recycling programs and preserving mature trees, among others. Some survey respondents had concerns around the potential of increased costs to construction, and the impact on affordability.

3.1.7 Public Open House

Purpose

The purpose of the Public Open House was to provide interested parties with an introduction to and overview of the draft GBS. It also provided an opportunity for interested parties to ask questions about

the draft GBS, including the Impact Categories, Performance Requirements, Metrics, and implementation considerations.

Date and Location

The Public Open House was hosted on the virtual platform Zoom on April 25th, 2024 from 6:00pm – 8:00pm.

Participants

Over 85 participants registered for the Public Open House, and over 58 participants attended.

Tactics and Approaches

The Public Open House was advertised on the Engage Hamilton webpage. Social media posts were distributed through the City's social media pages on LinkedIn, Facebook, Instagram and X (formerly Twitter) advertising the Public Open House and inviting interested parties to visit the project webpage (see **Figure 3-3**).

During the Public Open House, the Project Team presented an overview of the project to date, including the purpose and objectives of the GBS. The Project Team also provided a summary and overview of the Impact Categories and Performance Requirements, including an explanation of the relationship between the Performance Requirements and Tier 1 (mandatory) versus Tier 2 (voluntary) Metrics.

Following the presentation, the Project Team facilitated a question and answer period. Participants were invited to submit their questions through the "Q & A" function on Zoom, which were read and answered live by the Project Team. Participants were invited to submit follow up questions and comments to City staff, visit the Engage Hamilton webpage, and complete the online survey to provide additional input and feedback.

Outcome(s)

Input and feedback received through the Public Open House was used to update and finalize the GBS. The City also heard important input regarding implementation, which has been used to inform recommendations for implementation in this Report.



Figure 3-3: Post to the City's Instagram page advertising of the Public Open House.

3.2 Summary of What We Heard

The Project Team received detailed feedback throughout the course of the project. All input received has been reviewed, analyzed and used by the Project Team to inspire and inform the GBS. Importantly, this Report has identified where input and feedback from interested parties has been leveraged to inform the Impact Categories, Performance Requirements, and Metrics.

In addition to the detailed feedback received, the Project Team has summarized key findings and input received throughout the consultation and engagement process. These are summarized below:

1. **It is important that the GBS Metrics are aligned and coordinated with other City-led projects.** This should include, at a minimum, initiatives the City is leading to guide sustainable growth and development, such as the forthcoming Biodiversity Action Plan and Climate Action Strategy.
2. **The GBS should be inspired by standards for development in other municipalities and best practices for climate resilient and sustainable development.** At the same time, the GBS must be locally specific and realistically implementable by Hamilton's development community.
3. **The GBS must balance different priorities for various interested parties,** including the City, the development industry, community partners, and the public.
4. **The metrics must be realistic and achievable to advance the City's sustainability priorities while balancing continued growth and development that contributes to new housing opportunities and employment.** Some interested parties voiced concerns that the GBS should have been more ambitious. At the same time, builders and developers expressed that the GBS needs to be feasible. These and other important priorities must be balanced and considered in the GBS, with the understanding that the City is targeting to achieve net-zero emissions by 2050.
5. **There are many different environmental related priorities that may be advanced through the GBS,** including a focus on clean air and water, climate change adaptation, waste reduction, adaptive re-use, bird-friendly development, dark sky compliance, and drought tolerant and native plant species, among others.
6. **Incentivizing the GBS will be important to the success of implementation.** Incentives may be financial (e.g. financial grants through a Community Improvement Plan), or non-financial (e.g., recognition through award programs), and will be particularly important for the successful implementation of Tier 2 Metrics.
7. **Clarity, simplicity, and flexibility of the GBS is important for effective interpretation, administration, and implementation for both the City and the development industry.** Implementation of the GBS should be made simple and practical, through templates and guides to support developers navigate the process. Flexibility should be incorporated to prevent unnecessary review and documentation.
8. **The GBS should be periodically reviewed and updated to ensure it remains relevant and responsive to Hamilton's sustainability priorities.** The GBS will be an important implementation tool to help the City achieve multiple objectives. The City should commit to a regular review and update of the GBS to ensure it aligns with industry standards, best practices, comparable municipal trends, and policy tools available to the City.

4 IMPLEMENTATION CONSIDERATIONS

The GBS represents a tool for the City to implement various complimentary initiatives of the City to achieve the sustainability goals. Considering the GBS is aligned with multiple objectives identified by the City through various plans and strategies, including the Urban Hamilton Official Plan, the GBS plays an important role in guiding the development and evolution of Hamilton’s communities through a sustainability lens.

The Project Team has received significant input and feedback throughout the course of the project from interested parties regarding the GBS’ implementation. This section provides recommendations for the City to consider in order to successfully implement the GBS as well as options for the following themes, identified in Table 4-1 below.

Table 4-1: Key implementation opportunities and considerations for the GBS.

Recommendation	Summary
Proceed with phased implementation of the GBS	<p>Implement the GBS for one year, requiring all Site Plan and Plan of Subdivision applicants to complete the GBS, where applicable. After the one year period, review and evaluate the GBS (e.g., application review process, uptake of certain Metrics, etc.) to understand opportunities for adjustments to the technical elements or implementation process.</p> <p>Following review, identify and make adjustments as necessary to support continued implementation of the GBS by applicants and City staff.</p>
Implement the GBS through policy updates in the Urban Hamilton Official Plan	<p>Update relevant sections and policies in the Urban Hamilton Official Plan to clearly reference and identify the GBS as an important implementation tool to achieve the City’s vision and objectives. This includes necessary updates to implementation policies in the Urban Hamilton Official Plan to recognize the GBS as a document required for submission as part of a complete application.</p>
Align the GBS with Comprehensive Zoning By-law No. 05-200	<p>Consider opportunities to update the City’s Zoning By-law to implement elements of the GBS through building and performance standards enforced through the Zoning By-law, where feasible.</p>
Integrate the GBS within the City’s development application and review process	<p>Require completion of the GBS Checklist as part of a complete application and establish a formal process for City staff to receive, review, and approve the GBS Checklist and required documentation.</p>
Establishing incentives to support implementation	<p>Leverage tools available to the City through Provincial legislation to incentivize the GBS. The City may also choose to collaborate with external parties (e.g., utility providers) or apply for third-party grant programs. Non-financial incentives may also be provided to recognize development that achieves a certain level of performance.</p>
Explore educational, communication, and marketing opportunities	<p>Share materials and tools to market and educate interested parties about the GBS. Education for City staff and the development community will also be important and integral to the successful implementation of the GBS.</p>

4.1 Phased Application of the GBS

During engagement and consultation, the Project Team heard that there is a desire to phase or test application of the GBS prior to full implementation. On this basis, it is recommended that the City identify a period of transition to test the application of the GBS within the urban area of the City. The following considerations are noted in this regard:

- **Identify a specified period for phased implementation of the GBS.** The City may consider different options for scoped implementation to “test” application of the GBS through the development application process. It is recommended that the City pursue a time-based implementation period and begin with implementation of the GBS for a one-year period, after which the City can review and evaluate implementation and make adjustments to the GBS and implementation process accordingly. The City of Toronto undertook a similar approach for their Mass Timber Program.
- Case Study Example: City of Toronto**

In 2022, CreateTO initiated the **Mass Timber Pilot Program** to explore mass timber construction for the delivery of affordable housing projects. The program was also used to inform updates to the Toronto Green Standard. CreateTO reported back to the CreateTO Board of Directors in 2023 with a set of recommendations for implementation.
- **Establish transition provisions to clarify how the GBS may apply to applications currently in process, once fully implemented:** Concerns were raised by the development community about the applicability of the GBS, once implemented, to applications currently under review. For transparency, it is important that the City clearly identify a strategy for transition of applications currently under review, and at what stage the GBS applies to an application.
 - **Consider permitting flexibility in achieving all required metrics.** For example, if a development is deficient in meeting all mandatory Tier 1 Metrics in one Performance Requirement, the City may consider offsetting this requirement if the development exceeds minimum mandatory Metrics for a different Performance Requirement. This could provide more flexibility for applicants and allow requirements to be met in a more efficient and meaningful manner that better responds to the nature and scale of the development/uses being proposed.
 - **Leverage the transition period to further engage and consult with interested parties.** While the City is phasing in application of the GBS, the City is encouraged to further engage with interested parties. This should include City staff, the development industry, community groups and organizations, and the general public. This transition period provides the City with an opportunity to educate and inform interested parties about the GBS and further refine the process for implementation.
 - **During and after phased application of the GBS, report back to interested parties.** The City is encouraged to report back to interested parties during and after the one-year phased implementation period. This should be used as an opportunity to share feedback received and how it was used to inform implementation considerations, if applicable.

- **Establish a set of requirements that will be used to evaluate the success of the GBS following the one-year implementation period.** Using a pre-established set of criteria, evaluate the success of GBS implementation. This should include qualitative and quantitative criteria. For example, the City is encouraged to track the number of Tier 1 Metrics achieved, number of Tier 2 Metrics achieved, and the number of times a Metric was achieved. The City may also choose to receive input and feedback from City staff receiving and processing the GBS Checklist and materials as part of a complete application, as well as the development community. Based on the input and feedback received, the City is encouraged to modify the GBS Performance Requirements and Metrics, or aspects of the development review process.

4.2 Implementation through the Urban Hamilton Official Plan

The Urban Hamilton Official Plan (2023, as amended) (UHOP) establishes the principles, goals, objectives, and policies governing growth and development on a range of land use planning and related matters. The UHOP applies to the City's urban area, which is the centre for employment uses, community services, and residential neighbourhoods. It provides direction on land use planning matters and sets the stage for growth and development in Hamilton.

The Clean Air Partnership strongly recommends that at a minimum, municipalities interested in implementing standards for new development include language on these standards into the Official Plan through an amendment or update to the Official Plan. The UHOP includes many policies that relate to sustainable and green development. Notably, policy 3.7.3 directs the City to develop and implement a GBS program that includes a development review checklist to be used through the development approvals process.

The following recommendations provide the City with options to consider for integrating the GBS into the UHOP:

- Update Chapter F – Implementation to identify which new submission requirements will need to be included as part of a complete application.
- Update and revise policy 3.7.3 in Chapter B – Communities to explicitly reference the City's GBS program as an important implementation tool to achieve the Official Plan's objectives.
- Introduce new policy language that commits the City to regularly reviewing and updating the GBS.
- Consider updating policies 1.15.2 and 1.15.3 in Chapter F – Implementation to include stronger reference to the sustainability and/or green building initiatives led by the City through the development approval process.

Best Practice Example: City of Brampton

The City of Brampton's new Official Plan includes many policies that reference the **Sustainable New Communities Program**. Policies commit to regular review and updates, and set the stage for how the Sustainable New Communities Program will be used to encourage sustainable and resilient development.

- Identify and establish terms of reference for new studies and/or assessments that are not currently identified in the UHOP, to support implementation of the updated policies.

4.3 Alignment with Comprehensive Zoning By-law No. 05-200

Throughout the project, the City and the Project Team have identified the opportunity to integrate elements of the GBS into Comprehensive Zoning By-law No. 05-200 (herein referred to as the “Comprehensive Zoning By-law”), as appropriate, as a means to further advance the climate change, environmental protection, or energy related goals, objectives and targets of the GBS.

The Background Review Report identified preliminary opportunities and reference to sustainable development and design standards in the Comprehensive Zoning By-law. The Background Review Report also identified opportunities to potentially introduce permissions and regulations for various elements of the GBS for new development that could be implemented through the Comprehensive Zoning By-law.

The Comprehensive Zoning By-law is an important tool that can be leveraged to implement certain elements of the GBS. To leverage this opportunity, Table 4-2 identifies options to support implementation of the GBS Performance Requirements and Metrics, where appropriate, through the Comprehensive Zoning By-law.

Table 4-2: Opportunities for implementation through the Comprehensive Zoning By-law.

Impact Category	Performance Requirement	Implementation Opportunity (Comprehensive Zoning By-law No. 05-200)
Energy and Carbon	Electric Vehicle Charging Infrastructure	<ul style="list-style-type: none"> • By-law No. 24-052 introduced provisions and standards for electric vehicle parking and chargers to the current Comprehensive Zoning By-law. As a result, Section 5.6 of the City of Hamilton Zoning By-law establishes minimum electric vehicle parking requirements in accordance with the Minimum Electric Vehicle Parking Rate. All electric vehicle requirements are calculated on the basis of use.
Energy and Carbon	Electric Bicycle Charging Infrastructure	<ul style="list-style-type: none"> • The current Comprehensive Zoning By-law does not contain provisions for electric bicycle charging infrastructure. There is an opportunity to introduce minimum parking requirements for electric bicycle charging infrastructure in the Comprehensive Zoning By-law. • If provisions and standards are included, a definition for electric bicycle charging infrastructure should be added to the Comprehensive Zoning By-law.
Energy and Carbon	On-Site Renewables	<ul style="list-style-type: none"> • The current Comprehensive Zoning By-law defines “renewable energy systems” and “community energy plan”, both of which are contemplated as part of the On-Site Renewables Performance Requirements.

Impact Category	Performance Requirement	Implementation Opportunity (Comprehensive Zoning By-law No. 05-200)
Ecology and Biodiversity	Heat Island Effect	<ul style="list-style-type: none"> • The current Comprehensive Zoning By-law contains a definition for “green roof”. However, permissions and standards are not comprehensive. • There is an opportunity to identify permissions for green roofs in the Comprehensive Zoning By-law. • The City may require a certain percentage of landscaped open space to be in the form of a green roof. Alternatively, the definition of “landscaped area” may be revised to explicitly include a green roof. This may provide flexibility for the way in which minimum landscaped area requirements are achieved.
Ecology and Biodiversity	Native Species Planting	<ul style="list-style-type: none"> • To help support implementation of Ecology and Biodiversity Performance Requirements (specifically Ecology and Biodiversity), there is an opportunity for the City to consider revising the definition of “Landscaped Area” and/or “Landscaping” in the Comprehensive Zoning By-law. • The definition may be revised to refer to native or adapted species, as referenced in the GBS.
Community and Urban Design	Urban Agriculture	<ul style="list-style-type: none"> • The Comprehensive Zoning By-law defines “Urban Farm”, “Farm Produce/Product Stand (Urban)”, “Urban Farmers Market”, and “Community Garden”. These terms were introduced to the Comprehensive Zoning By-law through By-law 14-273. • These terms are closely aligned with GBS Performance Requirement and Metric for urban agriculture and garden space. Permissions for these uses are included in Section 4 of the Comprehensive Zoning By-law.
Community and Urban Design	Bicycle Facilities	<ul style="list-style-type: none"> • Through the City-led Zoning By-law Reform project, the City undertook a review and update of bicycle parking standards. As a result, Section 5.4 of the City of Hamilton Zoning By-law establishes minimum bicycle parking requirements in accordance with the Minimum Bicycle Parking Schedule. All bicycle parking requirements are required on the basis of units or floor area.

4.4 Integrating the GBS with the Application Process

As noted in Section 2 of this Report, the GBS is intended to apply to all site plan applications and plan of subdivisions within the City of Hamilton urban area. Compliance with the GBS is expected for all low-rise, mid-rise and high-rise residential, institutional, commercial and industrial uses. On this basis, it is imperative that applicants and City staff that have a role in the planning approvals process understand how the GBS will be integrated into the application approval process.

This section provides a set of recommendations to integrate the GBS into the City's application process. Recommendations are informed by input and feedback received throughout the course of the Project, specifically the Implementation Workshop.

Figure 6 below identifies high-level steps in the development application process and a general description about the role the applicant and the City may have in facilitating implementation of the GBS.

Best Practice Examples: The Clean Air Partnership

The Clean Air Partnership's Towards Low Carbon Communities resource has also provided integral guidance to recommendations included in this section. Refer to the document **Towards Low Carbon Communities: Creating Municipal Green Development Standards**.

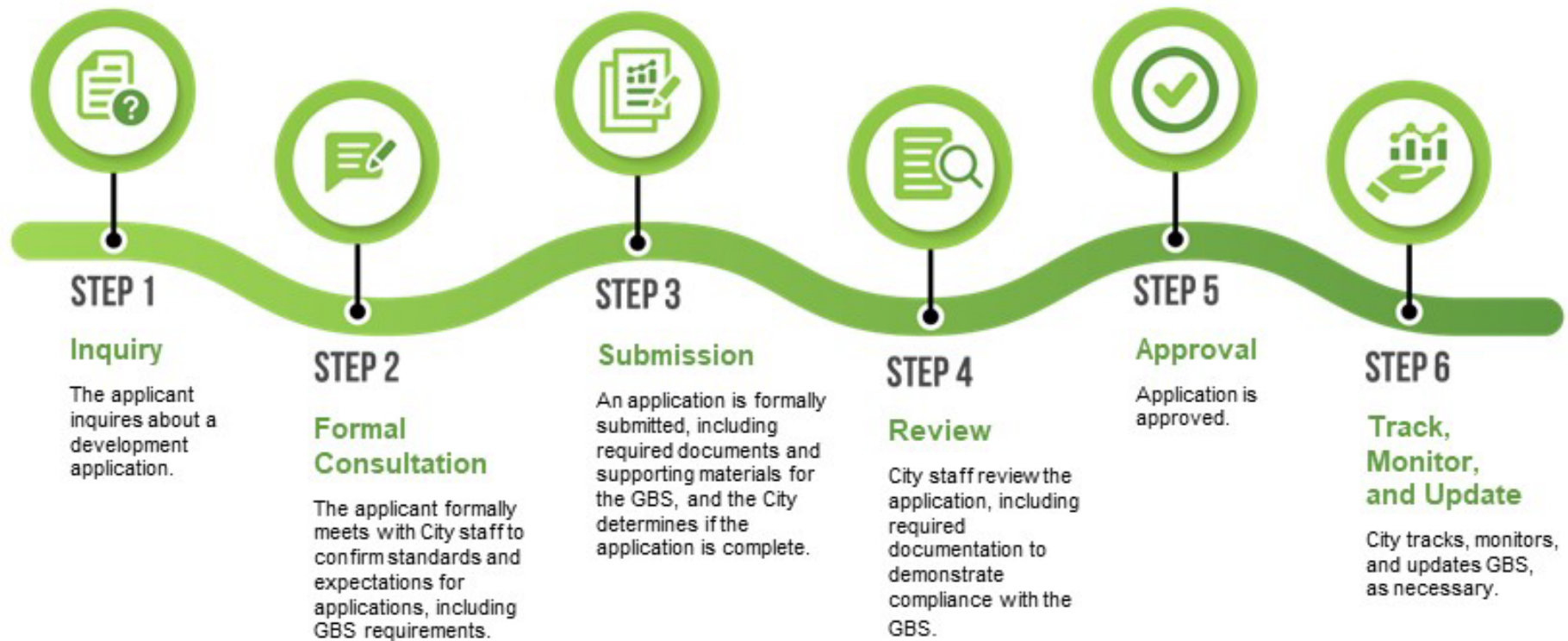


Figure 4-1: The application review process and alignment with submission and review of the GBS.

Table 4-3 provides additional information and recommendations for the City to consider in implementing the GBS through the application process.

Table 4-3: Recommendations for implementation of the GBS through the application submission process.

<p>Step 1 - Inquiry</p> <p>The applicant inquires about a development application.</p>
<ul style="list-style-type: none"> • Create a formal webpage for the GBS wherein interested parties (specifically interested applicants) can access and view the GBS Guidebook and Checklist. • Ensure staff, specifically those staff members who occupy the “Planner of the Day” role or conduct Formal Consultation meetings, understand the purpose and intent of the GBS, and the materials that are/will be available to applicants. It is important that the GBS is communicated to applicants early in the application process. • For applicant’s ease of reference, consider an amendment to Official Plan Chapter F – Implementation Table F.1.19.1 and Section 3.1 to add ‘Green Building Standards’ as a required study / material for specified applications.
<p>Step 2 – Formal Consultation</p> <p>The applicant may formally meet with City staff to confirm standards and expectations for applications, including GBS requirements (Due to changes through Bill. 185 to the formal consultation process, the City has updated the Official Plan policies for a complete application, which will be further updated to implement the GBS).</p>
<ul style="list-style-type: none"> • Identify a point person and/or a group of staff members who can coordinate successful completion and review of the GBS.
<p>Step 3 – Submission</p> <p>An application is formally submitted, including required documents and supporting materials for the GBS, and the City determines if the application is complete.</p>
<ul style="list-style-type: none"> • Identify who (whether an individual City staff member, a group of individuals, or the Planner of the Day) will determine the GBS Checklist Tool has been adequately completed as part of submission. • Note that for the GBS to be required as part of a complete application, amendment to Official Plan Chapter F – Implementation Table F.1.19.1 is required.
<p>Step 4 – Review</p> <p>City staff review the application, including required documentation to demonstrate compliance with the GBS.</p>
<ul style="list-style-type: none"> • Consider identifying an “internal review team” comprised of multi-disciplinary City staff members with expertise in a broad range of sustainability topics to review applications for alignment with multiple climate and sustainability related City priorities, including the GBS. City staff who are assigned to review the GBS, or specific elements of the GBS (e.g., an Impact Category or set of Performance Requirements) should be identified in internal processes so responsibilities are clearly delineated. • Explicitly identify gaps in internal subject matter expertise when considering ability to review documentation for compliance with GBS. For example, it is understood that the City may currently be challenged to review an Energy Model Report. To address this gap, the City may consider training staff to review this type of

who are trained and equipped with necessary tools to review Energy Model Reports. Third-party review for Energy Model Reports may be a suitable alternative, if they can be reviewed within the application review timelines required by the City.

- Identify City staff groups that will be responsible for reviewing each Impact Category, Performance Requirement and/or Metric to clearly delineate roles and responsibilities.

Step 5 – Approval

Application is approved.

- Identify a point person and/or an “internal review team” to approve and sign off on successful completion of GBS Guidebook and Checklist Tool.

Step 6 – Track, Monitor and Update

City tracks, monitors, and updates the GBS, as necessary.

- For post construction submission requirements, identify a process to track and verify submissions.
- Consider a phased application of the GBS over a one year period. Following implementation, perform a review of the GBS to identify opportunities to review and update the GBS.
- Develop a process for tracking implementation of the GBS to understand uptake of Performance Requirements and Metrics. The City is encouraged to track and monitor uptake of Tier 2 (optional) Metrics to help inform transition of Metrics from Tier 2 (optional) to Tier 1 (mandatory).

4.5 Incentivizing the GBS

Many municipalities recognize and utilize incentives as an important tool to facilitate implementation of green standards. Through consultation and engagement, the Project Team heard that incentives will be very important to the successful implementation of the GBS, specifically to encourage the implementation of Tier 2 requirements and higher performance standards. Table 4-4 below outlines examples of incentives for green and sustainable development available to municipalities through planning tools, and through other third-party organizations.

Based on what was heard through consultation and engagement, and research into options for incentives, the following recommendations are proposed for the City to consider:

- **Continue to explore to align the GBS with the City’s existing Community Improvement Plan(s) (CIP).** Alternatively, the City may explore the option of preparing a new CIP specifically for the GBS to direct funding towards building standards that go above and beyond Tier 1 Metrics.
- **The City may explore incentive options available through third-party organizations or other levels of government.** This could include obtaining other sources of funding for potential grant opportunities, or partnerships with non-government organizations to help with training, education or additional resources for the development community.
- **Share information about incentives (available through the City or external sources) on a webpage dedicated to the GBS.** The City of Toronto, for example, has a webpage dedicated to environmental grants and incentives, with direct links to and an explanation of each opportunity.

Table 4-4: Examples of incentives for green and sustainable building and development.

Municipality / Organization	Program	Incentive
City of Toronto	Eco-Roof Program	<ul style="list-style-type: none"> • The Eco-roof program applies to new and existing residential, industrial, commercial and institutional development with a gross floor area (GFA) less than 2,000 m². • The incentive offers \$100/m² installed for green roof, or \$5/m² installed for cool roof with new membrane.
Town of Caledon	Development Charge Exceptions – Green Development Charge Discount	<ul style="list-style-type: none"> • The Development Charge Exceptions – Green Development Charge Discount applies to new commercial and industrial buildings. • The Town offers a discount of five to 27.5%, depending on the sustainability measures achieved in new development.
City of Kingston	Green Standard Community Improvement Plan	<ul style="list-style-type: none"> • The City of Kingston’s Green Standard Community Improvement Plan (CIP) applies to multi-unit residential, subdivisions, commercial offices, and residential mixed-use development. • Through the CIP, applicants are eligible to receive a cash rebate, up to 25% of incremental capital cost, to a maximum of \$1,000,000 per project, depending on performance level.
Enbridge Gas	Savings by Design Commercial & Multi-Residential	<ul style="list-style-type: none"> • Enbridge offers up to \$60,000 in performance incentives for new commercial and multi-unit residential projects. • Applicants are required to participate in a program with Enbridge to integrate and strategize sustainable design features into the design of commercial builds. • As part of this program, an energy model is developed, as well as a final report summarizing options discussed and recommendations for sustainability priorities.
Enbridge Gas	Commercial Airtightness Testing Program	<ul style="list-style-type: none"> • Enbridge Gas provides incentives up to \$45,000 for testing and to resolve any issues discovered in the process, to help ensure intended performance standards are achieved. • The program is available for commercial and multi-residential builders and developers. • Enbridge Gas also offers free technical and hands-on training for industry professionals as part of the Commercial Airtightness Testing program.

Municipality / Organization	Program	Incentive
Federation of Canadian Municipalities (FCM)	Green Municipal Fund (GMF)	<ul style="list-style-type: none"> • The FCM GMF includes a suite of incentives available to municipalities and their project partners. Several grants are available for the construction of new sustainable municipal and community buildings. • The FCM GMF also includes grants for community energy projects and local energy generation, which may be pursued by the City in collaboration with local community partners.

4.6 Awareness, Training, and Education

Through consultation and engagement, the Project Team heard that education, awareness, and training will be important for the successful implementation of the GBS. Prior to formal implementation, the City is encouraged to prepare communications materials to communicate key objectives, details, and expectations about the GBS. The following recommendations and examples provide the City with options to consider for training, educating and marketing the GBS to a wide range of interested parties:

- **Coduct training with staff and applicants.** It is anticipated that City staff will require training to understand how to interpret and implement the GBS. During phased implementation of the GBS, it is recommended that City staff are trained as early as possible. Training should include a description of the rationale, purpose and value of the GBS. It should also be specifically geared and tailored to review of the GBS against different types of applications to ensure City staff are familiar with the Metrics. As part of implementation, it is recommended that multiple training sessions are hosted to account for turnover in City staff, and to report back on performance and implementation of the GBS.
- **Consider implementing an awareness campaign to share information about the GBS.** This may include social media posts to the City’s social media pages, short, informational videos posted to the City’s webpage and YouTube, and pamphlets or postcards distributed at public events or shared as part of City correspondence with the public. These materials should use common language to be accessible for a wide range of interested parties.

Best Practice Examples: City of Toronto and City of Mississauga

The City of Toronto and City of Mississauga have and continue to promote their respective programs for sustainable development. Figure 7 and Figure 8 illustrate how these municipalities are leveraging graphics and common language for their programs.



cityofto • Follow

cityofto Choose a Better Future. Choose a Toronto Green Standard home or office.

Since 2010, new development in Toronto has been required to meet the Toronto Green Standard. The Toronto Green Standard is a minimum set of sustainable performance measures to reduce energy and greenhouse gas emissions, manage stormwater, grow healthy trees, and support biodiversity by installing bird-friendly glass and planting diverse native species.

Developers who go above and beyond these minimums are eligible for a refund on development charges when they have been verified to have met more demanding performance

76 likes
October 12, 2023

Figure 4-2: An example of a social media post from the City of Toronto's Instagram page promoting the Toronto Green Standard.

The Value of Green Buildings

- 1. Green Roofs**
Vegetated roofs can assist in stormwater management, improve air quality, provide greater insulation, extend the natural environment and reduce GHG emissions.
- 2. Greenhouse Gas Reductions**
Green Buildings emit far fewer GHG's.
- 3. Energy Systems**
Solar panels, wind generation and geo-exchange systems reduce or remove reliance on the energy grid.
- 4. Energy Savings**
Green buildings require less energy, which lowers utility costs.
- 5. Heat Island Effect**
Light coloured paving and white roofs can reflect instead of absorb solar energy and cool outside air in hot weather
- 6. Less Air Pollution**
Green buildings produce less air pollution than a typical building. An all-electric building could produce no air pollution at all.
- 7. Temperature Comfort**
A well insulated building keeps indoor temperatures comfortable.
- 8. Biodiverse Landscaping**
Drought tolerant, hybrid shade trees, native species and pollinator flowers provide many environmental benefits and help biodiversity.
- 9. Market Value**
Green buildings are highly sought after and retain market value longer than typical buildings.
- 10. Low-Carbon Travel Support**
Proximity to public transit, trail systems, electric vehicle charging stations and secure bicycle storage makes low-carbon travel more convenient.
- 11. Power Outage Resiliency**
Renewable energy and energy storage can provide backup energy sources.
- 12. Less Noise**
Greater insulation and a tighter exterior building envelope results in less noise entering the building.

Get involved at yoursay.mississauga.ca/green-standards-2023

MISSISSAUGA

Figure 4-3 (left): The City of Mississauga is in the process of updating their green development standards. The City has posted about the value of green buildings in a graphic friendly and easy-to-read format, with a link to get involved in the project.

- **Celebrate and promote existing and/or new development.** Some municipalities have developed a recognition program for new development that implements sustainability measures. The program may be directly linked to the GBS, or a standalone program that recognizes development for achieving multiple sustainability objectives. For the City, this may be tied to the Urban Design and Architecture Awards, which is an existing program that recognizes and celebrates excellence in the urban environment.
- **Identify and post Frequently Asked Questions (FAQs) on the City and/or project webpage.** Many municipalities with green or sustainable building standards include a dedicated section for FAQs on their project webpages. Questions posted to the FAQ page range from how the standard works to what types of applications trigger the standard. Responses are often short and concise, with links to additional information, if required, and contact information for questions.

Best Practice Examples: City of Brampton and Town of Whitby

The City of Brampton's **Sustainable New Communities Program webpage**, and the Town of Whitby's **Whitby Green Standard webpage** both include an FAQ section with simple and concise questions and answers about their respective programs.
- **The City may consider identifying “champions” for the GBS.** Champions may be staff members or Councillors who are passionate about or interested in supporting and celebrating the GBS. An engaged Council is key to ensuring a supportive environment for implementation of the GBS. The City may also consider partnership with community organizations or conservation groups to help share and disseminate knowledge about the GBS. Establishing partnerships with these interested parties can help to built trust and knowledge about the GBS.



APPENDIX A

Guidebook



City of Hamilton Green Building Standards **GUIDEBOOK**



INTRODUCTION

Green building standards are an essential tool used by municipalities to guide new development in a manner that integrates economic, social, and environmental sustainability principles. The City of Hamilton has implemented its own Green Building Standards to elevate the sustainability performance of new developments and ensure alignment with sustainable building and development best practices.

On March 27, 2019, Hamilton City Council declared a Climate Change Emergency, reinforcing the city's commitment to achieving net-zero greenhouse gas emissions by 2050 and preparing for the unavoidable impacts of climate change. Key milestones leading up to the City Council's Climate Emergency Declaration can be found in Figure 1 below. This declaration has shaped the Green Building Standards, aligning them with the community-wide net-zero carbon goals.

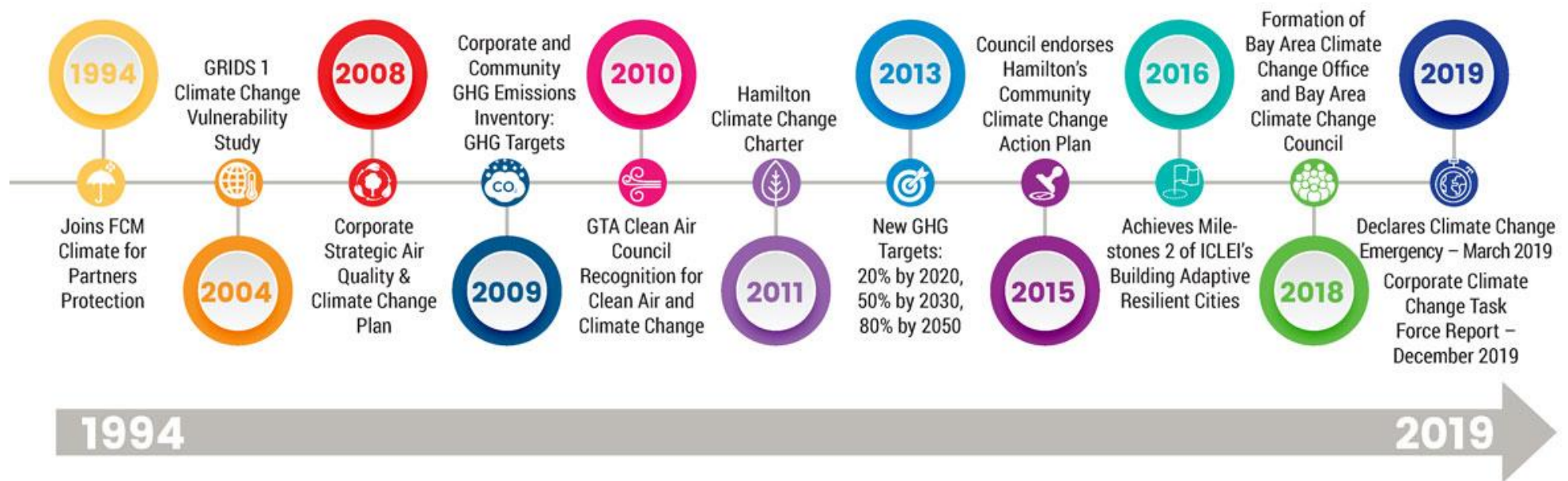


Figure 1: City of Hamilton's Climate Change Work (1994 - 2019)

Green Building Standards, used across Canada, guide professionals in achieving high sustainability standards for new urban buildings. These standards help evaluate new development applications based on sustainability, energy efficiency, and climate resilience.

The City of Hamilton's Green Building Standards (GBS) align with the city's current climate action initiatives, targets, and policies, and are informed by relevant provincial and municipal land use planning, sustainability, and climate action goals. The GBS is designed to be beneficial for the City's environmental goals in promoting sustainable development and enhancing community resilience and will be regularly evaluated and updated to ensure it stays effective and relevant in addressing evolving climate and sustainability challenges.

APPLICATION OF GREEN BUILDING STANDARDS

Applicable Applications

The Green Building Standards (GBS) is intended to apply to the following development applications within the City of Hamilton urban area:

- Site Plan
- Draft Plan of Subdivision

Development Types

The GBS applies to the Part 3 and Part 9 building types which are described below. For clarity, applicants must refer to the in-effect Official Plan and Zoning By-law at the time of application to confirm how the GBS may apply to the development proposal.

Part 3 Buildings

This refers to all mid to high-rise residential and all non-residential developments and refers to buildings that are subject to Part 3 of Division B of the Ontario Building Code, per Article 1.1.2 O.Reg. 332/12: Building Code. This includes buildings exceeding 600 m² in building area or exceeding three storeys in height. These include the following:

- **Medium and High-Density Residential Development:** High and medium-density residential uses are characterized in the Urban Hamilton Official Plan as multiple dwelling forms containing five or more dwelling units. Examples include block townhouse dwellings, stacked townhouse dwellings, street townhouse dwellings fronting onto a condominium road, and multiple dwellings.
- **Mixed-Use Development:** A development or area made up of mixed land uses either in the same building or in separate buildings. The mix of land uses may include commercial, industrial or institutional uses but must include residential units (*defined in the [UHOP](#)*).
- **Institutional Development:** A development or area comprised of public or non-public institutions in individual buildings or groups of buildings. The uses may include but are not limited to educational facilities, religious facilities, cultural facilities, health care facilities, or daycare facilities (*not defined in the [UHOP](#), but a land use designation with permitted uses, development policies, etc. in Section E.6.0.*).
- **Industrial Development:** A development or area that permits for a range of employment activity, including offices, business parks, and industrial uses including but not limited to manufacturing and warehousing. (*Employment Areas are defined in the [UHOP](#), the description is also based on policies for the Employment Area – Industrial Land designation in Section E.5.0.*)
- **Commercial Development:** A development or area that are primarily located in mixed-use areas and accommodates a range of uses, including but not limited to retail, restaurants, and other similar service commercial uses (*not defined in the [UHOP](#), but described based in policies for the Commercial and Mixed Use Designations in Section E.4.0.*)

APPLICATION OF GREEN BUILDING STANDARDS

Part 9 Buildings

This refers to low-rise residential developments and refers to buildings that are subject to Part 9 of Division B of the Ontario Building Code, per Article 1.1.2 O.Reg. 332/12: Building Code. This includes buildings of three or fewer storeys in height or with a building area not exceeding 600 m². These include:

- **Low-Density Residential Development:** Low-density residential uses generally include single-detached, semi-detached, duplex, triplex, fourplex, and street townhouse dwellings.

Application Process

The GBS is designed to be integrated into the City of Hamilton's existing development application process. Figure 2 below outlines the development application process steps, including GBS submission requirements and review procedures.

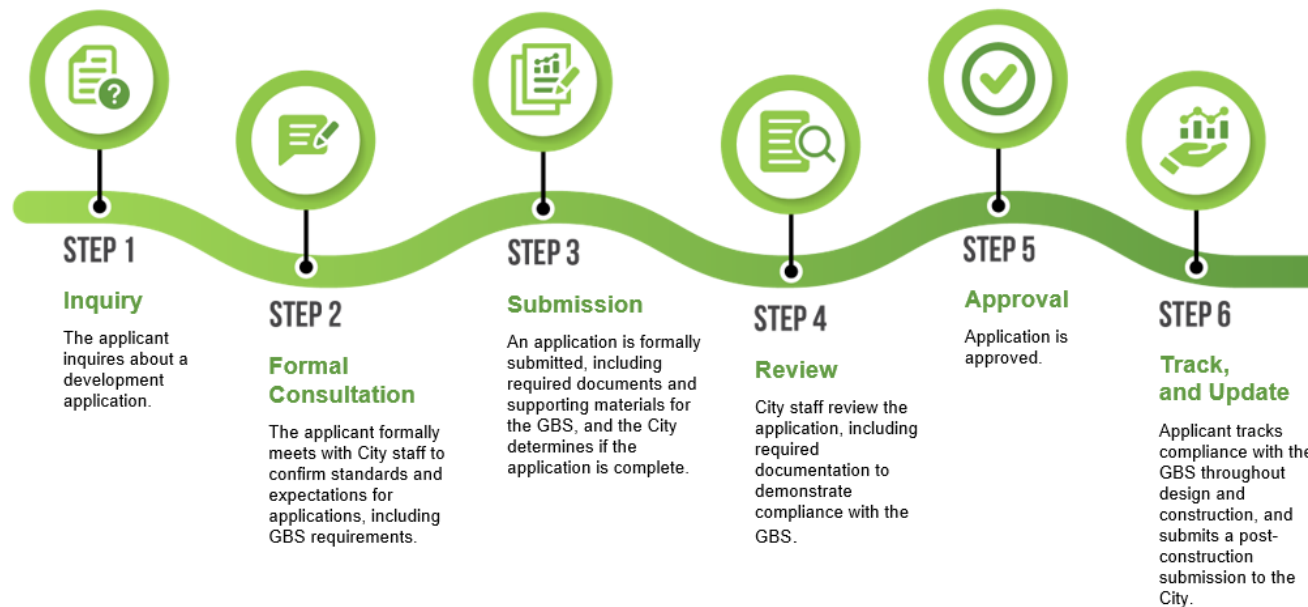


Figure 2: Development Application Process

IMPACT CATEGORIES

The GBS comprises five (5) Impact Categories, each focusing on a sustainability concept relevant to the City of Hamilton's sustainability and climate goals and objectives are described below:



Energy and Carbon

Focuses on improving energy performance and reducing carbon emissions during building operations and links greenhouse gas (GHG) reduction goals with energy efficiency, highlighting their role in eco-friendly building practices. Refer to [pages 7 to 17](#) of this document for the Energy and Carbon Impact Category.



Ecology and Biodiversity

Focuses on the preservation, restoration, and enhancement of the natural environment within the development area. Refer to [pages 19 to 22](#) of this document for the Ecology and Biodiversity Impact Category.



Water

Focuses on reducing potable water use for indoor and outdoor water uses, water metering, as well as stormwater management. Refer to [pages 24 to 26](#) of this document for the Water Impact Category.



Waste Management and Materials

Focuses on reducing waste generation during construction and the operational phases of development. Reducing waste can contribute to the reuse of existing materials and decrease demand for raw materials. Refer to [pages 28 to 30](#) of this document for the Waste Management and Materials Impact Category.



Community and Urban Design

Focuses on the design elements that promote a sense of place in the community by emphasizing the importance of preserving heritage and cultural features, raising awareness of local food production, promoting healthy practices and inclusion, as well as educating residents on sustainability features in their community and ultimately creating communities that are healthy and resilient. Refer to [pages 32 to 37](#) of this document for the Community and Urban Design Impact Category.

STRUCTURE OF THE GBS

Outlined within each of the Impact Categories identified above are a number of Performance Requirements that support the intent of the Impact Category. Each Performance Requirement will have one or more Metric that quantifies or qualifies achievement.

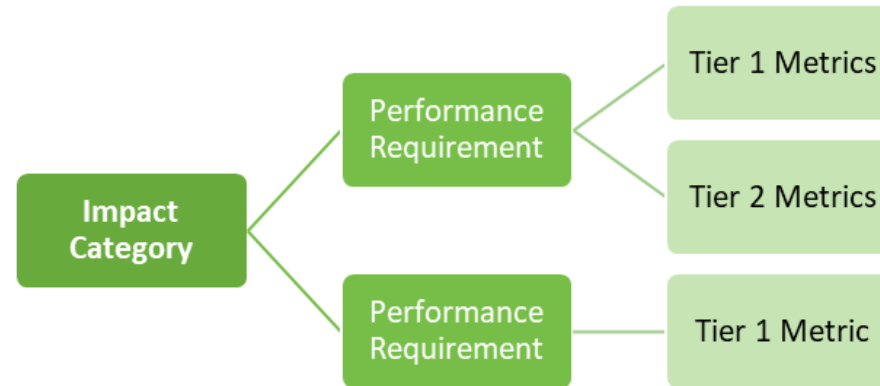


Figure 3: GBS Structure

Metrics are classified as **Tier 1**, which is mandatory for all applicable development applications, or **Tier 2**, which are currently optional.

- **Tier 1** Metrics mandate a minimum level of sustainability performance for all new development in the urban area subject to the applicable Planning Act application in the City of Hamilton and support the achievement of municipal sustainability goals and objectives. The Tier 1 Metrics align with the related City of Hamilton by-laws, guidelines, and strategies.
- **Tier 2** Metrics allow applicants to demonstrate an enhanced level of sustainability performance. Future versions of the GBS may consider adopting current Tier 2 Metrics as Tier 1 mandatory requirements to drive further sustainability performance.

For each Tier 1 and Tier 2 metric, applicants must provide documentation demonstrating compliance during their Site Plan Application or Draft Plan of Subdivision submission. In some cases, additional documentation is required post-construction, particularly when the relevant documentation is not available at the Site Plan Application submission stage. Several Tier 2 specifically require compliance documentation to be submitted only after construction is completed. This ensures that all necessary compliance information is thoroughly reviewed and verified by the City.

Further details on each Impact Category, Performance Requirement and Metric can be found in this Guidebook. Details and resources can be found in the Details column for each Performance Requirement.

Additional relevant resources not linked in this document may be available to support in demonstrating compliance with the GBS. Refer to the City of Hamilton website for the latest information.

ENERGY AND CARBON

This Impact Category focuses on improving energy performance and reducing carbon emissions during building operations. This Impact Category links greenhouse gas (GHG) reduction goals with energy efficiency, highlighting their role in eco-friendly building practices. By setting strict benchmarks for energy use, establishing goals for operational efficiency, encouraging the use of renewable energy and conducting embodied carbon assessment, this category aims to lessen buildings' environmental impact.

PERFORMANCE REQUIREMENTS

- EC1 Energy Performance
- EC2 Embodied Carbon
- EC3 Refrigerant Leakage
- EC4 Building Resilience
- EC5 On-Site Renewables
- EC6 District Energy
- EC7 Building Systems Commissioning
- EC8 Air Tightness Testing
- EC9 Energy Metering
- EC10 Benchmarking and Reporting
- EC11 Electric Vehicle Charging Infrastructure
- EC12 Electric Bicycle Charging Infrastructure



EC1 ENERGY PERFORMANCE

Intent: Promote energy-efficient buildings that lower operating costs, reduce greenhouse gas emissions, and improve building resilience.

Item #	Tier	Applicability	Metrics	Documentation	Details
EC1.1	Tier 1	Part 9	<ul style="list-style-type: none"> Design, construct, and label the building(s) to meet the ENERGY STAR® for New Homes¹, version 17.1 or R-2000 requirements^{1,2,3}. 	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> A Letter of Commitment signed by a qualified professional (Architect, Electrical Engineer, or Mechanical Engineer) and the owner/developer/builder that includes confirmation that the requirements of this metric will be met. <p>Post Construction Submission</p> <ul style="list-style-type: none"> Confirmation of ENERGY STAR rating by a qualified professional (e.g. Energy modeller). 	<ol style="list-style-type: none"> The ENERGY STAR® for New Homes Standard is an initiative designed to encourage energy-efficient construction in new housing, which helps reduce greenhouse gas emissions. The Standard sets out requirements that enable new homes to be approximately 20% more energy efficient than those built to the Provincial or National Building Code. Service Organizations are licensed by NRCan to deliver ENERGY STAR® qualified home labels or R-2000 certification. For a list of authorized service organizations see Natural Resources Canada. Certified Energy Advisors are independent contractors licensed by NRCan who perform the testing and final inspection and report. They submit their report documentation for compliance to the NRCan Authorized Service Organization.
EC1.2	Tier 2	Part 9	<ul style="list-style-type: none"> Design the building(s) to meet CHBA Net Zero Home Labelling Program⁴ or Passive House Classic Standard⁵. 	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> Confirmation of registration in the CHBA Program or Passive House Standard. <p>Post Construction</p> <ul style="list-style-type: none"> A Letter of Certification signed by an accredited professional (Architect, Electrical Engineer, or Mechanical Engineer) post-construction that the metric requirements have been implemented and verified. 	<ol style="list-style-type: none"> ENERGY STAR® for New Homes (ESNH) Standard evaluations are conducted by Certified NRCan-licensed Energy Advisors following either a performance or a prescriptive approach. For the performance approach, use the HOT2000 software v.10.51 specified in the version of the Standard you are using. For the prescriptive approach, evaluations are conducted using the BOP (Builder Option Package). CHBA Qualified Net Zero Homes are defined as homes that produce as much clean energy as they consume annually, using on-site renewable energy. Passive House Standards represent a stringent, voluntary criterion for enhancing a building's energy efficiency. These standards facilitate the creation of ultra-low energy structures that demand minimal energy for both heating and cooling purposes.

Item #	Tier	Applicability	Metrics	Documentation	Details																				
EC1.3	Tier 1	Part 3	<ul style="list-style-type: none"> Using whole-building energy modelling, demonstrate an annual Total Energy Use Intensity (TEUI), Thermal Energy Demand Intensity (TEDI), and GHG Emission Intensity (GHGI) that meets the applicable performance limits^{1,2,3}. <table border="1"> <thead> <tr> <th>Building Type</th> <th>TEUI (kWh/m²/yr.)</th> <th>TEDI (50 kWh/m²/yr.)</th> <th>GHGI (kgCO₂/m²/yr.)</th> </tr> </thead> <tbody> <tr> <td>MURB (≥ 6 Storeys)</td> <td>135</td> <td>50</td> <td>15</td> </tr> <tr> <td>MURB (≤ 6 Storeys)</td> <td>130</td> <td>40</td> <td>15</td> </tr> <tr> <td>Commercial Office</td> <td>130</td> <td>30</td> <td>15</td> </tr> <tr> <td>Commercial Retail</td> <td>120</td> <td>40</td> <td>10</td> </tr> </tbody> </table> <ul style="list-style-type: none"> For all other Part 3 buildings: develop a whole-building energy model, and design and construct the building to meet the National Energy Code of Canada for Buildings (NECB) 2020⁴ Tier 1. 	Building Type	TEUI (kWh/m ² /yr.)	TEDI (50 kWh/m ² /yr.)	GHGI (kgCO ₂ /m ² /yr.)	MURB (≥ 6 Storeys)	135	50	15	MURB (≤ 6 Storeys)	130	40	15	Commercial Office	130	30	15	Commercial Retail	120	40	10	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> Energy Model Report summarizing key modelling inputs, outputs, and assumptions, signed by a licensed professional (Energy Modeller), and demonstrating compliance with the applicable target³. 	<ol style="list-style-type: none"> Identify the applicable building archetype and meet the archetype-specific performance limits. Mixed use buildings can apply a weighted average of the applicable performance limits. For guidance on calculating TEUI, TEDI, and GHGI, refer to the City of Toronto's Energy Modelling Guidelines Version 4. For guidance on submission requirements, refer to the City of Toronto's Energy Efficiency Report Submission & Modelling Guidelines. Applicable to building types that do not apply to any of the building archetypes listed above. Refer to the National Energy Code of Canada for Buildings (NECB) 2020 CAGBC Zero Carbon Building-Design Certification is an acceptable alternative compliance for archetype and non-archetype buildings. Zero Carbon Building-Performance Certification is encouraged to demonstrate continued net zero performance.
Building Type	TEUI (kWh/m ² /yr.)	TEDI (50 kWh/m ² /yr.)	GHGI (kgCO ₂ /m ² /yr.)																						
MURB (≥ 6 Storeys)	135	50	15																						
MURB (≤ 6 Storeys)	130	40	15																						
Commercial Office	130	30	15																						
Commercial Retail	120	40	10																						
EC1.4	Tier 2	Part 3	<ul style="list-style-type: none"> Using whole-building energy modelling, demonstrate an annual Total Energy Use Intensity (TEUI), Thermal Energy Demand Intensity (TEDI), and GHG Emission Intensity (GHGI) performance limits^{1,2,3}. <table border="1"> <thead> <tr> <th>Building Type</th> <th>TEUI (kWh/m²/yr.)</th> <th>TEDI (50 kWh/m²/yr.)</th> <th>GHGI (kgCO₂/m²/yr.)</th> </tr> </thead> <tbody> <tr> <td>MURB (≥ 6 Storeys)</td> <td>100</td> <td>30</td> <td>10</td> </tr> <tr> <td>MURB (≤ 6 Storeys)</td> <td>100</td> <td>25</td> <td>10</td> </tr> <tr> <td>Commercial Office</td> <td>100</td> <td>22</td> <td>8</td> </tr> <tr> <td>Commercial Retail</td> <td>90</td> <td>25</td> <td>5</td> </tr> </tbody> </table> <ul style="list-style-type: none"> For all other Part 3 buildings: Develop a whole-building energy model, and design and construct the building to meet the National Energy Code of Canada for Buildings (NECB) 2020⁴ Tier 2. Alternative Compliance Path: Achieve Zero Carbon Building (ZCB) Design Standard Certification^{4,5,6}. 	Building Type	TEUI (kWh/m ² /yr.)	TEDI (50 kWh/m ² /yr.)	GHGI (kgCO ₂ /m ² /yr.)	MURB (≥ 6 Storeys)	100	30	10	MURB (≤ 6 Storeys)	100	25	10	Commercial Office	100	22	8	Commercial Retail	90	25	5	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> Energy Model Report summarizing key modelling inputs, outputs, and assumptions, signed by a licensed professional (Energy Modeller), and demonstrating compliance with the applicable target³. For ZCB ACP only: Confirmation of registration for ZCB-Design Standard certification. <p>Post Construction Submission</p> <ul style="list-style-type: none"> Energy Modelling Report or other documentation demonstrating compliance with the targeted standard summarizing key modelling inputs, outputs, and assumptions, signed by a licensed professional. Updated Energy Model Report³. For ZCB ACP only: CAGBC ZCB-Design Standard certification and complete workbook. 	
Building Type	TEUI (kWh/m ² /yr.)	TEDI (50 kWh/m ² /yr.)	GHGI (kgCO ₂ /m ² /yr.)																						
MURB (≥ 6 Storeys)	100	30	10																						
MURB (≤ 6 Storeys)	100	25	10																						
Commercial Office	100	22	8																						
Commercial Retail	90	25	5																						

EC2 EMBODIED CARBON

Intent: Promote embodied carbon reductions to reduce total life cycle carbon emissions.

Item #	Tier	Applicability	Metrics	Documentation	Details
EC2.1	Tier 1	Part 9	<ul style="list-style-type: none"> Conduct a Materials Emissions Assessment using BEAM (Building Emissions Accounting for Materials tool), or an equivalent tool¹, to measure A1-A3, stage emissions for all structural, enclosure, and major finishes (cladding, flooring, ceilings, interior wall sheathing). 	Site Plan Application Submission <ul style="list-style-type: none"> An Embodied Carbon report declaring the materials that are anticipated to be used and the estimated total embodied carbon emissions of these materials. 	<ol style="list-style-type: none"> Examples of acceptable lifecycle assessment software for low-rise residential buildings include: BEAM and NRCAN MC2. Refer to the current version of the Zero Carbon Building Standard for further guidance on Embodied Carbon assessments. Examples of acceptable lifecycle assessment software include: Athena Impact Estimator for Buildings Life Cycle Assessment (LCA) and OneClick LCA. Refer to the Zero Carbon Building v3 Guidebook Appendix I for guidance on preparing a Baseline.
EC2.2	Tier 1	Part 3	<ul style="list-style-type: none"> Conduct a whole building life cycle assessment (LCA) of the building's structure and envelope in accordance with the CaGBC Zero Carbon Building Standard v3 methodology^{2,3}. Report embodied carbon for the following life cycle stages: A1-A5, B1-B5, and C1-C4. 		
EC2.3	Tier 2	All	<ul style="list-style-type: none"> Demonstrate a minimum 5% reduction in embodied carbon compared to a baseline building⁴. 		

EC3 REFRIGERANT LEAKAGE

Intent: Promote awareness and reporting of refrigerant leakage in HVAC equipment to support total carbon reductions.

Item #	Tier	Applicability	Metrics	Documentation	Details
EC3.1	Tier 1	Part 3	<ul style="list-style-type: none"> Develop a Refrigerant Leakage Plan describing the ongoing refrigerant leakage tracking process and corrective action plan to address refrigerant leaks should they occur in any base building HVAC systems. The Plan should list the total quantity, type, and the Global Warming Potential (GWP) of each refrigerant contained in HVAC systems with a capacity greater than 19 kW (5.4 tons)^{1,2}. 	Site Plan Application Submission <ul style="list-style-type: none"> Provide a Letter of Commitment signed by a qualified professional (Mechanical Engineer) and the owner/developer/builder that includes confirmation that the requirements of this metric will be met. Post Construction Submission <ul style="list-style-type: none"> Refrigerant Leakage Plan. 	<ol style="list-style-type: none"> Refer to the current version of the Zero Carbon Building - Performance Standard for further guidance on refrigerant leakage. Refrigerants that do not have a GWP do not need to be reported.

EC4 BUILDING RESILIENCE

Intent: Encourage back-up power to essential building systems and refuge area for occupants during power failures resulting from extreme weather events.

Item #	Tier	Applicability	Metrics	Documentation	Details
EC4.1	Tier 2	Part 3	<ul style="list-style-type: none"> MHR Residential only: Provide a refuge area with heating, cooling, lighting, potable water. Provide back-up power to essential building systems for 72 hours^{1,2,3,4,5}. 	<p>Post Construction Submission</p> <ul style="list-style-type: none"> Drawings, plans, or other documentation demonstrating that the project incorporates resilient measures. 	<ol style="list-style-type: none"> Ensure power is provided to the refuge area, building security systems, domestic water pumps, sump pumps, at least one elevator, boilers, and hot water pumps to enable access and egress and essential building functions during a prolonged power outage. A refuge area should be a minimum size of 93 sq.m. and/or 0.5 sq.m. per occupant, and may act as building amenity space during normal operations. This requirement applies to multi-unit residential high-rise buildings that contain central amenity, lobby or gym space, to be able to act as a temporary shelter for vulnerable residents of the building. Common refuge areas are temporarily shared, lit spaces where vulnerable residents can gather to stay warm or cool, charge cell phones and access the internet, safely store medicine, refrigerate basic food necessities, access potable water and toilets, and perhaps prepare food. It is recommended to provide back-up power using a low or no-carbon form of back-up power. Refer to the City of Toronto Minimum Backup Power Guidelines for MURBs, Voluntary Performance Standards for Existing and New Buildings (2016) for guidance.

EC5 ON-SITE RENEWABLES

Intent: Encourage cost-effective renewable energy solutions for climate change mitigation and boost local renewable energy adoption to reduce on-site carbon footprint.

Item #	Tier	Applicability	Metrics	Documentation	Details
EC5.1	Tier 1	Part 9	Plan of Subdivision only: Complete a Community Energy Plan demonstrating energy emissions and resiliency targets on a community scale ⁶ .	Plan of Subdivision Submission <ul style="list-style-type: none"> Provide a Community Energy Plan 	<ol style="list-style-type: none"> Strategies to design a building for solar readiness may include the following: <ul style="list-style-type: none"> Designate an area of the roof for future solar PV and/or solar thermal. Install one or two conduits from the roof to the main electrical or mechanical room (size of conduit to be determined based on maximum potential solar PV or solar thermal system size). Ensure that the building structure has adequate structural capacity to accommodate future installation of renewable energy systems. Ensure that sufficient area is allocated for the future installation of renewable energy systems. Designate a 2x2 meter wall area in the electrical and mechanical rooms for future solar electrical/thermal equipment controls and connections (e.g. meters, monitors). Where possible place the HVAC or other rooftop equipment on the north side of the roof to prevent future shading. Consult with NRCan Solar Ready Guidelines for more guidance on solar readiness, or to access a Solar Readiness Checklist. Also, consult the National Renewable Energy Laboratory's Solar Ready Buildings Planning Guide for additional considerations for PV-ready provisions. Promotion of solar PV and renewables aligns with the City of Hamilton's Climate Action Strategy, specifically the target for all new homes to have 30% annual load coverage by solar PV by 2031 and the target for all new commercial buildings to include rooftop solar PV panels by 2026.
EC5.2	Tier 1	All	<ul style="list-style-type: none"> Design all new buildings for solar readiness¹. Where applicable, include an opt-in for new owners to install solar PV or thermal systems at the new owner's expense^{1,2,3,4}. 	Site Plan Application Submission <ul style="list-style-type: none"> Drawings, plans, specifications, or other documentation demonstrating that project is solar-ready. 	
EC5.3	Tier 2	Part 9	<ul style="list-style-type: none"> Design and install on-site renewable energy systems to supply at least 10% of the building's total energy load from one or a combination of energy source(s)^{3,4,5}. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> Design and install on-site renewable energy systems to supply at least 20% of the building's total energy load from geo-exchange (geothermal or ground source heat pumps)⁴. 	Site Plan Application Submission <ul style="list-style-type: none"> Drawings, plans, specifications, or other documentation demonstrating the project's on-site renewable sources. Energy Modelling Report or other documentation demonstrating the percentage of the project's energy needs provided by on-site renewable sources. 	
	Tier 2	Part 3	<ul style="list-style-type: none"> Design and install on-site renewable energy systems to supply at least 5% of the building's total energy load from one or a combination of energy source(s)^{3,4,5,6}. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> Design and install on-site renewable energy systems to supply at least 20% of the building's total energy load from geo-exchange (geothermal or ground source heat pumps)⁴. 		



Item #	Tier	Applicability	Metrics	Documentation	Details
					<p>4. The percent (%) of renewable energy generated can be quantified by the following steps:</p> <ul style="list-style-type: none"> ○ Determine the total building annual energy use for the site. ○ List the renewable energy technologies being considered for the site. ○ Determine the expected annual energy generated from renewable technologies and the percent (%) of annual energy generated on-site, relative to the total energy consumed. <p>5. Allowable forms of renewable energy systems include the following:</p> <ul style="list-style-type: none"> ○ Solar photovoltaics (PV) technologies (e.g. solar panels, solar shingles) ○ Solar thermal ○ Biogas and biofuel ○ Wind-based systems <p>6. Refer to the City of Ottawa Community Energy Plan Terms of Reference for guidance on community energy planning.</p>

EC6 DISTRICT ENERGY

Intent: Encourage district energy to reduce environmental and economic impacts associated with fossil fuel energy use.

Item #	Tier	Applicability	Metrics	Documentation	Details
EC6.1	Tier 1	All	<ul style="list-style-type: none"> • Investigate the feasibility of shared energy solutions, such as the development of low carbon thermal energy networks or connection to planned or existing district energy systems and identify the required provisions to be district energy ready^{1,2,3,4}. 	<p>Plan of Subdivision and Site Plan Application Submission</p> <ul style="list-style-type: none"> • Provide a Letter signed by a qualified professional (Mechanical Engineer) and the owner/developer/builder that describes how opportunities for district energy have been explored. 	<p>1. Connecting to an existing low carbon district energy system is strongly encouraged to significantly reduce or avoid carbon emissions and to meet the GHGI limits.</p> <p>2. For guidance on designing a building to be district energy-ready, please refer to:</p> <ul style="list-style-type: none"> ○ The City of Toronto's Design Guideline for District Energy-Ready Buildings Guide

Item #	Tier	Applicability	Metrics	Documentation	Details
EC6.2	Tier 2	All	<ul style="list-style-type: none"> Connect to a district energy system where one exists or design for future connection where a future district energy system is slated for development^{3,4}. 	<p>Post Construction Submission</p> <ul style="list-style-type: none"> Drawings, plans, or other documentation demonstrating connection, or design will accommodate future connections. 	<ul style="list-style-type: none"> <ul style="list-style-type: none"> The City of Ottawa Community Energy Plan Terms of Reference Refer to the City of Hamilton's Climate Change Action Strategy for more information. Refer to the Action 19 - Decarbonize and Expand District Energy within the City of Hamilton's Community Energy and Emissions Plan for more information.

EC7 BUILDING SYSTEMS COMMISSIONING

Intent: To promote buildings that are designed to be energy-efficient with reduced operating costs and greenhouse gas emissions associated with building operations.

Item #	Tier	Applicability	Metrics	Documentation	Details
EC7.1	Tier 2	All	<ul style="list-style-type: none"> Conduct best practice commissioning, per the requirements referenced in LEED BD+C v4.1 Fundamental Commissioning and Verification pre-requisite^{1,2,3}. 	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> Provide a Letter of Commitment signed by the owner/developer/builder that best practice commissioning will be performed; OR proof a commissioning agent retained. <p>Post Construction Submission</p> <ul style="list-style-type: none"> Commissioning Plan & Report. 	<ol style="list-style-type: none"> Commissioning of a building is a systematic process that documents and verifies that all the facility's energy-related systems perform interactively in accordance with the design documentation and intent, and according to the owner's operational requirements from the design phase through to at least one-year post construction. Commissioning process should be in accordance with ASHRAE Guideline 0–2013 and ASHRAE Guideline 1.1–2007 for HVAC&R systems, as they relate to energy, water, indoor environmental quality, and durability for mechanical, electrical, plumbing, and renewable energy systems and assemblies. Refer to LEED BD+C (v4.1) EA: Fundamental Commissioning and Verification for more information on building systems commissioning.

EC8 AIR TIGHTNESS TESTING

Intent: To reduce air leakage, while improving the greenhouse gas emission associated with building operations and thermal comfort of occupants.

Item #	Tier	Applicability	Metrics	Documentation	Details
EC8.1	Tier 1	All	<ul style="list-style-type: none"> Design and construct the building to improve the quality and airtightness of the building envelope¹. 	Site Plan Application Submission <ul style="list-style-type: none"> Provide a letter signed by a qualified professional (Building Envelope Engineer or Building Science Engineer) and the owner/developer/builder that describes the project's approach to achieving air tightness, and the process for any planning testing. 	<ol style="list-style-type: none"> The letter should indicate the line of air tightness (including air barrier materials, systems and transitions). Submission of drawings and indicative details to support the letter is encouraged.
EC8.2	Tier 2	All	<ul style="list-style-type: none"> Conduct a whole-building air leakage test to improve the quality and airtightness of the building envelope and report the performance achieved^{1,2}. 	Post Construction Submission <ul style="list-style-type: none"> Air Leakage Testing Report. 	<ol style="list-style-type: none"> The practice of Whole Building Air Leakage Testing (WBALT) involves sealing all building openings (e.g. operable windows) and pressurizing a building to determine its resistance to air leakage through the envelope. For guidance on Whole Building Air Leakage Testing, please refer to the City of Toronto Whole Building Air Leakage Testing Protocol or the ASTM E3158-18 Standard Test Method for Measuring the Air Leakage Rate of a Large or Multizone Building.

EC9 ENERGY METERING

Intent: Promote energy awareness to drive energy-conscious behavior and reduce usage. Continuous consumption tracking and benchmarking ensure design goals are met.

Item #	Tier	Applicability	Metrics	Documentation	Details
EC9.1	Tier 1	All	<ul style="list-style-type: none"> Install electricity and/or thermal sub-meters for all energy end-uses that represent more than 10% of the building's total energy consumption^{1,2}. 	Site Plan Application Submission <ul style="list-style-type: none"> Provide a Letter of Commitment signed by a qualified professional (Electrical Engineer and Mechanical Engineer) and the owner/developer/builder that includes confirmation that the requirements of this metric will be met. 	<ol style="list-style-type: none"> Refer to LEED BD+C (v4.1) EA: Advanced Energy Metering for more information on electricity and thermal sub-metering. The advanced energy metering must have the following characteristics: <ul style="list-style-type: none"> Meters must be permanently installed, and record at intervals of one hour or less. Electricity meters must record both consumption and demand.

Item #	Tier	Applicability	Metrics	Documentation	Details
EC9.2	Tier 2	All	<ul style="list-style-type: none"> For buildings with multiple tenants, provide energy submetering for each commercial/institutional tenant, or in each residential suite^{1,2,3}. 	Post Construction Submission <ul style="list-style-type: none"> Electrical and mechanical single-line diagrams that indicate the provision of electricity and thermal sub-meters. A metering plan listing all meters along with type, energy source metered, diagrams, and/or references to design documentation. 	<ul style="list-style-type: none"> The data collection system must use a local area network, building automation system, or wireless network. The system must be capable of storing all meter data for at least 36 months. The data must be remotely accessible. All meters in the system must be capable of reporting hourly, daily, monthly, and annual energy use. <p>3. Single room–occupancy units, transitional and temporary housing, and designated supportive housing buildings do not need an electricity meter in each unit.</p>

EC10 BENCHMARKING & REPORTING

Intent: Promote energy and water conservation through ongoing monitoring and reporting, and increased visibility for the City of Hamilton to track emissions of new developments.

Item #	Tier	Applicability	Metrics	Documentation	Details
EC10.1	Tier 1	Part 3	<ul style="list-style-type: none"> Buildings 50,000 square feet (≈ 4645 m²), or larger: Enroll the project in ENERGYSTAR® Portfolio Manager to track energy and water consumption of the new development during operations in accordance with O. Reg. 506/18^{1,2}. 	Site Plan Application Submission <ul style="list-style-type: none"> Provide a Letter of Commitment signed by the owner/developer/builder that includes confirmation that the requirements of this metric will be met. 	<p>1. Benchmarking of private buildings annual energy consumption is required in accordance with Ontario Regulation 506/18. Building energy benchmarking is a process through which building owners and/or managers can track and report their building's operational energy over time. Refer to the ENERGY STAR® Portfolio Manager website.</p>
EC10.2	Tier 2	All	<ul style="list-style-type: none"> Enroll the project in ENERGYSTAR® Portfolio Manager¹ to track energy and water consumption of the new development during operations^{1,2}. 	Post Construction Submission <ul style="list-style-type: none"> Confirmation of Registration. 	<p>2. Provide the City of Hamilton's account with read-only access to the project.</p>

EC11 ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

Intent: Promote the use of electric cars by providing electric vehicle (EV) charging stations to support GHG targets and improved air quality.

Item #	Tier	Applicability	Metrics	Documentation	Details
EC11.1	Tier 1	Part 3 & Part 9 (Residential)	<ul style="list-style-type: none"> Ensure 100% of all parking spaces are EV-ready^{1,2,3}. 	Site Plan Application Submission <ul style="list-style-type: none"> On the Site Plan Drawing, Traffic Plan, or Parking Study identify: <ul style="list-style-type: none"> The number of total parking spaces included per building on the site. The number of total parking spaces that will be provided with rough-in provisions. The percentage of parking spaces that will be EV-ready. 	<ol style="list-style-type: none"> Refer to the City of Hamilton Zoning By-law No. 05-200. In order to achieve zoning compliance, at minimum, each Electric Vehicle Parking Space shall have an adjacent electrical outlet at which an electric vehicle charger can be installed in the future. The electrical outlet shall be capable of providing Level 2 electric vehicle charging, which generally means a voltage of 208V to 240V.
	Tier 1	Part 9 (Non-Residential)	<ul style="list-style-type: none"> Ensure at least 50% of all parking spaces are EV-ready^{1,2}. 		
EC11.2	Tier 2	Part 3 & Part 9 (Residential)	<ul style="list-style-type: none"> Provide at least 20% of all parking spaces with Electric Vehicle Supply Equipment (EVSE)^{3,4,5,6}. 	Site Plan Application Submission <ul style="list-style-type: none"> Parking plan(s) indicating the location and number of EV chargers. 	<ol style="list-style-type: none"> Electric vehicle supply equipment (EVSE) is defined by the Ontario Electrical Safety Code as the complete assembly consisting of cables, connectors, devices, apparatus, and fittings installed for the purpose of power transfer and information exchange between the branch circuit and the electric vehicle, commonly referred to as an EV charging station or EV charger. Provide EVSE capable of supplying Level 2 charging capability or a higher level of charging. EVSE parking spaces shall be labelled for the intended use of electric vehicle charging. Refer to the Electric Vehicle Charging Infrastructure Costing Study for more information about EV Ready design options and costing analysis for residential development archetypes to comply with this standard.
	Tier 2	Part 9 (Non-Residential)	<ul style="list-style-type: none"> Provide at least 10% of all parking spaces with Electric Vehicle Supply Equipment (EVSE)^{3,4,5,6}. 		

EC12 ELECTRIC BICYCLE CHARGING INFRASTRUCTURE

Intent: Reduce air pollution and GHG emissions related to car use by promoting active transportation. Active transportation also reduces fuel dependency, traffic congestion, noise pollution, and infrastructure.

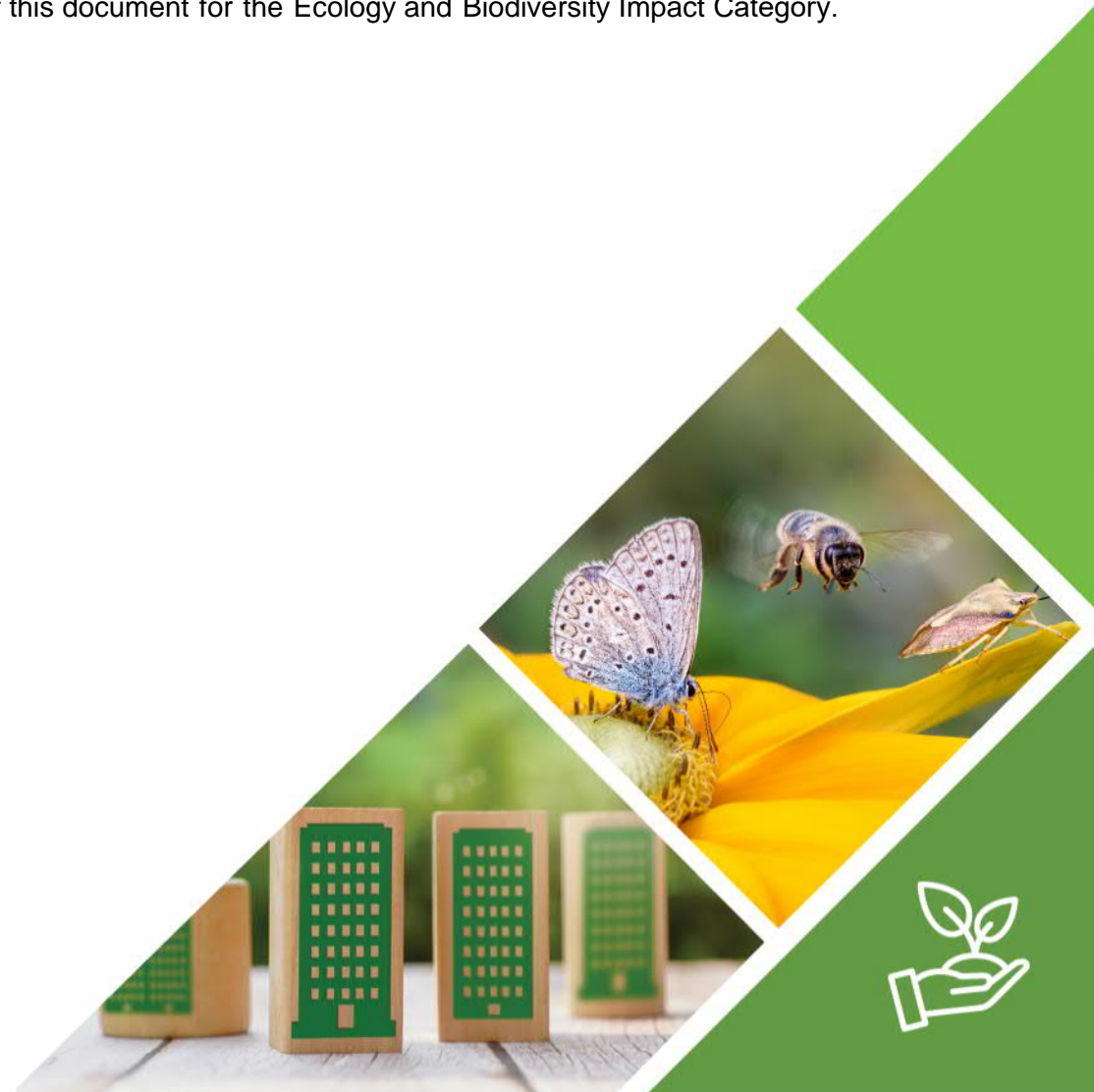
Item #	Tier	Applicability	Metrics	Documentation	Details
EC12.1	Tier 1	Part 3 & Part 9 (Residential)	<ul style="list-style-type: none"> Provide Energized Outlets for 15% of the bicycle parking spaces for electric bicycle charging^{1,2}. 	Site Plan Application Submission <ul style="list-style-type: none"> Parking plan(s) indicating the location of electric bicycle charging. 	<ol style="list-style-type: none"> The number of electric bicycle parking spaces is included as part of the total required bicycle parking spaces. Energized Outlets are capable of supplying 120V, and are located at a maximum distance of 1100 mm from the bike rack to accommodate the typical manufacturer-supplied power cord. Applies only to long-term bicycle parking spaces which are to be located in a secure enclosed bicycle parking area within the building.

ECOLOGY AND BIODIVERSITY

This Impact Category focuses on the preservation, restoration, and enhancement of the natural environment within the development area. Common requirements within this topic include native species and tree planting, prohibiting invasive species, and bird-friendly design. The performance requirements within this impact category foster ecological health and biodiversity, and also significantly contribute to the enhancement of urban forests, elevate biodiversity levels, and mitigate urban heat islands. By prioritizing these measures, developments can achieve a balance between urban expansion and environmental preservation, ensuring sustainable habitats for both wildlife and human communities. Refer to pages 14 to 17 of this document for the Ecology and Biodiversity Impact Category.

PERFORMANCE REQUIREMENTS

- EB1 Native Species Planting
- EB2 Tree Planting
- EB3 Bird-Friendly Design
- EB4 Light Pollution
- EB5 Climate Positive Design



EB1 NATIVE SPECIES PLANTING

Intent: To preserve the long-term health of landscape design and minimize effects on broader natural systems.

Item #	Tier	Applicability	Metrics	Documentation	Details
EB1.1	Tier 1	All	<ul style="list-style-type: none"> Use native or adapted species for 50% of the new landscaping planted areas (including grassed areas), i.e. 50% of the total landscaped area should be covered by native or adapted plant species. Select drought-tolerant species from colder climate zones wherever possible^{1,2,3,6}. 	Plan of Subdivision and Site Plan Application Submission <ul style="list-style-type: none"> Landscape Plan with planting schedule demonstrating that plant species do not include invasive species, and indicating where species will be native or adapted. 	<ol style="list-style-type: none"> Native plant species are defined as plants that are indigenous to Southern Ontario; they are adapted to local conditions and occur naturally in the region. Refer to Credit Valley Conservation resources for definitions of native, nativar, pollinator, and drought-friendly species. Adapted vegetation is vegetation that is not native to the particular region it was introduced to but has evolved or maintained characteristics conducive for healthy growth and requires no additional resources or maintenance, such as water for irrigation, in comparison to similar species native to the area. An adapted species is non-aggressive; it is not disruptive to native plant communities. For resources on native species selection, refer to the following: <ul style="list-style-type: none"> Natives Plants Database The Trees Atlas Plant Paradise Toolkit Please refer to the Ontario Invasive Species Act for a list of Invasive Species.
EB1.2	Tier 1	All	<ul style="list-style-type: none"> Per the Ontario Invasive Species Act, do not plant invasive species^{4,6}. 		
EB1.3	Tier 1	All	<p>For sites adjacent to Agricultural lands, Natural Heritage features, Environmentally Significant Areas (ESAs), and any other areas that are restricted from development^{1,3,5}:</p> <ul style="list-style-type: none"> Provide vegetated protection zones Vegetated protective zones must include 100% native vegetation, with a preference for drought-tolerant species. 		
EB1.4	Tier 2	All	<ul style="list-style-type: none"> Use native or adapted species for 75% of the new landscaping planted areas (including grassed areas), i.e. 75% of the total landscaped area should be covered by native or adapted plant species^{1,2,3,6}. Include permanent signage highlighting the native species planted on site^{1,2,3,6}. 	Site Plan Application Submission <ul style="list-style-type: none"> Landscape Plan with planting schedule demonstrating the plant species that will be planted, and indicating where species will be native or adapted. Drawings or plans with details on signage highlighting species planted on site. 	<ol style="list-style-type: none"> Refer to the City of Hamilton Urban Official Plan Chapter C: City Wide Systems and Designations for additional details on vegetated protection zones. For more information on how the metrics of this performance requirement align with the City of Hamilton guidelines and strategies, refer to the following: <ul style="list-style-type: none"> Hamilton Urban Forest Strategy Hamilton Climate Change Impact Adaptation Plan City of Hamilton Biodiversity Action Plan
EB1.5	Tier 2	All	<ul style="list-style-type: none"> Support the City's "Bee City" designation by restoring or protecting a minimum of 30% of the site with native vegetation that includes at least two native flowering species that bloom at different periods over the growing season^{1,3,6,7}. 		



Item #	Tier	Applicability	Metrics	Documentation	Details
					8. Restoration refers to any project whose purpose is to re-create a natural vegetation community for any purpose using indigenous plants. It can include reforestation, reclamation, habitat creation, and should also include landscaping near natural areas.

EB2 TREE PLANTING

Intent: To preserve and enhance our natural heritage for biodiversity, heat island mitigation, and stormwater management.

Item #	Tier	Applicability	Metrics	Documentation	Details
EB2.1	Tier 1	All	<ul style="list-style-type: none"> Protect healthy, mature trees that exist within the project boundary. Comply with the requirements of the City of Hamilton Tree Protection Guidelines.^{1,2,3}. 	Plan of Subdivision and Site Plan Application Submission <ul style="list-style-type: none"> A Tree Inventory Report and Preservation Plan. 	<ol style="list-style-type: none"> For more information on street planting protocols, please refer to the City of Hamilton Street Tree Planting Policy. Where applicable, comply with the requirements of the City of Hamilton Tree Protection Guidelines and City of Hamilton Private Tree Protection By-Law. Promotion of healthy trees and planting aligns with the City of Hamilton Urban Forest Strategy canopy cover target of 40%. Calculations can assumed a mature tree canopy width. Trees should be spaced appropriately, having regard to site conditions, and ensure that space is provided to accommodate mature trunk and root flare growth of each tree.
EB2.2	Tier 1	All	<ul style="list-style-type: none"> Provide each tree planted with access to 21 m³ of soil per tree. Where trees share soil, such as in a continuous planting trench, a reduction to 16m³ per tree may be permitted. 	Site Plan Application Submission <ul style="list-style-type: none"> Plan(s) or drawings demonstrating the volume of soil provided for each tree. 	
EB2.3	Tier 1	All	<ul style="list-style-type: none"> Where surface parking is provided, plant 1 shade tree for every 5 parking spaces. 	<ul style="list-style-type: none"> Plan(s) or drawings indicating the locations of all trees and parking spaces within the surface parking area. 	
EB2.4	Tier 1	All	<ul style="list-style-type: none"> Plant trees to shade at least 50% of the bike paths and walkway/sidewalk lengths ^{3,4,5}. 	<ul style="list-style-type: none"> Canopy Cover Plan(s) or drawings demonstrating walkway/sidewalk area shaded. 	
EB2.5	Tier 1	All	<ul style="list-style-type: none"> Provide a watering and maintenance program for trees for at least the first 4 years after planting. The maintenance programs should include measures to reduce the impact of de-icing salt on vegetation. 	Site Plan Application Submission <ul style="list-style-type: none"> A Letter of Commitment signed by an accredited professional (Landscape Architect) and the owner/developer that describes the watering and maintenance program for trees. Post Construction Submission <ul style="list-style-type: none"> Operating and Maintenance plan or other documentation detailing the maintenance program for trees. 	
EB2.6	Tier 2	All	<ul style="list-style-type: none"> Plant trees to achieve a 40% tree canopy cover for the site, excluding the building footprint ^{1,2,3,4,5}. 	Site Plan Application Submission <ul style="list-style-type: none"> Landscape Plan(s) and supporting calculations demonstrating compliance. Canopy Cover Plan(s). 	

EB3 BIRD-FRIENDLY DESIGN

Intent: To prevent fatal collisions of birds with buildings.

Item #	Tier	Applicability	Metrics	Documentation	Details
EB3.1	Tier 1	All	<ul style="list-style-type: none"> Design in accordance with the guidelines laid out in the Canadian Standards Association's (CSA) Bird-Friendly Building Design Standard A460¹. Use a combination of Bird-Friendly Design strategies to treat at least 90% of the exterior glazing including transparent railings and barriers) located within the first 16 metres of the building above grade or to the height of the mature tree canopy, whichever is greater. Visual markers on the glass must meet the CSA Bird-Friendly Building Design Standard A460 guidelines^{1,2}. Where there is glazing adjacent to green roofs and/or other rooftop vegetation, the bird collision mitigation strategy shall be applied to a height of 4 m from the surface of the green roof or the height of the adjacent mature vegetation, whichever is greater. Eliminate all fly-through effects (e.g., glass corners, parallel glass) and other traps from building design or use specified bird-safe glass or integrated protection measures. 	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> Elevation drawings demonstrating the location of bird-friendly strategies and calculations demonstrating metric requirements will be achieved. Details or specifications and drawings indicating treated area, type of treatment, density of visual markers, etc. 	<ol style="list-style-type: none"> Refer to the CSA Bird-Friendly Design Standard A460 for detailed requirements. Bird-Friendly Design Strategies may include: <ul style="list-style-type: none"> Visual patterns on glass Visual markers provided on the glass of proposed buildings with spacing no greater than 50 millimeters by 50 millimeters Window films Fenestration patterns In April 2022, the City of Hamilton became the 6th certified Bird Friendly City in Canada. As part of this commitment, the City has as taken steps to reduce threats to wild birds, conserve bird habitat, and educate the public about birds.
EB3.2	Tier 1	All	<ul style="list-style-type: none"> Ground-level ventilation grates have a porosity of less than 20 mm X 20 mm (or 10 mm X 40 mm). 	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> Site plan, or other documentation indicating the location and porosity of any ground-level ventilation grates. 	

EB4 LIGHT POLLUTION

Intent: To minimize nighttime glare, light trespass, and light pollution, acknowledging their adverse effects on energy efficiency, nearby residents, and nocturnal wildlife.

Item #	Tier	Applicability	Metrics	Documentation	Details
EB4.1	Tier 1	All	<ul style="list-style-type: none"> All exterior fixtures must be Dark Sky compliant^{1,2}. 	Site Plan Application Submission <ul style="list-style-type: none"> Site plan, or other documentation indicating lighting type, orientation, location, and controls. 	<ol style="list-style-type: none"> Refer to the Canadian Standards Association's (CSA) Bird-Friendly Building Design Standard A460 for more information on light pollution requirements. Refer to Dark Sky Feature Seal of Approval for more information on Dark Sky compliance requirements.
EB4.2	Tier 1	All	<ul style="list-style-type: none"> Rooftop and exterior façade architectural illumination must be directed downward and turned off between the hours of 10 p.m. and 6 a.m. 		
EB4.3	Tier 1	All	<ul style="list-style-type: none"> Implement lighting controls in non-residential spaces that reduce nighttime spillage of light by 50% from 11 p.m. to 5 a.m. 	Site Plan Application Submission <ul style="list-style-type: none"> A Letter of Commitment from a qualified professional (Architect or Electrical Engineer), and the owner/developer/builder describing how metric requirements will be met. 	

EB5 CLIMATE POSITIVE DESIGN

Intent: Promote GHG reductions and increase carbon sequestration through the landscape design.

Item #	Tier	Applicability	Metrics	Documentation	Details
EB5.1	Tier 2	All	<ul style="list-style-type: none"> Use the Climate Positive Design's Pathfinder: Landscape Carbon Calculator to calculate the embodied carbon and the carbon sequestration potential within landscape designs^{1,2}. 	Site Plan Application Submission <ul style="list-style-type: none"> Climate Positive Design Scorecard reporting the Net Project Impact Site plan and/or landscape plans aligning with the information input in the Landscape Carbon Calculator 	<ol style="list-style-type: none"> The Climate Positive Design Challenge provides guidance for improving the impact of site design projects on the environment. The goal is for all site design projects going forward to collectively sequester more CO₂ than they emit by 2030, with a target of removing one gigaton of CO₂ from the atmosphere by 2050. Please refer to the Climate Positive Design for more information on how to use the Pathfinder Tool.

WATER

This Impact Category focuses on reducing potable water use for indoor and outdoor water uses, water metering, as well as stormwater management. Reducing potable water use, harvesting and re-using stormwater, and managing the quantity and quality of stormwater are all common themes in this topic. Each of the municipal standards reviewed during Phase 2 includes requirements that address one or more of these themes.

PERFORMANCE REQUIREMENTS

- W1 Reduced Water Use
- W2 Benchmarking and Reporting
- W3 Water Metering
- W4 Stormwater Management



W1 REDUCED WATER USE

Intent: Promotes water conservation by using efficient water fixtures, balanced irrigation practices and reducing overall water consumption.

Item #	Tier	Applicability	Metrics	Documentation	Details
W1.1	Tier 1	All	<ul style="list-style-type: none"> Water-consuming fixtures do not exceed the following maximum flow requirements and are WaterSense® labeled:^{1,2} <ul style="list-style-type: none"> High-efficiency toilets: 4.0 L/flush OR 3 and 6 L/flush (dual flush toilets); and Low flow lavatory faucets: 5.7 L/min. 	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> A Letter of Commitment signed by a qualified professional (Mechanical Engineer) and the owner/developer that includes confirmation that requirements of this metric will be met. <p>Post Construction Submission</p> <ul style="list-style-type: none"> Plumbing fixture specifications or other documentation demonstrating WaterSense® labelling and flush/flow rates. 	<ol style="list-style-type: none"> Potential strategies for indoor water use reduction include the use of dual flush toilets and waterless urinals. Refer to the EPA WaterSense site for a list of WaterSense labeled products.
W1.2	Tier 2	All	<ul style="list-style-type: none"> Reduce indoor potable water consumption by 40% over the baseline fixture (per LEED BD+C v4 guidance)^{1,2}. 	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> Credit calculations demonstrating compliance with the metric requirements. <p>Post Construction Submission</p> <ul style="list-style-type: none"> Plumbing fixture specifications or other documentation demonstrating flush/flow rates, and updated credit calculations (if necessary). 	<ol style="list-style-type: none"> Potential strategies for enhanced indoor water use reduction include low-flow plumbing fixtures, and greywater and/or rainwater re-use systems to capture and reuse for indoor flushing fixtures. Refer to the LEED BD+C v4: Indoor water use reduction for more information on indoor water use reduction.
W1.3	Tier 2	All	<ul style="list-style-type: none"> Outdoor: Reduce potable water used for irrigation by 60% (per LEED BD+C v4 guidance)^{1,2}. 	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> Credit calculations demonstrating compliance with the metric requirements. <p>Post Construction Submission</p> <ul style="list-style-type: none"> Irrigation specifications or other documentation demonstrating irrigation system, and updated credit calculations (if necessary). 	<ol style="list-style-type: none"> Potential strategies for outdoor potable water use reduction include the use of drought-tolerant native species, water-efficient plant species, rain sensors for irrigation systems, and non-potable water for irrigation (e.g. rainwater cistern collection and re-use system, or rain collection barrels). Refer to the LEED BD+C v4: Outdoor water use reduction for more information on outdoor water use reduction.

W2 BENCHMARKING AND REPORTING

Intent: Promote energy and water conservation through ongoing monitoring and reporting, and increased visibility for the City of Hamilton to track water consumption of new developments.

Item #	Tier	Applicability	Metrics	Documentation	Details
W2.1	Tier 1	Part 9	<ul style="list-style-type: none"> Buildings 50,000 square feet ($\approx 4645 \text{ m}^2$), or larger: Enroll the project in ENERGYSTAR® Portfolio Manager to track energy and water consumption of the new development during operations in accordance with O. Reg. 506/18¹. 	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> Provide a Letter of Commitment signed by the owner/developer/builder that includes confirmation that the requirements of this metric will be met. <p>Post Construction Submission</p> <ul style="list-style-type: none"> Confirmation of Registration 	<ol style="list-style-type: none"> Benchmarking of private buildings annual energy consumption is required in accordance with Ontario Regulation 506/18. Building energy benchmarking is a process through which building owners and/or managers can track and report their building's operational energy and water use over time. Refer to the ENERGY STAR® Portfolio Manager website. Provide the City of Hamilton's account with read-only access to the project.
W2.2	Tier 2	All	<ul style="list-style-type: none"> Enroll the project in ENERGYSTAR® Portfolio Manager to track energy and water consumption of the new development during operations¹. 	<p>Post Construction Submission</p> <ul style="list-style-type: none"> Confirmation of Registration 	

W3 WATER METERING

Intent: Promotes awareness for water consumption to reduce usage, and supports monitoring and benchmarking water use over time.

Item #	Tier	Applicability	Metrics	Documentation	Details
W3.1	Tier 2	All	<ul style="list-style-type: none"> For buildings with multiple tenants, provide water submetering for each commercial/institutional tenant and per residential suite^{1,2}. 	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> Plans, drawings, or other documentation indicating individual water meters in building. 	<ol style="list-style-type: none"> Refer to LEED BD+C: Multifamily Midrise - Water metering for guidance on water metering. Single room-occupancy units, transitional and temporary housing, and designated supportive housing buildings do not need a water meter in each unit.

W4 STORMWATER MANAGEMENT

Intent: Enhance stormwater and watershed management to minimize the impact of polluted runoff flowing into water streams and to alleviate the strain that stormwater places on municipal infrastructure.

Item #	Tier	Applicability	Metrics	Documentation	Details
W4.1	Tier 1	All	<ul style="list-style-type: none"> Provide long-term controls for Erosion and Sediment Control (ESC) in conformance with the Erosion and Sediment Control Guide for Urban Construction (2019)^{1,2,4,5}. Demonstrate compliance with the Green Standards and Guidelines for Low Impact Development³. 	Site Plan Application Submission <ul style="list-style-type: none"> Stormwater Management Report, Plan(s), and drawing(s) to verify compliance. 	<ol style="list-style-type: none"> Refer to the Erosion and Sediment Control Guide for Urban Construction (2019) for details. Potential erosion control strategies may include erosion and sediment control plans, silt fencing, sediment traps, and sediment basins. Green Standards and Guidelines for Low Impact Development outline the process meeting City of Hamilton stormwater quantity and quality requirements. Stormwater retention can be met through infiltration, evaporation/evapotranspiration or through greywater reuse. For greywater reuse applications, ensure greywater volume is consumed prior to the next subsequent retention design rainfall event. Filtration will be credited on constrained sites that are limited in their retention or reuse capabilities. Refer to the Green Standards and Guidelines for Low-Impact Development.
W4.2	Tier 2	All	<ul style="list-style-type: none"> Design for future rainfall data instead of historical rainfall data to account for future climate change¹. 	Site Plan Application Submission <ul style="list-style-type: none"> Stormwater Management Report, Plan(s), and drawing(s) to verify compliance. 	<ol style="list-style-type: none"> Examples of acceptable pathways include: <ul style="list-style-type: none"> Provide control for the 100-year rainfall event down to the current control requirement using the Future 100-year modified rainfall intensity. Use the University of Western Ontario and the Canadian Water Institute IDF CC Tool for deriving rainfall Intensity-Duration-Frequency Curves. Using the current IDF curves from the City of Hamilton, apply an additional 25% to the rainfall amount for the 100-year 24-hour storm event, to be distributed equally over the duration.

WASTE MANAGEMENT AND MATERIALS

This Impact Category focuses on reducing waste generation during construction and the operational phases of development. Reducing waste can contribute to the reuse of existing materials and decrease demand for raw materials. In addition, managing operational waste facilitates waste recycling and decomposing practices, contributing to waste diversion and material reuse and ultimately positively impacting the environment and natural resources. In each of the peer municipal standards reviewed in Phase 2, waste management has been observed to be an integral focus area and has been addressed through a combination of mandatory and voluntary performance requirements.

PERFORMANCE REQUIREMENTS

- WM1 Construction Waste Reduction and Management
- WM2 Operational Waste Reduction and Management
- WM3 Material Reuse



WM1 CONSTRUCTION WASTE REDUCTION AND MANAGEMENT

Intent: Facilitate the reduction of waste and the safe and proper disposal of waste generated during building construction. Diverting waste from landfills reduces the extraction of virgin natural resources and minimize land, water, and air pollution.

Item #	Tier	Applicability	Metrics	Documentation	Details
WM1.1	Tier 1	All	<ul style="list-style-type: none"> Manage construction and demolition waste in accordance with O. Reg. 103/94, as amended: Industrial, Commercial and Institutional Source Separation Programs ¹. 	Site Plan Application Submission <ul style="list-style-type: none"> Construction and Demolition Waste Management Plan. 	<ol style="list-style-type: none"> Refer to O. Reg. 103/94 for more details.
WM1.2	Tier 1	All	<ul style="list-style-type: none"> Develop and implement a Construction and Demolition Waste Management Plan, and demonstrate a diversion rate of 50% or more from landfill^{1,2,3,4}. 	Site Plan Application Submission <ul style="list-style-type: none"> Construction and Demolition Waste Management Plan. Post Construction Submission <ul style="list-style-type: none"> Waste Diversion Report indicating total Construction and Demolition Waste diversion rate of the project. 	<ol style="list-style-type: none"> Construction Waste Management Plan should: <ul style="list-style-type: none"> Identify strategies to reduce the generation of waste during project design and construction. Establish waste diversion goals for the project by identifying the materials targeted for diversion. Describe the diversion strategies planned for the project. Describe where materials will be taken including expected diversion rates for each material. Track all waste removed from site and update a Waste Diversion Report at least monthly. Calculations can be by weight or volume but must be consistent throughout construction. Exclude hazardous waste, excavated soil and land-clearing debris from calculations.
WM1.3	Tier 2	All	<ul style="list-style-type: none"> Demonstrate a waste diversion rate of 75% or more from landfill^{2,3,4}. 		

WM2 OPERATIONAL WASTE REDUCTION AND MANAGEMENT

Intent: Facilitate the reduction of waste generated and the safe and proper disposal of waste generated during building operations.

Item #	Tier	Applicability	Metrics	Documentation	Details
WM2.1	Tier 1	Part 9 (Residential)	<ul style="list-style-type: none"> Design and construct the building(s) to meet section 3.5 of the City of Hamilton's waste design requirements for new developments^{1,2,3}. 	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> Drawings or plans indicating the type, floor area and location of the waste storage and sorting system. 	<ol style="list-style-type: none"> Refer to the City of Hamilton Waste Requirements for Design of New Developments and Collection (2021), where applicable. Comply with O. Reg 103/94 where applicable. Refer to the City of Hamilton Solid Waste Master Plan, where applicable.
WM2.2	Tier 1	Part 3 & Part 9 (Residential)	<ul style="list-style-type: none"> Design kitchen cabinets to accommodate space for the separate collection of recycling, organics and garbage^{1,2,3}. 	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> A Letter of Commitment signed by a qualified professional (Architect) and the owner/developer/builder that includes confirmation that requirements of this metric will be met. <p>Post Construction Submission</p> <ul style="list-style-type: none"> Drawings or plans indicating the designated space. 	<ol style="list-style-type: none"> Provide "built-in" storage including at least three separate storage containers for segregated storage and collection. Minimum dimensions for storage bins: 8.5L each bin for garbage and organics and 18L bin for recycled materials. Refer to O. Reg. 103/94, where applicable.

WM3 MATERIAL REUSE

Intent: Encourage reuse of existing materials to support total carbon reductions and reduce demolition and construction waste.

Item #	Tier	Applicability	Metrics	Documentation	Details
WM3.1	Tier 2	All	<ul style="list-style-type: none"> Maintain the existing building structure and envelope¹ for 30% of the existing floor area OR use existing interior non-structural elements for at least 30% of the entire completed building, including additions^{2,3}. 	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> A Letter of Commitment signed by a qualified professional (Architect, Structural Engineer) and the owner/developer/builder that includes confirmation that requirements of this metric will be met. Calculations completed by a qualified professional (Architect, Structural Engineer) demonstrating this metric can be met. <p>Post Construction Submission</p> <ul style="list-style-type: none"> Report/ drawings/ plans demonstrating the preserved and new components of the building, Calculations completed by a qualified professional (Architect, Structural Engineer) demonstrating this metric has been met. 	<ol style="list-style-type: none"> Envelope components include: exterior skin and framing, and exclude window assemblies and non-structural roofing material. Hazardous materials are excluded. Refer to LEED BD+C v4: Building life-cycle impact reduction for details.

COMMUNITY AND URBAN DESIGN

This Impact Category focuses on the design elements that promote a sense of place in the community by emphasizing the importance of preserving heritage and cultural features, raising awareness of local food production, promoting healthy practices and inclusion, as well as educating residents on sustainability features in their community and ultimately creating communities that are healthy and resilient.

PERFORMANCE REQUIREMENTS

- CD1 Promotion of Public and Active Transportation
- CD2 Services within Walking Distance
- CD3 Bicycle Facilities
- CD4 Accessible Design
- CD5 Urban Agriculture
- CD6 Heat Island Effect
- CD7 Community Sustainability Outreach
- CD8 Celebration of Heritage and Culture



CD1 PROMOTION OF PUBLIC AND ACTIVE TRANSPORTATION

Intent: Reduce air pollution and GHG emissions related to car use by promoting active transportation. Active transportation also reduces fuel-dependency, traffic congestion, noise pollution, and infrastructure.

Item #	Tier	Applicability	Metrics	Documentation	Details
CD1.1	Tier 1	All	<ul style="list-style-type: none"> Develop a Transportation Demand Management (TDM) Plan and demonstrate a 25% reduction in single occupancy auto vehicle trips generated by the proposed development^{1,2}. 	Site Plan Application Submission <ul style="list-style-type: none"> Transportation Demand Management Plan demonstrating a 25% reduction. 	<ol style="list-style-type: none"> Transportation Demand Management manages the demands placed on transportation infrastructure. It is the use of policies, programs, infrastructure improvements, and/or services to influence travel behaviour. TDM encourages sustainable travel choices by supporting alternatives options over the convention of frequently driving alone. Refer to City of Hamilton Cycling Master Plan, where applicable.
CD1.2	Tier 1	All	<ul style="list-style-type: none"> Construct a network of suitable cycling facilities and multi-use paths within the development which also connects to the bicycle network and implement recommendations of the City's Transportation Master Plan and/or Cycling Master Plan (where applicable)^{1,2,4}. 	Plan of Subdivision and Site Plan Application Submission <ul style="list-style-type: none"> Plan(s) indicating network of cycling facilities and multi-use paths. 	<ol style="list-style-type: none"> Refer to the City of Hamilton Transportation Master Plan, where applicable. Refer to City of Hamilton Cycling Master Plan, where applicable. Refer to the City of Hamilton's Zoning By-Law, where applicable.
CD1.3	Tier 1	All	<ul style="list-style-type: none"> Provide safe and direct routes that encourage the use of active transportation modes and connect to transit, commercial areas, community facilities, and parks^{1,3}. 	Plan of Subdivision and Site Plan Application Submission <ul style="list-style-type: none"> Plan(s) indicating safe and direct active transportation routes. 	<ol style="list-style-type: none"> Refer to LEED BD+C v4.1: Bicycle Facilities, where applicable.
CD1.4	Tier 1	All	<ul style="list-style-type: none"> Locate transit stops in accessible and safe areas^{1,3}. 	Plan of Subdivision and Site Plan Application Submission <ul style="list-style-type: none"> Plan(s) indicating transit stops. 	

CD2 SERVICES WITHIN WALKING DISTANCE

Intent: Promotes healthy practices among occupants and encourages a more active lifestyle

Item #	Tier	Applicability	Metrics	Documentation	Details
CD2.1	Tier 2	All	<ul style="list-style-type: none"> • Draft Plan of Subdivision only: Locate the building(s) within 800m of at least one of the following: <ul style="list-style-type: none"> ○ Transit station or stop; ○ Three amenities or services; or ○ Public park or recreational trail. 	Site Plan Application Submission <ul style="list-style-type: none"> • Site plan(s) highlighting walking distance to selection option 	<ol style="list-style-type: none"> 1. Refer to LEED v4 Appendix 1 for examples of amenities categories and use types.

CD3 BICYCLE FACILITIES

Intent: Reduce air pollution and GHG emissions related to car use, and encourages a more active lifestyle.

Item #	Tier	Applicability	Metrics	Documentation	Details
CD3.1	Tier 1	All	<p>Provide long-term and short-term bicycle parking spaces that meet or exceed the following minimum rates:^{1,2,3,4,5,6.}</p> <ul style="list-style-type: none"> • Multiple Dwelling and Dwelling Unit and Mixed Use: <ul style="list-style-type: none"> ○ Short-term: 0.1 parking space per unit (for Parking Rate Area 1 & 2), 0.05 parking space per unit (for all other areas). ○ Long-term: 0.7 parking space per unit (for Parking Rate Area 1 & 2), 0.5 parking space per unit (for all other areas). • Commercial and Institutional Uses: <ul style="list-style-type: none"> ○ Short-term: 0.2 for each 100 square metres of gross floor area (for Parking Rate Area 1 & 2), 0.15 for each 100 square metres of gross floor area (for all other areas). ○ Long-term: 0.15 for each 100 square metres of gross floor area (for Parking Rate Area 1 & 2), 0.1 for each 100 square metres of gross floor area (for all other areas). • Industrial Uses: <ul style="list-style-type: none"> ○ Short-term: 0.2 for each 100 square metres of gross floor area (for Parking Rate Area 1 & 2), 0.15 for each 100 square metres of gross floor area (for all other area). ○ Long-term: 0.15 for each 100 square metres of gross floor area (for Parking Rate Area 1 & 2), 0.1 for each 100 square metres of gross floor area (for all other areas). • University, College: <ul style="list-style-type: none"> ○ Short-term: 1.2 parking space for each 100 square metres of gross floor area. ○ Long-term: 1 parking space for each 100 square metres of gross floor area. 	Site Plan Application Submission <ul style="list-style-type: none"> • Plan(s) indicating location, number, and type (long-term/short-term) of bicycle parking spaces. 	<ol style="list-style-type: none"> 1. Bicycles include adaptive bikes, trikes, and scooters for people with disabilities. 2. Long-term bicycle parking spaces are bicycle parking spaces for use by the occupants or tenants of a building. Short-term bicycle parking spaces are bicycle parking spaces for use by visitors to a building. 3. Short-term bicycle parking spaces shall be publicly accessible and located within a bicycle parking area at grade, which includes the first floor of a building or an exterior surface area. Spaces should be visible and easily accessible location in close proximity to main building entrances. 4. Long-term bicycle parking spaces shall be weather protected and located in a secure, enclosed bicycle parking area within a building. 5. Refer to the City of Hamilton Zoning By-law No. 5-200 for more information on Parking Areas. 6. Refer to City of Hamilton Transportation Master Plan and Cycling Master Plan, where applicable.

Item #	Tier	Applicability	Metrics	Documentation	Details
CD3.2	Tier 2	All	<ul style="list-style-type: none"> Provide an additional 20% long-term and short-term bicycle parking spaces, beyond the Tier 1 minimum parking space requirements^{1,2,3,4}. 	Site Plan Application Submission <ul style="list-style-type: none"> Plan(s) indicating location, number, and type (long-term/short-term) of bicycle parking spaces. 	
CD3.3	Tier 2	Part 9 (Residential)	<ul style="list-style-type: none"> Include dedicated bike share location onsite and engage in contract with Hamilton Bike Share program¹. Alternative Compliance Path: Provide at least 10 additional publicly accessible, short-term bicycle parking spaces, at-grade on the site or within the public boulevard. Spaces should be in addition to bicycle parking required under CD6.1 and CD6.2. 	Site Plan Application Submission <ul style="list-style-type: none"> Site plan(s) highlighting the location of planned bike share location or publicly accessible spaces. Post Construction Submission <ul style="list-style-type: none"> Documentation demonstrating enrollment in Hamilton Bike Share Program. 	<ol style="list-style-type: none"> Hamilton Bike Share Inc. is the local not-for-profit organization that operates the City of Hamilton's bike share system. Alternative Compliance Path can be pursued where the site is located outside of the Hamilton Bike Share coverage area.

CD4 ACCESSIBLE DESIGN

Intent: Design to support persons with disabilities.

Item #	Tier	Applicability	Metrics	Documentation	Details
CD4.1	Tier 1	All	<ul style="list-style-type: none"> Meet the Accessibility for Ontarians with Disabilities Act (AODA) Integrated Accessibility Standards, sections 80.16 to 80.31 inclusive, for pedestrian infrastructure¹. 	Site Plan Application Submission <ul style="list-style-type: none"> Plan(s), drawing(s), or other documentation demonstrating compliance. 	<ol style="list-style-type: none"> When providing pedestrian crossings, consider curb ramps and depressed curbs (designed according to AODA standards).

CD5 URBAN AGRICULTURE

Intent: Promote urban agriculture to raise awareness around local food, reduce environmental and economic impact from transport of food, and increase green space.

Item #	Tier	Applicability	Metrics	Documentation	Details
CD5.1	Tier 1	All (Excluding Commercial and Industrial)	<ul style="list-style-type: none"> Residential buildings: Provide 0.5 sq.m. per dwelling unit of garden space^{1,2}. Institutional Buildings: Provide space for urban agriculture and/or community garden. 	Site Plan Application Submission <ul style="list-style-type: none"> Landscape Plans indicating dedicated garden area. 	<ol style="list-style-type: none"> Garden space is defined as land and/or an alternative mechanism with a growing medium that will be used to cultivate plants for food. Supports Recommendation #6 of the City of Hamilton's Food Strategy.

CD6 HEAT ISLAND EFFECT

Intent: To reduce ambient surface temperatures and reduce the urban heat island effect.

Item #	Tier	Applicability	Metrics	Documentation	Details
CD6.1	Tier 1	All	<ul style="list-style-type: none"> Use one or a combination of a green roof, cool roof and solar PV installed for at least 75% of available roof space^{1,2,3,6}. 	Site Plan Application Submission <ul style="list-style-type: none"> Roof plan(s) indicating the heat island reduction measures, including the SRI values(s) of roof materials (if applicable). 	<ol style="list-style-type: none"> Available roof space is the total roof area excluding areas designed for renewable energy, private terraces, residential amenity, skylights, and rooftop equipment. Cool roofs must have an initial SRI of 82 or an aged SRI of 64 (for low-sloped roofs <2:12) or an initial SRI of 39 and an aged SRI of 32 (for steep-sloped roofs >2:12).
CD6.2	Tier 1	All	<ul style="list-style-type: none"> Use one or a combination of the heat island reduction strategies to treat at least 50% of the site's non-roof hardscape^{3,4,5,6}. 	Site Plan Application Submission <ul style="list-style-type: none"> Site plan or landscape plan indicating the non-roof heat island reduction measures. 	<ol style="list-style-type: none"> Solar Reflectance Index (SRI) is a measure of a surface's ability to reflect solar heat. The SRI for a given material is calculated using both the reflectance value and the emittance value of the material. Black asphalt has an SRI of 0, a standard white surface is 100, and gray concrete is 35. Non-roof hardscape includes driveways, walkways, courtyards, surface parking areas, artificial turf, and other on-site hard surfaces.
CD6.3	Tier 2	All	<ul style="list-style-type: none"> Use one or a combination of the heat island reduction strategies to treat at least 75% of the site's non-roof hardscape^{3,4,5,6}. 		<ol style="list-style-type: none"> Examples of non-roof heat island reduction measures include: <ul style="list-style-type: none"> Paving materials with an SRI of 29 or greater; Shade from existing tree canopy or new 10-year tree canopy; Shade from architectural structures that are vegetated or have an SRI of 29 or greater; Shade from structures with energy generation (i.e. PV, solar thermal). Shade cast by buildings is <u>not</u> an eligible strategy. Where applicable, refer to the following resources for guidance: <ul style="list-style-type: none"> City of Hamilton Biodiversity Action Plan Hamilton Urban Forest Strategy Hamilton Climate Change Impact Adaptation Plan Hamilton Community Energy & Emissions Plan

CD7 COMMUNITY SUSTAINABILITY OUTREACH

Intent: Promotes green building features and supports the continued involvement of tenants/homeowners.

Item #	Tier	Applicability	Metrics	Documentation	Details
CD7.1	Tier 1	All (Excluding Institutional and Industrial)	<ul style="list-style-type: none"> Distribute a building-specific sustainability handout to all homeowners and tenants, outlining sustainability features, such as green building materials, native and invasive plant species, waste management programs, bicycle facilities, transit stop locations, and encouraging other activities (low-water gardening, green cleaning materials, alternate pest control measures, purchasing green power)¹. Familiarize tenants and homeowners with the building's green building feature with an on-site review¹. 	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> A Letter of Commitment signed by the developer/owner that includes confirmation that the requirements of this metric will be met. <p>Post Construction Submission</p> <ul style="list-style-type: none"> Educational package or other educational materials demonstrating compliance. 	<ol style="list-style-type: none"> Handout and on-site review can be completed by a representative from the developer, condo-board or property management. Maintain a copy of the education package or other materials during operation and provide to new tenants.

CD8 CELEBRATION OF HERITAGE AND CULTURE

Intent: Contributes to a sense of place in the community and amplifies shared values.

Item #	Tier	Applicability	Metrics	Documentation	Details
CD8.1	Tier 1	All	<ul style="list-style-type: none"> Where new developments are located near natural heritage features^{1,2}, locate amenities and green spaces nearby to provide a buffer. Where trails occur or are planned, provide a connection to the broader community. 	<p>Site Plan Application Submission</p> <ul style="list-style-type: none"> Plan(s), drawing(s), or other documentation demonstrating targeted feature(s). 	<ol style="list-style-type: none"> A natural heritage feature is a significant aspect of the natural environment, valued for its ecological, geological, biological, or cultural importance. This may include unique ecosystems, rare species, geological formations, landscapes, or culturally significant areas, which contribute to biodiversity and overall regional heritage. Conservation efforts should aim to protect and preserve these features. Refer to Hamilton Conservation Authority Natural Areas, Grand River Conservation Authority, Conservation Halton, and Niagara Peninsula Conservation, where applicable.

Item #	Tier	Applicability	Metrics	Documentation	Details
CD8.2	Tier 1	All	<ul style="list-style-type: none"> Significant cultural heritage resources¹, including heritage buildings and structures, shall be conserved in accordance with provincial and municipal policies. These resources should be retained in situ and integrated into compatible and sympathetic new development^{2,3,4}. For development projects that may impact on-site or adjacent cultural heritage resources, a Cultural Heritage Impact Assessment may be required and would guide the strategy for conservation, ranging from adaptive reuse, relocation to documentation and salvage^{2,3,4}. 	Site Plan Application Submission <ul style="list-style-type: none"> Cultural Heritage Impact Assessment, including any subsequent plans or studies recommended in the assessment (Conservation Plan, Vibration Study, etc.). 	<ol style="list-style-type: none"> Cultural heritage resources include archaeological resources, built heritage resources and cultural heritage landscapes. They can include tangible features, structures, sites, or landscapes that, either individually or as part of a whole, are of historical, architectural, archaeological, or scenic value. Cultural heritage resources also represent intangible heritage, such as customs, ways-of-life, values, and activities. Cultural heritage links communities to their roots and contributes to our image and cultural identity. Cultural Heritage should be protected and enhanced. If the property is Designated, a Heritage Permit will be required for any alteration, demolition or relocation that directly impacts the reasons for designation or heritage attribute listed in the Designation By-law. Contact Cultural Heritage staff to confirm the Heritage Permit process and timing in conjunction with the Development Approval process.
CD8.3	Tier 1	All	<ul style="list-style-type: none"> Incorporate public art¹ into publicly accessible and visible spaces or into building designs as an architectural element, where feasible, which celebrates the culture or history of the area. 	Site Plan Application Submission <ul style="list-style-type: none"> Plan(s), drawing(s), or other documentation demonstrating targeted feature(s). 	<ol style="list-style-type: none"> Examples of public art include sculptures, murals, interpretive signage, and architectural elements.
CD8.4	Tier 2	All	<ul style="list-style-type: none"> Introduce beautification measures/amenities¹ that beautify stormwater management features, such as ponds. 	Site Plan Application Submission <ul style="list-style-type: none"> Plan(s), drawing(s), or other documentation demonstrating targeted feature(s). 	<ol style="list-style-type: none"> Examples of beautification include public art or interpretive signage.



APPENDIX B

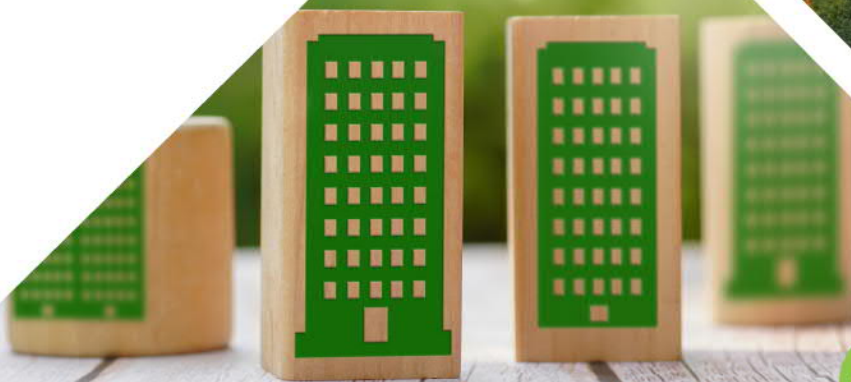
Baseline Review Report



City of Hamilton

**CITY WIDE GREEN BUILDING STANDARDS
BASELINE REVIEW REPORT**

November 2023



REVISION HISTORY

ISSUE/REVISION	DRAFT ISSUE	FINAL ISSUE
Remarks	None	City of Hamilton review comments have been addressed. Formatting updated to reflect new City of Hamilton GBS Template.
Date	October 4, 2023	November 1, 2023
Prepared by	Nadia Dowhaniuk	Nadia Dowhaniuk
Prepared by	Jennifer Sisson	Jennifer Sisson
Prepared by	Jacqueline Da Rocha	Jacqueline Da Rocha
Reviewed and Approved by	Kirsten MacKenzie (Sustainability)	Kirsten MacKenzie (Sustainability)
Reviewed and Approved by	Robert Rappolt (Planning)	Robert Rappolt (Planning)
Project number	CA0010529.3231	CA0010529.3231
Report number	1	1



SIGNATURES

Reviewed by

Kirsten Mackenzie, LEED AP BD+C, ENV SP
Technical Lead

Robert Rappolt, MCIP, RPP
Senior Planner – Planning

Prepared by

Jacqueline Da Rocha, LEED AP BD+C, ID+C
Project Manager – Sustainability

Jennifer Sisson, OALA, CSLA, RPP, MCIP
Project Manager – Landscape Arch.

Nadia Dowhaniuk
Project Planner – Planning

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The content and opinions contained in the present report are based on the observations and/or information available to WSP at the time of preparation, using investigation techniques and engineering analysis methods consistent with those ordinarily exercised by WSP and other engineering/scientific practitioners working under similar conditions, and subject to the same time, financial and physical constraints applicable to this project.

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1 INTRODUCTION

In 2021, WSP supported City of Hamilton (i.e. “the City”) in the development and implementation of the City’s Phase 1 - Draft Sustainable Building and Development Guidelines for the low-density residential building sector. In August 2023, WSP was then engaged to support the City for Phase 2; expanding their green building development requirements to include mid-rise and high-rise residential, institutional, commercial and industrial uses. The Phase 2 Green Building Standard (GBS) will be applied to all relevant development applications moving forward, which will include an assessment tool (Guidebook and checklist tool) to form part of the submission requirements for planning applications.

The GBS will aid in evaluating urban development applications through the lens of sustainability, energy and climate resilience by providing a suite of requirements and key performance indicators (KPIs). The development of a well-informed building standard will be influenced by City of Hamilton current sustainability initiatives and priorities, and provincial, regional policy and regulations. Additionally, insights from peer municipalities and industry best practices will be considered as the GBS is being developed.

As with many municipalities within Southern Ontario, the City understands the importance of their contribution to the environment and their community. As part of the initial review, an assessment of comparable peer municipal building standards/guidelines was conducted for relevance to the development of the City’s green building standard, which can be found in Appendix A.

This report offers a summary of provincial, regional, and City of Hamilton policies, plans, and strategies related to sustainability, energy and climate resilience applicable to the development of the GBS. It also reviews applicable Conservation Authority policies and regulations. The comprehensive policy review identifies principles and key considerations to inform the next stages of work in the development of the City-wide GBS.

2 PROVINCIAL PLANNING REVIEW

This section provides an overview of provincial legislation and plans that establish relevant direction to the GBS. This includes general land use planning and policy objectives that support the principles of sustainable city-building. Where provincial plans and policies include direction that may be applicable to developing the impact categories, key considerations have been identified in a table format to clearly establish a link between provincial policy drivers and opportunities for the City's GBS.

2.1 PLANNING ACT (1990, AS AMENDED)

The *Planning Act* R.S.O, 1990, c. P. 13, as amended, (the "*Planning Act*") is provincial legislation (law) that sets the ground rules for land use planning in Ontario. It describes how land uses may be controlled, and who may control them. The *Planning Act* provides the basis for considering matters of provincial interest in land use planning and establishes the tools available to municipalities to help plan for the future. Importantly, it provides the basis for the City of Hamilton and other municipalities to guide future development and land use planning by creating important documents, including Official Plans, Zoning By-laws, and Community Improvements Plans.

Section 2 of the *Planning Act* requires that municipalities, when carrying out their responsibilities under the *Planning Act*, must have regard for matters of provincial interest. These matters include but are not limited to, the:

- Protection of ecological systems and agricultural resources, including natural areas, features and functions;
- Conservation and management of natural resources;
- Supply, efficient use and conservation of energy and water;
- Adequate provision and efficient use of transportation, sewage and water services and waste management systems;
- Minimization of waste;
- Protection of public health and safety;
- Appropriate location of growth and development;
- The promotion of development that is designed to be sustainable development, to support public transit and is pedestrian-oriented; and
- Mitigation of greenhouse gas (GHG) emissions and adaptation to a changing climate.

The City of Hamilton and other municipalities are required to integrate matters of provincial interest into municipal planning decisions by requiring that all decisions be consistent with the Provincial Policy Statement and conform to and do not conflict with provincial plans. This direction provides important support for municipalities to develop policies and implement plans, such as green building standards for new development, that integrate matters of provincial interest.

Section 16(14) of the *Planning Act* directs that Official Plans, "shall contain policies that identify goals, objectives and actions to mitigate GHG emissions and to provide for adaptation to a changing climate, including through increasing resiliency."

Section 41 of the *Planning Act* allows for the councils of local municipalities to designate site plan control areas. This gives the local municipality some control over developments by requiring the plans to address "sustainable design" and "sustainable design elements" of exterior design and adjoining highways. Exterior design in site plan control was proposed to be amended by the Province through Bill 23, the *More Homes Built Faster Act*. While the first reading of Bill 23 proposed to remove all exterior design

features from municipal site plan control, except for public health and safety, the final *More Homes Built Faster Act* recognizes sustainable design as a matter subject to site plan control for projects with 10 or more residential units.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

1. Conform to the Provincial planning framework in developing the GBS as sustainable development, GHG emissions, and climate change adaptation are matters of Provincial interest.
2. Plan for efficient use and conservation of water and energy.
3. Plan for sustainable and appropriate utility and transit infrastructure to accommodate long-term growth in the City.
4. Mitigate and adapt to the impacts of climate change and reduce GHG emissions.
5. Plan for complete communities that are sustainable, protect ecological systems, features, and functions, and conserve natural resources as a matter of Provincial interest.
6. Consider opportunities to leverage financial and non-financial incentives afforded to municipalities through the Planning Act, such as Community Improvement Plans (CIPs)

2.2 MUNICIPAL ACT (2001, AS AMENDED)

The *Municipal Act*, 2001, S.O. 2001, c. 25 (the "*Municipal Act*") sets out the roles and responsibilities of municipal governments in Ontario. The *Municipal Act* recognizes municipalities as responsible and accountable local governments with a broad range of powers. The *Municipal Act* also affords municipalities powers to govern certain matters as they relate to green development and environmental design, such as:

- Identifying "respecting climate change" as a sphere of jurisdiction through which municipalities may pass a by-law;
- Requiring certain building design elements, such as 'green' roofs or alternative roof surfaces that achieve a similar level of performance as green roofs;
- Long-term energy planning may include consideration of energy conservation, climate change and green energy;
- Regulating site alteration, specifically with regards to soil, including that a permit for the dumping of fill or removal of topsoil may be required of a landowner, and that lower-tier municipalities may pass a site alteration by-law or require it as a condition of a site plan agreement; and,
- With regards to the natural environment, municipalities may prohibit or restrict the destruction or injuring of trees, or the same in an identified woodland.
- These matters, and others afforded to municipalities through the *Municipal Act* permit the City of Hamilton to integrate elements of the City's GBS into other tools, thereby supporting implementation of the GBS.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

1. Consider opportunities to integrate elements of the City's GBS into municipal by-laws (e.g., Zoning By-law), as appropriate, as a means to further advance the climate change, environmental protection, or energy related goals, objectives and targets of the GBS.

2.3 PROVINCIAL POLICY STATEMENT (2020)

The Provincial Policy Statement, 2020 (PPS) is issued under Section 3 of the *Planning Act* and provides direction to all planning-related matters and decisions in Ontario. The PPS is an important Provincial policy instrument that provides a framework for comprehensive, integrated, and place-based planning to build strong communities, sustain the integrity of the natural environment, and ensure long-term economic prosperity. The PPS focuses on building complete communities, establishing land use patterns that minimize environmental impacts, and promote efficient use of energy.

Municipal planning decisions are required to be consistent with the PPS. Notably, the PPS identifies Official Plans as the most important planning tool for implementing provincial policies and priorities. The City of Hamilton's two Official Plans and relevant policies that will guide and inform the development of the GBS are discussed in Section 4.1 of this Report.

A review of the PPS and key direction for the City's GBS is provided in the table below, highlighting how consistency with the PPS can be achieved through the GBS. This includes but is not limited to mechanisms to improve air quality and energy efficiency, react to climate change, promote active transportation and foster community connectivity through development applications.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

SECTION REFERENCE (PPS)	KEY CONSIDERATION FOR THE GBS
Section 1.1 (Managing and Directing Land Use to Achieve Efficient and Resilient Development and Land Use Patterns), Policy 1.1.1	Promote efficient development and land use patterns to support environmental and human health, biodiversity, and to prepare for the impacts of a changing climate.
Section 1.1.3 (Settlement Areas), Policy 1.1.3.2	Minimize negative impacts to air quality and prepare for the impacts of a changing climate by supporting land use patterns and a mix of land uses that support use of active transportation and transportation infrastructure.
Section 1.5 (Public Spaces, Recreation, Parks, Trails and Open Space), Policy 1.5.1(a)	Plan for complete, connected, and compact communities that facilitate social gathering and are pedestrian friendly.
Section 1.6 (Infrastructure and Public Service Facilities), Policy 1.6.1	Plan for the provision of infrastructure and public service facilities to accommodate projected needs and the impacts of a changing climate.
Section 1.6 (Infrastructure and Public Service Facilities), Policy 1.6.5	Support the co-location of public service facilities and public transportation and/ or active transportation.
Section 1.8 (Energy Conservation, Air Quality and Climate Change), Policy 1.8.1	Implement targets, indicators, and/or metrics that reflect and address the City's greenhouse gas reduction targets, improve air quality, and prepare the City and Hamilton community for the impacts of a changing climate.

2.4 A PLACE TO GROW: GROWTH PLAN FOR THE GREATER GOLDEN HORSESHOE (2020)

The Growth Plan for the Greater Golden Horseshoe, 2020 Office Consolidation (the “Growth Plan”) is the Province’s comprehensive policy framework to guide land use planning in the Greater Golden Horseshoe, and to implement the Province’s long-term vision for how and where municipalities in the Greater Golden Horseshoe will grow. All municipal decision-making related to land use planning or planning-related matters must conform to the policies and regulations established by and through the Growth Plan.

The Growth Plan provides direction for development, infrastructure planning and the protection of resources in the context of growth management. Broadly, issue areas include complete communities, compact urban form, growth management, and greenfield density and intensification minimum targets, a number of which are addressed through the City’s Official Plans (see Section 4.1 of this Report). The City’s GBS can advance the City’s land use planning framework to further implement and conform to the Growth Plan. On this basis, implementation of the GBS can help the City to achieve conformity with overarching policy matters contemplated in the Growth Plan by:

- Addressing the environmental design associated with encouraging complete communities;
- Supporting and encouraging intensification and mixed-use development;
- Providing mechanisms for residents and visitors to access and use alternative and active forms of transportation;
- Supporting the City’s transition toward a next-zero community;
- Implementing low impact development (LID);
- Promoting building conservation and adaptive reuse, as well as the recycling and reuse of construction materials; and,
- Protecting natural and cultural heritage, agriculture, and water resource systems.

The Growth Plan reflects the Province’s intent to manage the forecasted growth in a manner that balances people’s needs, supporting quality of life and human health; and protects agricultural, natural, and water resources. Complete communities are a focus of the Growth Plan (2020), and are defined as follows:

*“[Complete communities are] places such as **mixed-use neighborhoods** or other areas within cities, towns, and settlement areas that offer and support opportunities for **people of all ages and abilities** to conveniently access most of the necessities for daily living, including an appropriate **mix of jobs, local stores, and services, a full range of housing, transportation options and public service facilities.** Complete communities are age-friendly and may take different shapes and forms appropriate to their contexts.” [emphasis added]*

The Growth Plan promotes compact urban form, intensification and mixed-use development and is supportive of alternative forms of transportation like public transit or active transportation. This is a key policy support behind the continued shift in the development of more compact communities that support multi-modal and active transportation measures which, in turn, reduce reliance on private automobiles for trips within the community.

The Growth Plan also identifies priority transit corridors and major transit station areas (MTSAs) along these corridors. MTSAs are assigned density targets depending on the mode of transit serving the MTSA. This is meant to encourage a compact urban form surrounding public transit uses, which reduces reliance on private automobiles and therefore a reduction in GHG emissions. In Hamilton, these densities are 160 people and jobs per hectare for areas serviced by the LRT, and 150 people and jobs per hectare for

areas serviced by the GO transit rail network. The Growth Plan identifies the majority of Hamilton as being located within the Built-Up Area, inclusive of the Urban Growth Centre of downtown Hamilton.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

SECTION AND POLICY REFERENCE (GROWTH PLAN)	KEY CONSIDERATION FOR THE GBS
Section 2.2.1 (Managing Growth), Policy 4	Apply the policies of the Growth Plan to support the achievement of complete communities, including a diverse mix of land uses; improvement of social equity for all residents; expanding access to transportation options, public service facilities, parks and open spaces, and local food; and mitigating the impacts of a changing climate.
Section 2.2.3 (Urban Growth Centres), Policy 2(b)	Accommodate opportunities for green building standards that are suitable for areas of the City that accommodate greater growth and intensification, including Downtown Hamilton.
Section 2.2.4 (Transit Corridors and Station Areas), Policy 9	Facilitate and support the development of MTSA's by encouraging a diverse mix of land uses and infrastructure to support active transportation (e.g., sidewalks, bicycle lanes, bicycle parking, etc.)
Section 3.2.7 (Stormwater Management), Policy 2	For large scale development, stormwater management plans (or equivalent) should incorporate an integrated treatment approach which includes appropriate LID and green infrastructure.
Section 3.2.8 (Public Service Facilities), Policy 2	Encourage the co-location of public service facilities and community hubs to facilitate access by active transportation and transit and promote cost-effectiveness.
Section 4.2.9 (A Culture of Conservation), Policy 1(a)	Support a culture of water conservation through water demand management for the efficient use of water and water recycling to maximize the reuse and recycling of water.
Section 4.2.9 (A Culture of Conservation), Policy 1(b)	Encourage energy conservation for new development, including municipally owned facilities through opportunities for conservation, energy efficiency and demand management as well as district energy generation, renewable energy systems and alternative energy systems, and other conservation, energy efficiency and demand management techniques.
Section 4.2.9 (A Culture of Conservation), Policy 1(c)	Improve and protect air quality, including through reduction in emissions from municipal, commercial, industrial and residential sources.

**SECTION AND POLICY REFERENCE
(GROWTH PLAN)**
KEY CONSIDERATION FOR THE GBS

Section 4.2.9 (A Culture of Conservation) Policy 1(d)(i)	Enhance waste reduction, composting, and recycling initiatives, including new opportunities for energy from waste, source reduction, reuse and diversion.
Section 4.2.9 (A Culture of Conservation), Policy 1(d)(ii)	Promote building conservation and adaptive reuse, as well as the reuse and recycling of construction materials and reduction of construction waste.
Section 4.2.9 (A Culture of Conservation), Policy 3	Incorporate best practices for the management of excess soil generated and fill received during development or site alteration.
Section 4.2.10 (Climate Change), Policy 1(a)	Support the achievement of complete communities to help reduce GHG emissions and address climate change adaptation goals.
Section 4.2.10 (Climate Change), Policy 1(b)	Support and encourage existing planned transit and active transportation infrastructure to reduce dependence on private automobiles.
Section 4.2.10 (Climate Change), Policy 1(d)	Incorporate, where appropriate, green infrastructure and LID, including green roofs.
Section 4.2.10 (Climate Change), Policy 1(e)	Support watershed planning to protect the quality and quantity of water.
Section 4.2.10 (Climate Change), Policy 1(g)	Promote opportunities to produce and access local food to enhance food security and soil health.
Section 4.2.10 (Climate Change), Policy 2	Address the impacts of a changing climate by developing strategies to reduce GHG emissions, improve resilience and establish GHG emission reduction targets.

2.5 NIAGARA ESCARPMENT PLAN (2017)

The Niagara Escarpment Plan, 2017 (NEP) guides development and land use in the Niagara Escarpment, an important natural feature extending over 700 kilometers from Niagara to Tobermory. The NEP establishes a framework for planning processes to ensure the Niagara Escarpment, inclusive of landform features and resources, is protected from incompatible land use activities that may compromise its ecological integrity.

The NEP establishes seven land use designations with varying levels of protection. The following NEP land use designations apply in the City of Hamilton:

- **Escarpment Natural Area** provides the highest level of protection and associated policies are intended to maintain natural areas, including but not limited to wetlands and forests that are undisturbed or in a natural state;

- **Escarpment Protection Area** applies to features significantly modified by land use activities (e.g., agricultural, residential development) and land needed to buffer prominent Escarpment Natural Areas, with policies intended to maintain remaining natural features;
- **Escarpment Rural Area** encourages predominately agricultural and forestry uses for lands which are seen as compatible buffers to more ecologically sensitive areas in the Niagara Escarpment; and
- **Urban Area** applies to lands in the City of Hamilton that are still largely undeveloped, but surrounded by existing development with the goal of minimizing the impact and preventing further encroachment.

The City of Hamilton is required to ensure that the policies in both Official Plans conform to the NEP. The NEP is an essential part of the character of the City of Hamilton. It is a prominent feature that is visible from several locations in Hamilton and is a distinct feature that separates lower Hamilton from the upper urban area. The Urban Hamilton Official Plan (UHOP) establishes the important relationship between the Niagara Escarpment and the built environment including recognition of lands that have inherent environmental hazards.

Ontario Regulation 826/90 under the *Niagara Escarpment Planning and Development Act* describes lands within the NEP area which are designated as an Area of Development Control, including some lands located within the City. For example, in 2021 approximately 400 hectares of lands located in the City, referred to as the Pleasant View Survey lands, were added to the Area of Development Control. Lands located within the Area of Development Control could require a Development Permit from the Niagara Escarpment Commission (NEC) for certain types of development. *Ontario Regulation 828/90* lists the classes of development that are exempt from the requirement of obtaining a Development Permit from the NEC. According to the NEC, examples of development that may be exempt from obtaining a Development Permit include the maintenance, repair, replacement or decommission of a private sewage disposal system or roof-mounted solar panels.

It is important that the GBS, through implementing the policies of the City's Official Plans, also conforms to the NEP and protects and enhances the unique environmental features of the Niagara Escarpment.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

SECTION REFERENCE (NEP)	KEY CONSIDERATION FOR THE GBS
Section 1.6.8 (Development and Growth Objectives), Policy 1.6.8.5 and Section 1.7.5 (Development Objectives), Policy 1.7.5.2	Establish standards for new development to reduce energy consumption, improve air quality, and achieve Provincial GHG emissions reduction targets for 2030 and 2050. Encourage and support opportunities for the use of green infrastructure and LID.
Section 1.7.5 (Development Objectives), Policy 1.7.5.9.e	Establish standards for new development that reduces GHG emissions and prepares communities for the impacts of a changing climate.
Section 2.2 (General Development Criteria, Policy 2.2.6	Encourage development to be designed and located to maximize energy efficiency, make use of renewable and/ or alternative energy systems, and reduce GHG emissions.

2.6 PRESERVING AND PROTECTING OUR ENVIRONMENT FOR FUTURE GENERATIONS: A MADE-IN-ONTARIO ENVIRONMENT PLAN (2018)

Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan (the "Made-in-Ontario Plan") was adopted by the Province in 2018 as a visioning document, summarizing the Province's long-term environmental objectives. The Made-in-Ontario Plan outlines three guiding principles to address environmental challenges in Ontario:

- **Clear Rules and Strong Enforcement**, to ensure polluters are held accountable with tougher penalties, while reducing regulatory burden for responsible businesses;
- **Trust and Transparency**, to provide Ontarians with the information and tools required to understand current environmental challenges and how these challenges impact individuals, businesses and communities across Ontario; and,
- **Resilient Communities and Local Solutions**, which recognizes that environmental impacts faced by communities across Ontario may be very different, therefore it is important to work with communities and use best scientific practices and other evidence-based methods to develop unique solutions that are responsive to challenges.
- The Made-in-Ontario Plan categorizes actions into four areas of concentration:
 - **Protecting Our Air, Lakes and Rivers**, which seeks to protect air and water by keeping these critical resource systems clean;
 - **Addressing Climate Change** focuses on reducing emissions and helping residents prepare for the impacts of climate change;
 - Reducing Litter and Waste in Our Communities and Keeping our Land and Soil Clean, which is focused on reducing per person waste generation and diverting waste from landfill; and,
 - Conserving Land and Greenspace, which seeks to preserve natural spaces across Ontario.

While not prescriptive, the Made-in-Ontario Plan presents areas where provincial priorities for the environment can overlap and be supported by City of Hamilton priorities and policy. The provincial goals of ensuring clean air and water, undertaking actions for climate change mitigation and adaptation, improving soil quality, and conservation can be integrated into the GBS. Actions that have been identified as most relevant to inform the development of the GBS are identified and summarized in the table below.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

SECTION REFERENCE (MADE-IN-ONTARIO PLAN)

KEY CONSIDERATION FOR THE GBS

Protecting our Air, Lakes and Rivers	<p>Include performance measures to improve local air quality by prescribing development and design practices to reduce pollution in the construction process (e.g. urban heat island reduction, employing less concrete for construction) and in operation (e.g. low-emission transportation, cycling/pedestrian infrastructure).</p> <p>Include performance measures to improve water quality and aquatic ecosystem health to reduce the demand for potable water by suggesting or prescribing building and irrigations systems, materials and low-flow fixtures.</p>
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**SECTION REFERENCE
(MADE-IN-ONTARIO PLAN)**
KEY CONSIDERATION FOR THE GBS

Addressing Climate Change	<p>Incorporate educational tools like those developed by the Province to illustrate how building design can help mitigate climate change and increase resiliency to the extreme weather events caused by climate change.</p> <p>Encourage measures in new construction and reconstructions that improve buildings' resiliency to climate change and natural disasters, including flooding.</p> <p>Include performance measures that reduce energy use and GHG emissions and enhance building resilience to extreme weather events.</p> <p>Leverage the GBS as a tool for implementing consideration for climate change into the construction, maintenance, and redevelopment of City-owned facilities.</p>
Reducing Litter and Waste in Our Communities and Keeping our Land and Soil Clean	<p>Encourage the reuse of brownfields and present a clear and concise local process for environmental remediation while ensuring that the local environment is protected.</p> <p>Suggest and support innovative new methods of reusing excess soil, while also encouraging construction methods that reduce the amount of excess soil being created at construction sites.</p>
Conserving Land and Greenspace	<p>The GBS can encourage and incentivize the use of both traditional timber construction and innovative mass engineered timber in commercial and institutional construction, where concrete and steel are still the preferred building materials.</p>

2.7 ONTARIO BUILDING CODE

The *Building Code Act* is the legislative framework governing the construction, renovation and change-of-use of a building in Ontario. The Ontario Building Code (OBC) is a regulation under the Building Code Act, which establishes technical requirements and minimum standards for building construction. The main purpose of the OBC is the promotion of public safety through the application of uniform building standards. Thus, municipalities cannot rely solely on OBC minimum requirements in order to achieve their environmental goals and build better communities.

OBC has incorporated operational energy performance requirements as part of OBC Part 12 and Supplementary Standard SB-10. The requirements cover new buildings and additions for Part 3 buildings, and non-residential Part 9 buildings.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

1. Consider adopting and establishing standards for new development that exceed the minimum building requirements established in the OBC, specifically as it relates to energy performance.

3 CONSERVATION AUTHORITY POLICY REVIEW

This section provides a review and analysis of relevant Conservation Authority policy and guidelines. Conservation Authorities with jurisdiction within the City of Hamilton include the Halton Region Conservation Authority, Grand River Conservation Authority, Niagara Peninsula Conservation Authority, and Hamilton Conservation Authority.

Conservation authorities are responsible for protecting and restoring the ecological health and integrity of natural systems. They also aim to ensure that developments are not at risk from natural hazards such as flooding and erosion. This section provides a review and analysis of relevant policies and/or guidelines from the Conservation Authorities, where applicable, that are in-effect to understand alignment with and key direction for the City's GBS.

3.1 HAMILTON CONSERVATION AUTHORITY

The Hamilton Conservation Authority (HCA) is the area's largest environmental management agency and is dedicated to the conservation and enjoyment of watershed lands and resources. The HCA's watershed is situated at the western end of Lake Ontario and Hamilton Harbour. It is spread across the City of Hamilton and is a major landowner within the watershed area.

The watershed contains diverse natural landscapes, ecosystems and areas. However, population growth, climate change, and urban development continues to impact water resources and natural areas. This section reviews relevant policies and guidelines that can inform the City's GBS to help bolster protection and enhancement of the watershed while balancing population growth and development.

3.1.1 HAMILTON CONSERVATION AUTHORITY PLANNING AND REGULATION POLICIES AND GUIDELINES (2011)

The HCA Planning and Regulation Policies and Guidelines, 2011 (the "Guidelines") document includes policies and guidelines that recognize the interconnectedness between environmental, physical and social factors influencing land use planning. In addition to providing a history of the HCA, legislation and policy guiding the HCA, and the planning approach and objectives for the planning review process, the Guidelines also include policies for natural hazards, natural heritage, floodproofing, erosion and sediment control, vegetation, and stormwater management, among other matters.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

SECTION REFERENCE (HCA GUIDELINES)

KEY CONSIDERATION FOR THE GBS

Section 3.1 (General Policies), Policy a	The GBS should encourage and protect existing natural features and areas.
Section 3.1 (General Policies), Policy b	The GBS should enhance diversity and connectivity of natural features, recognizing linkages between natural heritage features and areas, and surface and ground water features and areas.

3.2 NIAGARA PENINSULA CONSERVATION AUTHORITY

The Niagara Peninsula Conservation Authority (NPCA) is a community-based natural resource management agency that protects, enhances, and sustains healthy watersheds. The NPCA offers watershed programs and services that focus on flood and hazard management, source water protection, species protection, ecosystem restoration, community stewardship, and land management. The NPCA manages 41 conservation areas within the Niagara Peninsula watershed held in public trust for recreation, heritage preservation, conservation, and education.

3.2.1 NIAGARA PENINSULA CONSERVATION AUTHORITY STORMWATER MANAGEMENT GUIDELINES (2010)

The NPCA Stormwater Management Guidelines, 2010 (the "Guidelines") were prepared by the NPCA to provide a long-term plan for the effective management of runoff in urban and urbanizing areas, while sustaining the health of local rivers and streams. The Guidelines provide detailed stormwater management, erosion, sediment control policies, and criteria for existing and proposed development in the Niagara Region and NPCA watershed. The Guidelines are a companion document for municipal stormwater management policies and guidelines that may be developed by the City and other local municipalities, providing a consistent approach for stormwater management.

Relative to the City's GBS, the Guidelines provide a summary of recommended directions for municipalities to include in official plans and design standards to guide and advance stormwater management. Notably, the Guidelines direct local municipalities to encourage development that incorporates environmentally sustainable building design and construction practices, specifically those that reduce stormwater flows and create innovative green spaces. The NPCA also encourages environmental education, compliance and incentives to protect, restore, and enhance existing green spaces and the health of the watershed. A summary of more detailed recommendations that may be implemented and reflected through the City's GBS is provide in the table below.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

SECTION REFERENCE (NCAP GUIDELINES)	KEY CONSIDERATION FOR THE GBS
Design Principles and Urban Design Guidelines	Support the use of innovative methods for managing stormwater runoff.
Parking Standards	Encourage and support innovative parking lot design in public and private developments, including but not limited to peripheral plantings and landscaped islands.
Innovative Stormwater Management Design Standards	Support and encourage naturalized methods for stormwater management.
Spill Management	Consider amending the Official Plan to require a Spill Management Plan for new development that processes, stores or requires liquids.
Lot Grading Criteria	Support and encourage mechanisms to control on-site stormwater runoff that are of appropriate scale and capacity for the development typology.

**SECTION REFERENCE
(NCAP GUIDELINES)**
KEY CONSIDERATION FOR THE GBS

	Encourage the use of alternative landscape design in lieu of turf grass that incorporates a diversity of native vegetation, including drought resistant species, to reduce watering needs.
	Permit and encourage additional topsoil depth.

3.3 HALTON REGION CONSERVATION AUTHORITY

The Halton Region Conservation Authority (herein referred to as “Conservation Halton”) protects people from natural hazards, conserves the natural environment, and provides opportunities for recreation and outdoor education across the watershed within its jurisdiction. Importantly, Conservation Halton supports partners and communities in creating more sustainable communities and preparing for the impacts of climate change.

3.3.1 HALTON REGION CONSERVATION AUTHORITY GUIDELINES FOR STORMWATER MANAGEMENT (2021)

The Halton Conservation Authority Guidelines for Stormwater Management, 2021 (the “Guidelines”) focuses on Conservation Halton’s expectations related to water resource engineering aspects of stormwater management. Conservation Halton protects, manages and enhances areas within its jurisdiction through a wide variety of programs and services and permission from Conservation Halton is required for the construction of stormwater infrastructure or any associated work within a regulated area. The Guidelines outline requirements and recommendations for various components of the planning and approvals process, including stormwater management practices. Key considerations that may be considered for the City’s GBS are identified in the table below.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

**SECTION REFERENCE
(CONSERVATION HALTON
GUIDELINES)**
KEY CONSIDERATION FOR THE GBS

Section 2.7 (Climate Change)	Consider opportunities to address climate change resiliency and adaptive management in stormwater management design.
Section 3.1 (Low Impact Development)	Consider opportunities to implement LID techniques as part of stormwater management strategies, where appropriate.

4 CITY OF HAMILTON POLICY AND DOCUMENT REVIEW

This section reviews and provides a summary of City of Hamilton plans, policies and guidelines that provide important direction for the City's GBS. This includes new and emerging plans that respond to the City's declaration of a Climate Emergency in 2019 such as the Community Energy and Emissions Plan and Climate Change Impact Adaptation Plan. The Urban Hamilton Official Plan is also considered as it provides the overall framework through which land use planning in Hamilton must conform to.

The overall objective of this section is to identify policies that provide important direction for the GBS, including impact categories. Similar to Section 2, subsections include a summary of key directions in bullet point or table format to clearly identify policy drivers and key considerations for the City's GBS.

4.1 CITY OF HAMILTON OFFICIAL PLANS

Official Plans establish the principles, goals, objectives, and policies governing growth and development on a range of land use planning and related matters. Municipalities are required to develop and adopt an Official Plan under Section 16 of the *Planning Act*, and all municipal decisions concerning land use matters in Hamilton are required to conform to the applicable Official Plan.

The City of Hamilton has two Official Plans in-effect. The Urban Hamilton Official Plan (UHOP) applies to the City's urban area, which is the centre for employment uses, community services, and residential neighbourhoods. The Rural Hamilton Official Plan (RHOP) applies to Hamilton's rural area, which is comprised of agricultural and environmental areas and a variety of recreational and tourism uses. It is noted that the Hamilton Wentworth Official Plan and City of Hamilton Official Plan are still applicable to the West Harbour (Setting Sail) Secondary Plan Area. However, for the purposes of the GBS the policies still prioritize sustainability.

The City is currently undertaking a review of both the UHOP and RHOP through a process referred to as the Municipal Comprehensive Review (MCR). The MCR has been broken down into four phases, resulting in updates to existing Official Plan policies. At present, the UHOP and RHOP have been updated to reflect Official Plan Amendments (OPAs) prepared by the City and modifications provided by the Ministry of Municipal Affairs and Housing. This includes OPA 167, which added to the City's policy framework, providing further emphasis on sustainability measures. Together, the UHOP and RHOP provide guidance on the management of communities, land use change and physical development over a 30 year planning horizon to accommodate a minimum population of at least 820,000 residents and 360,000 jobs by 2051.

The following sections provide a review of specific policies in the UHOP that are relevant and applicable to the GBS. As the overarching policy document that guides growth and change within the urban area of Hamilton to the year 2051, the GBS must reflect the goals, objectives, and policies of the UHOP and RHOP as it pertains to the natural and built environments, social fabric, and transportation network. For the purposes of this Report, the UHOP will be the focus of review and analysis on the basis that the GBS will apply to Hamilton's urban area. Given that new development will also occur in Hamilton's rural areas, this section also contemplates policies in the RHOP, where applicable and appropriate.

4.1.1 URBAN HAMILTON OFFICIAL PLAN (2023, AS AMENDED)

The UHOP establishes an urban structure that provides a policy approach for guiding long range growth and development in Hamilton. The urban structure formally identifies where and how the City will physically grow over the long term. The urban structure provides direction for a range of land use

designations to implement the strategic direction and achieve the envisioned built form and function of the City. Land use designations and their relationship to the urban structure as established in the UHOP includes:

- **Commercial and Mixed Use Designations:** Accommodates commercial uses, including retail stores and restaurants, that contribute to vibrant retail and mixed use areas servicing surrounding neighbourhoods and communities.
- **Employment Areas Designations:** Function as the primary employment generators in the City and are the location of diverse areas of employment. Employment Areas range from historic, heavy industrial and port employment areas to planned business parks.
- **Neighbourhood Designation:** Primarily consists of residential uses and complementary facilities and services intended to serve Hamilton's residents. This includes but is not limited to parks, schools, trails, recreation centres, places of worship, small retail stores, and restaurants.
- **Open Space Designation:** Includes prominent natural and open space features that form a contiguous system throughout the City's urban area. These features include the Niagara Escarpment and Cootes Paradise, among other important natural and recreational areas in the City.
- **Institutional Designation:** Provides permission and guidance for a wide range of institutional uses, including but not limited to educational, cultural, religious, health care, and long-term care facilities.

In Section 1.2 of the UHOP, the City establishes the urgent need to respond to the impacts of a changing climate, referencing the Climate Emergency declaration and establishing a goal of achieving net zero carbon emissions by 2050. Several goals and policies of the UHOP both directly and indirectly contribute to improvement of air quality, the reduction of GHG emissions, minimizing vulnerability to climate impacts, and other climate-related actions that may be closely aligned with the City's GBS, including:

- Promoting compact, mixed use urban communities;
- Integrating the transportation network to include all modes of transportation;
- Promoting active transportation, including walking and cycling, and the use of public transit;
- Achieving a natural heritage ecosystem through the protection and enhancement of natural heritage features and functions;
- Implementing urban design features to support sustainable development;
- Enhancing vegetative cover; and
- Reducing the heat island effect through the use of reflective roofs, green roofs, natural landscaping, and increasing the tree canopy.

These goals are implemented through City-wide designations and policies described above, infrastructure and community service policies, as well as policies dealing with environmental issues and natural systems. In particular, Section 3.7 of the UHOP provides direction to the City to respond to the impacts of a changing climate. This includes direction for the City to establish and update a GBS program (Policy 3.7.3) and includes a comprehensive list of energy efficient and environmental design considerations through Policy 3.7.2 that should be considered as part of the GBS. Given the relevance and importance of this policy to the development of the GBS, a comprehensive list of the design considerations included in Policy 3.7.2 is provided below:

- Use of third-party certification and rating systems (e.g., LEED);
- Renewable energy or alternative energy systems;
- Cogeneration energy systems;

- Green roofs, reflective roofs, or other design interventions to minimize building heat loss and capture or retain solar heat;
- Building orientation to maximize solar or wind energy;
- Building design that encourages use of active transportation, transit, and alternative fuel and energy conserving vehicles;
- Energy conservation initiatives (e.g., energy demand management);
- Water and stormwater conservation or management practices;
- LID techniques;
- Building conservation and adaptive reuse;
- Designs that facilitate cooperation or joint energy efficiency between development;
- Use of locally sourced and reclaimed building materials to reduce embodied carbon; and,
- Other environmental development standards that encourage energy efficiency and environmental design.

UHOP policies particularly relevant to the GBS are identified and summarized in the table below for key considerations for the GBS. Overall, the urban structure and land use designations in the UHOP establish a comprehensive approach for the planned land use contexts with the City. The different land use designations respond to a hierarchy for growth established in the urban structure. Through the GBS, there is an opportunity to implement and reflect various standards for new development that are responsive to the planned form and function for different contexts within the City. At the same time, policies established in the UHOP that apply City-wide recognize shared benefits that can be achieved by setting a standard for new development that is sustainable and responsive to the impacts of a changing climate. This provides a strong foundation for the development of green building standards for new development in the City's urban areas.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

SECTION REFERENCE (UHOP)	KEY CONSIDERATION FOR THE GBS
Section 2.2 (Urban Structure Elements), Policies 2.2.1 – 2.2.6	Consider standards for green buildings that are responsive to and appropriate for the planned development context.
Section 3.3.2 (General Policies and Principles), Policy 3.3.2.8	Encourage on-site stormwater management and infiltration, as well as the use of third-party certification programs and other tools to reduce energy consumption and GHG emissions for buildings.
Section 3.7 (Energy and Environmental Design), Policy 3.7.2	Consider including the list of energy efficient and environmental design considerations identified in Policy 3.7.2 as part of the GBS.
Section 3.7 (Energy and Environmental Design), Policy 3.7.3	Develop and implement a GBS program that includes a development review checklist to be used through the development approvals process.
Section 3.7 (Energy and Environmental Design), Policy 3.7.6	Incorporate permissions for alternative energy systems, in accordance with federal and provincial requirements.

SECTION REFERENCE (UHOP) KEY CONSIDERATION FOR THE GBS

Section 5.6 (Green Infrastructure), Policy 5.6.1	Incorporate LID techniques such as rainwater harvesting, rain gardens, and bioswales, permeable pavements and green roofs.
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4.1.2 RURAL HAMILTON OFFICIAL PLAN (2023, AS AMENDED)

As mentioned previously mentioned in Section 4.1 of this Report, the RHOP applies to the lands in the rural area of the City. The rural area is comprised of agricultural and environmental areas, mineral aggregate resources, Rural Settlement Areas, and a variety of recreational and tourism uses and surrounds the City's urban area. Generally, the rural area land use designations reinforce and support the significant contribution that agriculture makes to the lifestyle, environment, and economy of the City. Policies provide for a wide range of permitted agricultural uses in appropriate areas while ensuring the sustainability of the natural heritage system.

Given that the RHOP applies to a different geographic area than the UHOP, a different set of policies are required that reflect the unique geographic and historic context of the rural area. The RHOP is aligned with the UHOP in terms of a vision for Hamilton's future that is vibrant, health, and sustainable.

While the RHOP does not contain explicit policy directing the City to establish a set of standards for new development, the RHOP does include important policy direction and guidance that support the evolution of a strong rural community and protected environmental systems, balanced with transportation networks that offer choice for residents and visitors. Key directions for the City's GBS are provided in the table below.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

SECTION REFERENCE (RHOP) KEY CONSIDERATION FOR THE GBS

Section 2.10 (Tree and Woodland Protection), Policy 2.10.1	Encourage and/or require use of sustainable forestry practices and consider direction to protect and restore trees and forests.
Section 2.12 (Water Resources), Policy 2.12.1	Promote and support efficient and sustainable use of water resources, including water conservation.
Section 3.6.2 (Air Quality and Climate Change), Policy 3.6.2.2	Support the reduction of air pollutants and greenhouse gas emissions to improve air quality and respond to the impacts of a changing climate.
Section 3.5.2 (General Policies), Policy 3.5.2.6	Support and encourage the clustering and/or co-locating of facilities to improve efficiency and accessibility.
Section 4.3 (Active Transportation), Policy 4.3.1	Identify and support opportunities to connect to the City's active transportation network, in support of the City's Cycling Master Plan.

4.2 CITY OF HAMILTON COMPREHENSIVE ZONING BY-LAW (2005)

The City currently has six former municipal Zoning By-laws and one Comprehensive Zoning By-law. The City is currently working to bring all of the remaining lands into Comprehensive Zoning By-law No. 05-200 (herein referred to as the "Comprehensive Zoning By-law") and the GBS are being developed to provide guidance on the regulations incorporated into the Comprehensive Zoning By-law. On this basis, this Report considers and evaluates the Comprehensive Zoning By-law for its relevance and relationship to the GBS.

The Comprehensive Zoning By-law came into effect in May 2005 and has since been implemented in different stages to:

- Implement the policies of the UHOP and RHOP; and
- Create consistent zoning within the City's urban and rural areas.

While the UHOP and RHOP provide broad, overarching policy direction for land use planning and growth management in Hamilton, the Zoning By-law provides specific direction, dictating where certain land uses are permitted, and what regulations, provisions, and standards apply to development of those lands. All development within the City of Hamilton must conform to the regulations, standards, and provisions of the Zoning By-law. This includes prohibiting uses of land or building for certain purposes, regulating the type and character of development, and establishing minimum and/or maximum design standards.

The Zoning By-law establishes various zones that identify permitted and prohibited uses as well as the regulations applicable to permitted uses. These zones implement land use designations and broad policy direction in the UHOP and RHOP, providing specific guidance and direction for the type of development permitted in Hamilton. Broadly, zone categories in the City's Comprehensive Zoning By-law No. 05-200 include:

- **Downtown Zones:** Establish a range of development-oriented zones for the Urban Grown Centre that include a broad range of permitted uses, including commercial, retail, office and residential uses. The Downtown Zones establish standards that intend for a more compact and dense built form, with a range of permitted building typologies.
- **Open Space and Park Zones:** Establish a range of zones that reflect different parks and open space scales across Hamilton, from neighbourhood parks to city-wide parks and open spaces. This zone category also regulates conservation and hazard lands.
- **Institutional Zones:** Permit a range of institutional uses at different scales across Hamilton, from neighbourhood institutional uses to major institutional facilities.
- **Industrial Zones:** Accommodates a wide range of industrial and employment activity in Hamilton. This zone category also regulates airport and port lands in Hamilton.
- **Commercial and Mixed-Use Zones:** Establish a range of commercial and mixed uses, ranging from local neighbourhood-scale retail opportunities to large format shopping centres with comfortable, vibrant, and compact pedestrian environments.
- **Transit Oriented Corridor Zones:** Permit commercial and residential uses and include standards that accommodate greater intensification in areas surrounding transit corridors. Certain uses are prohibited to support the operation of the LRT and support a more pedestrian friendly environment.
- **Rural Zones:** Permit existing and some new agricultural related uses that will protect and enhance agriculture and rural uses as the primary activity in these zones.

- **Utility Zones:** Established to permit the airport, utility uses, and municipal or private parking lots. Regulations are established to protect the health and safety of people from these uses.
- **Waterfront Zones:** Establish permitted uses including residential, and retail uses along Hamilton's waterfront.
- **Residential Zones:** Apply to low density residential areas and permits a range of low-density residential housing types. The City's Residential Zones are currently being reviewed and updated through the Residential Zones Project and will introduce new mid- and high-rise residential zones City-wide.

Through the Zoning By-law, the City is permitted to control how and where development is to be permitted and directed. It also provides an opportunity to implement more robust sustainability policies associated with provisions that development must conform to as established through the Zoning By-law. This includes elements such as landscaping, parking, and building size, location, footprint and lot coverage.

The Zoning By-law includes some reference to and consideration of provisions that are responsive to green building standards. For instance, Section 5.7 establishes standards for bicycle parking spaces, including minimum requirements for long-term bicycle parking spaces in relation to different types of uses. However, there is opportunity to introduce permissions for electric vehicle parking spaces, green roofs, and other elements of green building standards for new development that can be implemented through the City's ZBL. On this basis, the Zoning By-law is an important tool that can be leveraged to implement certain elements of the GBS, where appropriate, to require more rigorous expectations and standards.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

1. At a minimum, reflect and complement the standards and regulations of the Zoning By-law as they pertain to parking, landscaping, and permitted uses in the GBS.
2. Create guidelines that help maximize the use of mandated design features on a lot, such as landscaped open space.
3. Reflect and encourage best practices for green building technology and low impact design.
4. Emphasize the importance of urban design, streetscaping, and landscaping to the overall objective of greater sustainability, as well as mitigation and adaptation to climate change.
5. Utilize the GBS to advance the requirements of the Zoning By-law with respect to bicycle parking, and other transportation opportunities.
6. Consider leveraging the GBS to require and/or encourage green building standards that are not currently included in the City's Zoning By-law. For example, electric vehicle and/or bicycle parking requirements, standards for green roof requirements, etc.

4.3 CITY OF HAMILTON CLIMATE ACTION STRATEGY (2022)

The City of Hamilton Climate Action Strategy emerged from Council's declaration of a Climate Change Emergency in March 2019. The Climate Action Strategy is responsive to local climate changes observed in Hamilton, including increased frequency and severity of heat waves, storms, and temperature and precipitation, resulting in heat related illnesses, flooding, and increased maintenance costs for the City's roads and infrastructure.

The Climate Action Strategy is focused on climate change mitigation (reducing GHG emissions) and climate change adaptation (decreasing impacts and preparing for impacts of a changing climate). The City has developed two plans that form the basis of the Climate Action Strategy. The Community Energy

and Emissions Plan is focused on mitigation and reducing GHG emissions. The Climate Change Impact Adaptation Plan is designed to reduce the impacts of climate change in Hamilton. These plans are described and reviewed in the following sections for their relevance to the GBS.

4.3.1 COMMUNITY ENERGY AND EMISSIONS PLAN (2022)

The City of Hamilton's Community Energy and Emissions Plan (CEEP) is a long-term plan to meet Hamilton's future energy needs while improving energy efficiency, reducing GHG emissions and fostering local sustainable and community-supported energy solutions. Notably, the CEEP is one important component of the City's strategy for responding to the climate emergency with the overall goal of achieving net-zero carbon emissions, city-wide, by 2050. To help achieve this goal, the CEEP contemplates several aspects of city-wide energy use and GHG emissions, including actions that support improving the energy efficiency and GHG profile of new buildings in Hamilton.

The CEEP identifies five low-carbon transformations with targets modelled that, if achieved, can reduce city-wide GHG emissions by 96% by 2050. The five low-carbon transformations are listed and briefly described below:

Innovating our industry, which focuses on reducing GHG emissions in the industrial sector;

Transforming our buildings, which explicitly identifies the need to significantly improve energy efficiency in the building sector through implementation of energy performance standards and guidelines for new buildings;

Changing how we move, includes actions that focus on increasing modal split of transit and active transportation and decreasing the number of trips taken in personal vehicles;

Revolutionizing renewables, identifies actions that promote renewable energy generation; and,

Growing green, identifies actions that promote carbon sequestration through growth of the City's tree canopy and preserving the City's existing natural heritage features.

The five low-carbon transformations and associated actions may be considered for integration in the City-wide GBS, including but not limited to renewable energy sources, connections to transit networks, provision of active transportation infrastructure, and waste diversion measures. These actions and opportunities for implementation through the GBS are identified in the table below.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

SECTION REFERENCE (CEEP)	KEY CONSIDERATION FOR THE GBS
Section 6.2 (Transforming Our Buildings), Action 4	Establish net-zero building and development standards, in alignment with the City's goal to achieve net-zero carbon emissions City-wide by 2050.
Section 6.2 (Transforming Our Buildings), Action 5	Encourage and remove barriers associated with roof-mounted solar PV systems for new development (noting that contribution back to the electrical grid should not constitute a commercial use).
Section 6.3 (Changing How We Move), Action 7	Increase access to active transportation to reduce transportation emissions and facilitate other co-benefits, including improved physical health and increased social well-being.

SECTION REFERENCE (CEEP)**KEY CONSIDERATION FOR THE GBS**

Section 6.3 (Changing How We Move), Action 9	Expand transit to reduce the need for personal use vehicles, support e-mobility such as e-cars, e-bikes, and e-scooters, and expand and/or set new priorities for transit options.
Section 6.3 (Changing How We Move), Action 10	Encourage the adoption and increase uptake of EVs by situating charging points in new development.
Section 6.3 (Changing How We Move), Action 13	Reduce parking requirements for development in strategic locations (e.g., transit corridors) and incentivize EV access.
Section 6.4 (Revolutionizing Renewables), Actions 17 and 20	Divert as much waste as possible from landfill and use organic waste as feedstock for AD systems.
Section 6.4 (Revolutionizing Renewables), Action 19	Support decarbonization and expansion of the downtown district energy system.
Section 6.5 (Growing Green), Action 23	Establish standards for soil management and other practices (e.g., tree planting) to support carbon sequestration.

4.3.2 CLIMATE CHANGE IMPACT ADAPTATION PLAN (2022)

The Climate Change Impact Adaptation Plan (CCIAP) is an evidence-informed, action-oriented plan to help minimize the impacts of climate change on Hamilton's residents, businesses and infrastructure. Importantly, the CCIAP focuses on assisting those most vulnerable to the impacts, helping to reduce recovery time, costs, and health impacts from climate change.

Informed by up-to-date projections for Hamilton's future climate, the CCIAP includes evidence-informed actions that envisions the City of Hamilton as a national leader on climate adaptation. The actions proposed in the CCIAP are organized to focus on four resilient theme areas, each with corresponding objectives, actions and supporting actions to achieve those objectives. The resilient theme areas, actions, and their relevance to the GBS are summarized in the table below.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS**SECTION REFERENCE (CCIAP)****KEY CONSIDERATION FOR THE GBS**

Resilient Theme #1 (Built Environment), Objective 1, Action 1.1	Require consideration of LID features and green infrastructure as appropriate, based on development context.
Resilient Theme #1 (Built Environment), Objective 2, Action 2.2	Encourage and support connections to Hamilton's transportation network.
Resilient Theme #2 (People and Health), Objective 4, Action 4.2	Consider requirements for emergency preparedness kits for residents and/or tenants of new development.
Resilient Theme #2 (People and Health), Objective 6, Action 6.2	Increase the presence and maintenance of back-up electrical supply for buildings greater than three storeys.

Resilient Theme #3 (Natural Environment, Agriculture and Water), Objective 8, Action 8.1	Continue and expand the protection of corridor/connected tree canopy within the public and private spaces (e.g. urban streets, commercial shopping centres, hydro-corridors etc.) to improve areas of shade cover and ecological connectivity.
Resilient Theme #3 (Natural Environment, Agriculture and Water), Objective 9, Action 9.1	Encourage and/or require spaces for local food growing in new development.
Resilient Theme #3 (Natural Environment, Agriculture and Water), Objective 9, Action 9.2	Consider requirements for rainwater capture in new residential development for water capture, irrigation and/or local food growing.
Resilient Theme #4 (Energy and Economy), Objective 11, Action 11.1	Incorporate requirements for local energy generation on-site.
Resilient Theme #4 (Energy and Economy), Objective 11, Action 11.2	Consider innovative opportunities/ technology for low carbon emergency power for new development.

4.4 CITY OF HAMILTON BIODIVERSITY ACTION PLAN (DRAFT)

The City of Hamilton Biodiversity Action Plan (BAP) is currently in draft form. The BAP outlines the actions needed to protect and enhance the biodiversity within Hamilton to ensure the community remains a healthy, biodiverse place for people to live, work, visit or invest and for plant, animal, and insect species to thrive. Once finalized, the BAP will provide clear direction for the City and local community partner organizations to work together to protect and rehabilitate Hamilton's unique biodiversity assets. Community partner organizations include but are not limited to Environment Hamilton, Hamilton's Naturalist Club, and the Hamilton Conservation Authority and Halton Region Conservation Authority.

The draft BAP was released for public review and comment in April 2023. The BAP includes seven key priorities and several supporting actions, including timeframes and lead organizations, to be accomplished within the next five years. The seven key priorities are:

1. **Key Priority 1:** Develop an administrative framework to manage the on-going implementation of the Biodiversity Action Plan's Actions.
2. **Key Priority 2:** Understand the current baseline state of Hamilton's biodiversity to inform future monitoring and priorities.
3. **Key Priority 3:** Protect natural areas and their functions within Hamilton over the long-term to support diversity and connectivity.
4. **Key Priority 4:** Enhance public awareness of the importance of biodiversity and explore opportunities to enhance biodiversity through stewardship.
5. **Key Priority 5:** Protect Hamilton's biodiversity by implementing coordinated, city-wide efforts to control, remove, and manage invasive species.
6. **Key Priority 6:** Enhance local aquatic habitats through sustainable stormwater management practices and restoration of degraded watercourses, waterbodies, and wetlands.
7. **Key Priority 7:** Ensure impacts on or improvements to local biodiversity are clearly considered in all municipal decision making related to the development or use of urban and rural lands.

A targeted selection of key priorities and specific actions in the BAP are identified in the table below described based on an initial assessment as to how the identified key priorities and guiding actions may help to inform the City's BGS, including potential targets or KPIs, incentive options, and opportunities to support implementation.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

SECTION REFERENCE (BAP)	KEY CONSIDERATIONS FOR THE GBS
Key Priority 4: Enhance public awareness of the importance of biodiversity and explore opportunities to enhance biodiversity through stewardship	Include targets and/or metrics for native species planting requirements. There is also an opportunity to incentivize development that achieves certain metrics through additional monetary or non-monetary recognition.
Key Priority 6: Enhance local aquatic habitats through sustainable stormwater management practices and restoration of degraded watercourses, waterbodies and wetlands	There is an opportunity to include targets and/or KPIs that enhance on-site stormwater management practices.
Key Priority 7: Ensure impacts on or improvements to local biodiversity are clearly considered in all municipal decision making related to the development or use of urban and rural lands	The GBS can include development standards that protect biodiversity and improve local habitats.

4.5 CITY OF HAMILTON COMMUNITY IMPROVEMENT PLANS

A Community Improvement Plan (CIP) is a tool available to municipalities through Section 28 of the *Planning Act*. CIPs allow municipalities to offer loans and grants for a range of activities identified under Section 28 of the *Planning Act*, including but not limited to planning or replanning, design, development, redevelopment, construction, rehabilitation and improvement of energy efficiency. A municipality must have enabling policies in an official plan to prepare CIPs. Once implemented, a CIP allows a municipality to provide tax assistance, grants or loans to assist in the revitalization of lands and/or buildings within the defined Community Improvement Project Area (CIPA).

There are currently five CIPs in effect in the City of Hamilton:

- **Hamilton LEEDing the Way CIP (2010)**, which is intended to provide information and incentives for the improvement and enhancement of existing and future industrial, commercial, mixed use and multi-unit residential development within the City's urban area;
- **Housing for Hamilton CIP (2019)** is intended to provide a framework for the provision of incentives to stimulate the creation of a wider range of housing options;
- **Water and Wastewater Infrastructure Support CIP** facilitates community improvement within the urban and rural areas by providing financial incentives to the owners of residential land and buildings to pay for the whole or part of eligible costs of projects intended to mitigate and/or adapt to the impacts of a changing climate;

- **Revitalizing Hamilton’s Commercial Districts CIP (2021)**, which provides the framework for stimulating investment and redevelopment to enhance Hamilton’s various downtowns, commercial districts and mixed use corridors; and
- **Environmental Remediation and Site Enhancement (ERASE) CIP (2023)** is intended to provide a comprehensive framework designed to improve economic opportunities and environmental conditions for brownfield sites and other environmentally impacted properties.

A CIP is an important tool available to the City of Hamilton to direct funds and implement policy initiatives towards specifically designed project areas, provided the Official Plans include enabling policies. There is an opportunity for the City to leverage existing CIPs to incentivize implementation of GBS impact

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

1. Assess opportunities to support implementation of the GBS through the City’s existing CIP framework.

4.6 CITY OF HAMILTON SITE PLAN CONTROL BY-LAW

Under Section 41 of the *Planning Act*, a municipality may designate the whole or part of a municipality as a Site Plan Control Area. Site plan control (SPC) is an optional planning tool that a municipality can use to evaluate certain design elements, such as walkways, parking areas, landscaping or exterior design on a parcel of land where development is proposed. As discussed in Section 2.1 of this Report, the *Planning Act* restricts a municipality’s site plan approval power to the exterior design of a building.

The City passed By-law No. 03-294 (the “SPC By-law”) in 2003 and has since undertaken multiple modifications of the SPC By-law to reflect provincial and local policy changes. Most recently, the SPC By-law was amended to reflect Bill 23 changes specific to development with less than ten units. Broadly, the SPC By-law identifies all lands in the City as a Site Plan Control Area. The UHOP and RHOP both identify site plan control as an important tool to encourage well-designed, functional and universally accessible development in Hamilton. It is used to achieve and promote a range of planning objectives, including pedestrian scale development, integration of ecologically important features, and accessibility for people with a range of abilities among other matters. However, site plan approval may not be required for all forms of development, including low-density residential development such as single detached dwellings and developments up to ten units. Where an application for new development satisfies the requirements of the Zoning By-law and is not required to receive site plan approval, there may be opportunities to require implementation of the GBS through other means. This may include CIPs or other tools and programs available to the City to support implementation.

Many components of the City’s GBS can relate to areas contemplated in the City’s Site Plan Control By-law. The Site Plan Control By-law is an important tool that the City can and will continue to use to mandate sustainable urban design through the development approvals process. Where new development does not require site plan approval, the City may consider leveraging other tools and/or programs to support implementation of GBS.

KEY CONSIDERATIONS FOR THE CITY OF HAMILTON GBS

1. Leverage application of site plan control as a means to trigger implementation of the GBS.
2. Explore and consider opportunities to implement other tools and/or programs for development that does not require site plan approval.

5 PEER MUNICIPALITY GREEN STANDARDS REVIEW

Municipalities throughout Canada have recognized the advantages of implementing a green development standard or guideline in support of their sustainability, energy and climate resilience goals. Each municipality has taken a unique approach in setting their specific requirements and implementation approach. Elements of these standards and guidelines may inform how the GBS will be applied, the specific requirements included and how compliance will be verified.

A summary of the peer municipalities assessed is included in Appendix A. The following elements are captured in the summary:

- **Applicable Scale:** development scale covered by the specific Standard. For the purposes of this Report we have assessed only those relevant to the mid-rise and high-rise residential, institutional, commercial and industrial sector. Low-rise residential Standards were reviewed as part of the Phase 1 scope of work and have therefore not been considered for this review.
- **Impact Categories:** overarching environment requirements are grouped according to their targeted goals (e.g. GHG reduction, Water use, etc); we have referred to these groupings as “Impact Categories”. Typically, Impact Categories will have multiple related credits that supports the goal of that category.
- **Evaluation Criteria:** a unique approach has been developed for each municipality to verify achievement of their Standard. Most Standards consist of mandatory and optional requirements, often associated with higher levels of performance.
- **Incentives:** financial and non-financial incentives can be applied to increase uptake of the Standard, particularly for higher performance targets.
- **Implementation Timeline:** stage in the development application process where compliance with the Standard is required.
- **General Notes:** we have provided a brief commentary to provide additional details that may be relevant to the City of Hamilton’s GBS.

In the next phase of work, Impact Categories and the detailed suite of requirements and KPIs will be developed for the GBS. Information collected from the peer municipalities will be considered, however, given the unique objectives and challenges across cities, each Standard should be tailored to each community. Provincial, regional and City of Hamilton priorities will take precedence when developing the GBS.

It is important to note that when developing the City-wide GBS we will consider the work completed in Phase 1 Sustainable Building and Development Guidelines for Low Density Residential Uses, however the final GBS will supersede these Guidelines and apply across all city-wide building archetypes (low-rise residential, mid-rise and high-rise residential, institutional, commercial and industrial).

5.1 PRELIMINARY TOPICS

For the purpose of the next phase of work, specifically the October 18th focus group session, we have put forward a set of preliminary topics, described below, which capture and reflect a broad range of sustainability, energy and resilience subtopics that are relevant to the development of the City-wide GBS. These Topics have been informed by previous Phase 1 work, industry best practice and the policy review

performed for this Baseline Review Report. It is important to note that these topics are not a reflection of the final GBS Impact Categories, which will be defined through the next phases of work.

Preliminary Broad Topics and a high-level description are outlined as follows:

5.1.1 ENERGY & GHG EMISSIONS

The Energy & GHG Emissions topic focuses on buildings and their energy performance, with an overarching goal of reducing the Greenhouse Gas (GHG) emissions emitted during the operational stage. In each of the Standards reviewed, operational energy reduction was found to be a predominant focus area, and while GHG emission targets were not always explicitly separated from energy targets, the two are closely related and were typically addressed. Typical requirements in this topic include energy performance targets, renewable energy, district energy connection, and air tightness testing.

Embodied carbon requirements can be included in this topic, as they relate to the GHG emissions emitted over the lifecycle of the building.

5.1.2 WATER

The Water topic focuses on reducing the use of potable water for indoor and outdoor water uses, as well as rainwater management. Efficient plumbing fixtures, harvesting, and re-using stormwater, and managing the quantity and quality of stormwater are all common requirements in this topic. Each of the municipal standards reviewed include requirements that address one or more of these themes.

5.1.3 AIR

The overarching goal for the Air topic is improving local outdoor air quality, most commonly by reducing the number of internal combustion engine vehicles. Typical requirements in this topic include requirements for Electric Vehicle charging infrastructure, promotion of public transportation and providing bicycle parking facilities.

Additionally, measures to reduce the urban heat island effect is often included under this topic. Related credits include minimum green roof areas, and high reflectance roof or at-grade hardscape materials.

5.1.4 ECOLOGY & BIODIVERSITY

Ecology & Biodiversity focuses on the preservation, restoration, and enhancement of the development area. In each of the Standards reviewed, landscaping strategies to promote biodiversity and enhance the natural spaces were included. Common requirements in this topic include native species and tree planting, prohibit invasive species and bird friendly design.

5.1.5 WASTE & MATERIALS

The focus of the Waste & Materials topic is reducing and managing waste throughout the life of the building. Waste generation during construction and operation, proper storage and disposal by occupants of the development, and procurement of building materials that have lower environmental impacts are common requirements in this topic.

5.1.6 COMMUNITY & URBAN DESIGN

This topic covers a range of requirements with the overarching goal of creating a healthy, sustainable and engaging local communities. Typical requirements in this topic support developments within walking distance to services, public transportation, and cycling networks. Included in this topic are also public art, culture, equity, and safety which are considered by a few Standards.

6 PRELIMINARY IMPLEMENTATION CONSIDERATIONS

Green building standards are demonstrated to be an effective opportunity for municipalities to meaningfully realize more sustainable development practices and resilient communities. Many municipalities throughout Ontario and across Canada have adopted a similar approach that is implemented through the land use planning application and approvals process. In addition to developing the performance metrics, consideration will need to be given to which categories of planning applications trigger application of the GBS to ensure the City's land use planning framework gives appropriate effect and supports its implementation.

Appendix A indicates the implementation timelines of each peer municipality reviewed. Typically, the Standards are submitted as part of the Site Plan Control applications or applications for Draft Plan of Subdivisions, with some required for all planning applications. Most municipalities have a minimum performance requirement to receive planning application approval, such as a Tier 1 or scoring a Bronze level of performance. Higher levels of achievement (e.g. Tier 2) are offered as voluntary requirements to demonstrate an improved performance above the minimum requirements. Of the Standards reviewed, only the City of Toronto has a formal incentive program for Tier 2 and 3 projects, and the City of Ajax offers non-financial incentives determined on a base-by-case basis. Aurora, Ottawa, Richmond Hill and Vaughan are currently researching opportunities.

To support and facilitate implementation, it is also important that the City is equipped with tools to properly administer the GBS. City staff have a role to play in the planning application review and approval process, and therefore must understand how the GBS will be integrated into this process. Through consultation planned with City staff to inform the GBS, opportunities to integrate the GBS with the planning approvals process will be identified. This should also include a continuous process to track and monitor the implementation of the GBS to understand performance and to identify opportunities to refine the GBS as needed. It is understood that the City currently requires, at its discretion in accordance with UHOP policy 3.2.9, the preparation of an Energy and Environmental Assessment Report as part of the development application process. The purpose of the Energy and Environmental Assessment Report is to indicate how the proposal incorporates environmental and sustainable design features and practices. There may be an opportunity to require GBS as a component of that submission.

Finally, the GBS should be realistic and implementable by both the City and the development community. The impact categories that comprise the GBS should reflect and align with City expectations and priorities. At the same time, the GBS should also be achievable by those that will be required to address the GBS through development applications.

These elements of implementation for the City's GBS will be informed by the review of implementation timelines provided in Appendix A. This will also be explored further through consultation with City staff and the development community to ensure that the GBS are effectively integrated into the planning approvals process and the requirements of the GBS are realistic so that they can be satisfied by applicants.

7 CONCLUSION AND NEXT STEPS

The Baseline Review has identified many key considerations in the relevant policy documents that may support the development of the GBS. To identify how the GBS will support the existing policies in the City of Hamilton, the following table lists all key considerations. This table also identifies which of the six topics identified in section 5 can reflect and implement the key consideration.

REFERENCE PLAN, POLICY, STRATEGY, ETC.	KEY CONSIDERATION	SUSTAINABILITY TOPIC
Urban Hamilton Official Plan	Consider standards for green buildings that are responsive to and appropriate for the planned development context.	Supported by the GBS
	Encourage on-site stormwater management and infiltration, as well as the use of third-party certification programs and other tools to reduce energy consumption and GHG emissions for buildings.	Water
	Consider including the list of energy efficient and environmental design considerations identified in Policy 3.7.2 as part of the GBS.	Energy & GHG Emissions
	Develop and implement a GBS program that includes a development review checklist to be used through the development approvals process.	Supported by the GBS
	Incorporate permissions for alternative energy systems, in accordance with federal and provincial requirements.	Energy & GHG Emissions
	Incorporate LID techniques such as rainwater harvesting, rain gardens, and bioswales, permeable pavements and green roofs.	Water, Air
Rural Hamilton Official Plan	Encourage and/or require use of sustainable forestry practices and consider direction to protect and restore trees and forests.	Ecology & Biodiversity
	Promote and support efficient and sustainable use of water resources, including water conservation.	Water
	Support the reduction of air pollutants and greenhouse gas emissions to improve air quality and respond to the impacts of a changing climate.	Energy & GHG Emissions, Air

**REFERENCE PLAN,
POLICY, STRATEGY,
ETC.****KEY CONSIDERATION****SUSTAINABILITY TOPIC**

	Support and encourage the clustering and/or co-locating of facilities to improve efficiency and accessibility.	Energy & GHG Emissions
	Identify and support opportunities to connect to the City's active transportation network, in support of the City's Cycling Master Plan.	Air
City of Hamilton Zoning By-law	Reflect and complement the standards and regulations of the Zoning By-law as they pertain to parking, landscaping and permitted uses in the GBS.	Air, Ecology & Biodiversity
	Create guidelines that help maximize the use of mandated design features on a lot, such as landscaped open space.	Ecology & Biodiversity
	Reflect and encourage best practices for green building technology and LID.	Water, Ecology & Biodiversity
	Emphasize the importance of urban design, streetscaping, and landscaping to the overall objective of greater sustainability, as well as mitigation and adaptation to climate change.	Supported by the GBS
	Utilize the GBS to advance the requirements of the Zoning By-law with respect to bicycle parking, and other transportation opportunities.	Air, Community & Urban Design
	Leverage the GBS as an opportunity to address gaps in the Zoning By-law relative to green building standards.	Supported by the GBS
City of Hamilton Community Energy and Emission Plan	Establish net-zero building and development standards, in alignment with the City's goal to achieve net-zero carbon emissions City-wide by 2050.	Energy & GHG Emissions
	Encourage and remove barriers associated with roof-mounted solar PV systems for new development.	Energy & GHG Emissions
	Increase access to active transportation to reduce transportation emissions and facilitate other co-benefits, including improved physical health and increased social well-being.	Air, Community & Urban Design

**REFERENCE PLAN,
POLICY, STRATEGY,
ETC.**
KEY CONSIDERATION
SUSTAINABILITY TOPIC

	Expand transit to reduce the need for personal use vehicles and support e-mobility such as e-cars, e-bikes, and e-scooters.	Air, Community & Urban Design
	Encourage the adoption and increase uptake of EVs by situating charging points in new development.	Air
	Reduce parking requirements for development in strategic locations (e.g., transit corridors) and incentivize EV access.	Air
	Divert as much waste as possible from landfill and use organic waste as feedstock for AD systems.	Waste & Materials
	Support decarbonization and expansion of the downtown district energy system.	Air, Community & Urban Design
	Establish standards for soil management and other practices (e.g., tree planting) to support carbon sequestration.	Ecology & Biodiversity
City of Hamilton Climate Change Impact Adaptation Plan	Require consideration of LID features and green infrastructure as appropriate, based on development context.	Water
	Encourage and support connections to Hamilton's transportation network.	Air, Community & Urban Design
	Consider requirements for emergency preparedness kits for residents and/or tenants of new development.	Community & Urban Design
	Increase the presence and maintenance of back-up electrical supply for buildings greater than three storeys.	Community & Urban Design
	Continue and expand the protection of corridor/connected tree canopy within the public and private spaces (e.g. urban streets, commercial shopping centres, hydro-corridors etc.) to improve areas of shade cover and ecological connectivity.	Air, Ecology & Biodiversity
	Encourage and/or require spaces for local food growing in new development.	Community & Urban Design

**REFERENCE PLAN,
POLICY, STRATEGY,
ETC.**
KEY CONSIDERATION
SUSTAINABILITY TOPIC

City of Hamilton Biodiversity Action Plan	Consider requirements for rainwater capture in new residential development for water capture/irrigation and/or local food growing.	Water
	Incorporate requirements for local energy generation on-site.	Energy & GHG Emissions
	Consider innovative opportunities/ technology for low carbon emergency power for new development.	Energy & GHG Emissions
	Include targets and metrics for native species planting requirements. There is also an opportunity to incentivize development that achieves certain metrics through award and certification.	Ecology & Biodiversity
	There is an opportunity to include targets and/or KPIs that enhance on-site stormwater management practices.	Water
	The GBS can include development standards that protect biodiversity and improve local habitats.	Ecology & Biodiversity
City of Hamilton CIPs	Assess opportunities to support implementation of the GBS through the City's existing CIP framework.	Supported by the GBS
City of Hamilton Site Plan Control By-law	Leverage application of site plan control as a means to trigger implementation of the GBS.	Supported by the GBS
	Explore and consider opportunities to implement other tools and/or programs for development that does not require site plan approval.	Supported by the GBS

The intent of the GBS is to implement a progressive policy framework that aligns with the priorities and objectives of the Provincial, regional and City of Hamilton. In the next phase of work, the project team will work with the City to facilitate focus sessions using the Key Considerations and Topics identified in this report to develop the Impact Categories and performance metrics with select Stakeholders.



APPENDIX A

SUSTAINABILITY GUIDELINES OF CANADIAN MUNICIPALITIES



City of Hamilton City-Wide Green Building Standards Peer Municipality Review

Municipality	Standard Name	Applicable Scale	Impact Categories	Evaluation Criteria	Incentives	Implementation Timeline	Notes	Reference
Ajax	Green Development and Environmental Design Guide	- Low density residential - Mid to High-Density Residential and Non-Residential	- Air - Energy - Natural Assets and Habitat - Waste and Materials - Water	There are two levels of achievement for the GDEEG, Tier 1 and Tier 2. - Tier 1 is the minimum required level of achievement. To achieve Tier 1, developments must meet all applicable Tier 1 requirements. - Tier 2 is a voluntary higher level of achievement. To achieve Tier 2, developments must meet all applicable Tier 2 Core requirements. Incentives are available to developments that exceed the minimum requirements.	Incentives are reviewed on a case-by-case basis. Potential, non-financial incentives include: - Expedited review - Improved marketing through Ajax networks and potential new website page - Annual awards presented by Mayor and Council; and - Concierge Staff member to support Tier 2 projects through the planning process.	- Site Plan - Draft Plan of Subdivision	The Ajax Green Standard is required for all new Site Plan and/or Draft Plan of Subdivision applications submitted on or after May 1, 2022. Exemptions from specific requirements may be granted on a case-by-case basis at the discretion of the Town.	Ajax GDEEG Checklist Tool 2022.03.29 NF RV
Aurora	Green Development Standard	All new development	- Energy - Water - Ecology - Complete Communities - Buildings, Waste & Materials	At a minimum, all new development applications submitted to the Town of Aurora must demonstrate compliance with Tier 1. Tier 2 is also mandatory however applicants are provided with several options from which they are required to achieve a specified number of performance measures. This provides the applicant with flexibility and choice. Tiers 3 and 4 are higher level voluntary standards that will be tied to financial and non-financial incentives.	None at this time. However, the city is working on an incentive program tied to Tiers 3 and 4, which have yet to be introduced to the standard.	- Site Plan - Draft Plan of Subdivision	The Town of Aurora Green Development Standard (G.D.S) is a tiered set of performance measures with supporting guidelines for new development. The G.D.S will be implemented in two phases: Phase 1 – Implementation in 2022. Phase 2 – Implementation at a date to be determined by the Town. The Town will explore incentive options to support implementation of Phase 2, which will include Tiers 3 and 4. The Town is also encouraged to further consult with utility providers to facilitate incentive funding for implementation. At the time of preparing this list, Tiers 3 and 4 have not been introduced to the standard	Green Development Standards Handbook - Town of Aurora
Brampton	Sustainability Metrics Program 2023	- All Block Plans - Subdivisions of 10 residential units or more - "Full" Site Plans - Zoning By-Law amendments	- Built Environment - Mobility - Natural Environment and Parks - Infrastructure and Buildings - Innovation	Includes mandatory, minimum, and aspirational targets that are each worth different point values. Total number of targets varies based on plan type (Site Plan, Draft Plan of Subdivision, or Block Plan). Each plan type has a different threshold for Bronze, Silver, and Gold performance levels. The City of Brampton requires all applications to achieve at minimum a Bronze level Sustainability Score. Development proposals must also achieve the "Good" level of building energy and GHG emissions performance of Metric IB-12	None at this time.	- Site Plan - Draft Plan of Subdivision - Block Plan	The Sustainability Assessment Tool was developed by the City of Brampton in collaboration with the City of Vaughan and the Town of Richmond Hill. The following application types are exempt: - Plans of Subdivision of 9 residential units or less - "Limited" and "Basic" Site Plans - Plans of Subdivision for the purpose of subdividing large blocks of land for the sole purpose of creating lots for future employment, industrial, commercial, or institutional development, and which will require subsequent Site Plan approval.	https://www.brampton.ca/EN/residents/GrowGreen/Pages/Applications-After.aspx
Halton Hills	Green Development Standards v3	All developments and major additions.	- Energy & Water - Ecology - Resiliency - Transportation - Innovation	Each criteria is worth a given number of points. To be compliant with Green Development Standard (GDS) v3, all new developments and major additions that submit a rezoning, subdivision, or site plan control application must demonstrate achievement of at least 20 points.	None at this time.	- Official Plan and/or Zoning By-law Amendment - Draft Plan of Subdivision - Site Plan Control approval	The Green Development Standard (GDS) was first developed in 2010 with updates in 2014 and most recently in 2021. The Green Development standards apply to all Planning Act Applications. GDS v3 builds on the foundation of previous green development standards and puts increased weight on measures that reduce greenhouse gases of new development in the community.	https://www.haltonhills.ca/en/your-government/Climate/2023/Change/104-HaltonHills/20Development%20Standards%20V3.pdf
Mississauga	DRAFT Green Development Standard	- Residential Buildings (Medium to High) - Residential Buildings (Low Rise) - Institutional and Commercial Buildings - Industrial Buildings	- Energy and Building Performance - Climate Impacts - Resilience - Ecology - Natural Systems	Combination of mandatory and voluntary (Tier 2 and Tier 3) high performing features. There are a total of prerequisites and 400 available points. All development proposals must meet all prerequisites and achieve a Bronze Rating in order to apply for a rezoning application with the City of Langford.	None at this time.	TBD once Standard is finalized.	The City of Mississauga is presently in the process of revising its Green Development Standards (GDS). As per the project timeline available on the City of Mississauga's official website, the update is currently in Phase 4, which involves engaging with the community and the building industry. The anticipated release date for the updated GDS is set for Winter 2023.	https://yourcity.mississauga.ca/green-standards-2023
Ottawa	High Performance Development Standard	- Residential developments containing fourteen or more units, five or more floors and/or having a gross floor area of 1,200 square metres or more - All planned unit developments - Mixed-use buildings containing fourteen or more units, five or more floors and/or with a gross floor area of 1,400 square metres or more - Non-residential development of five or more floors and/or with a gross floor area of 1,800 square metres or more - Drive-through facilities in the Site Plan Control Inner Area or abutting residential zones	- Energy - Health - Ecology - Resiliency - Waste - Transportation	The High Performance Development Standard consists of three tiers of performance. The standards, also known as 'metrics' in Tier one are mandatory. Tiers 2 and 3 contain higher-level voluntary standards.	None at this time. Ottawa is currently investigating plausible incentives (financial and non-financial) that could be awarded to qualifying applicants, and will report to council in 2024.	- All Site Plan Control applications in the Urban Area - HPDS Development Threshold Site Plan Control applications in the Rural Area - All Draft Plan of Subdivision applications	There are 12 Tier 1 metrics that apply to Site Plan applications and 23 voluntary metrics in Tier 2. There are three Tier 1 metrics that will apply to Draft Plan of Subdivision applications and five metrics in Tier 2.	https://ottawa.ca/en/planning-development-and-construction/residential-property-regulations/development-applications-reviews-process/development-applications-submission/high-performance-development-standards-1pds
Pickering	Integrated Sustainable Design Standards	Mid to low-rise residential and non residential buildings	Education Energy & Resilience Neighbourhood Land Use & Nature Transportation Waste Management Water	Includes required and optional design criteria that are each worth a certain number of points. Tier 1: the mandatory minimum level of achievement required. Tier 2: an optional, higher level of achievement.	None at this time.	- Plan of Subdivision - Site Plan - Rezoning - Building Permit	The Guidelines are intended to apply to all new development – residential and employment for infill, redevelopment and new designated urban areas. Most applications in the City proceed in two phases. First, a Neighbourhood Plan is completed for a large area defining the street pattern, land use mix, phasing and servicing. Second, individual Plans of Subdivision and then Site Plans and Building Permits are pursued for blocks, lots and sites within the neighbourhood. Rezoning applications are also needed in some cases.	https://www.pickering.ca/en/living/sustainabledevelopment.html
Richmond Hill	Sustainability Metrics Program 2023	- Draft Plans of Subdivision - Site Plans	- Built Environment - Mobility - Nature Environment and Parks - Infrastructure and Buildings - Innovation	Includes minimum, and aspirational targets that are each worth different point values. Total number of targets varies based on plan type (Site Plan, Draft Plan). Each plan type has a different threshold for Bronze, Silver, and Gold performance levels. The City of Richmond Hill requires all applications to achieve at minimum a Bronze level Sustainability Score.	None at this time. Richmond Hill is currently investigating plausible incentives (financial and non-financial) that could be awarded to qualifying applicants.	- Draft Plan of Subdivision - Site Plan	The Sustainability Performance Metrics were created by Richmond Hill, together with the City of Brampton and the City of Vaughan. The following application types are exempt: - Site Plan applications that do not propose new construction - Draft Plans of Subdivision for the purpose of subdividing large parcels of land for the sole purpose of creating lots for future employment, industrial, commercial, or institutional development, and which will require a subsequent Site Plan approval.	https://www.richmondhill.ca/en/find-or-learn-about/sustainability-metrics.aspx#updated-Program--Applications-on-or-after-January-1-2023



City of Hamilton City-Wide Green Building Standards
Peer Municipality Review

Municipality	Standard Name	Applicable Scale	Impact Categories	Evaluation Criteria	Incentives	Implementation Timeline	Notes	Reference
Toronto	Toronto Green Standards v4	<ul style="list-style-type: none"> - Mid to High-Rise Residential & Non-residential development (residential apartment buildings 4 storeys and higher, and all Industrial, Commercial and Institutional (ICI) developments). 	<ul style="list-style-type: none"> - Air Quality - Buildings Energy, Emissions & Resilience - Water Quality & Efficiency - Ecology & Biodiversity - Waste and the Circular Economy 	<p>Tier 1 performance measures are required for all planning applications, and the Tier 1 Checklist must be submitted, demonstrating compliance with all Tier 1 performance measures required for all planning applications. Tiers 2, 3, and 4 are voluntary programs that offer a development charge refund for compliant projects.</p>	<p>To encourage compliance, the City of Toronto offers significant development charge (DC) refunds for projects that achieve Tier 2, 3, and 4 levels of the Toronto Green Standard. This financial incentive can help offset the costs associated with sustainability requirements.</p>	<p>All Planning Applications (Site Plan Control, Zoning Bylaw Amendment, Draft Plan of Subdivision)</p>	<p>During site plan control, zoning amendment or draft plan of subdivision, a TGS Checklist and TGS Statistics page need to be provided for review by the City. Council approved absolute performance targets to achieve zero carbon emissions by 2030.</p> <p>As part of the Development Charge Refund Program, all Tier 2 or 3 requirements are Core and must be met and third-party verified. Third-party review occurs at two stages: 50% construction drawings stage and Occupancy stage, using a combination of issued for construction drawings and reports, declaration templates and on-site inspections. The third-party evaluator works with the design team to document higher levels of TGS performance compliance for the DC Refund.</p>	<p>https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/toronto-green-standard/toronto-green-standard-version-4/</p>
Vaughan	Sustainability Metrics Program 2023	<ul style="list-style-type: none"> - All Block Plans - Plans of Subdivision of 10 or more residential units - Site Plans 	<ul style="list-style-type: none"> - Built Environment - Mobility - Natural Environment and Parks - Infrastructure and Buildings - Innovation 	<p>Includes mandatory, minimum, and aspirational targets that are each worth different point values. Total number of targets varies based on plan type (Site Plan, Draft Plan of Subdivision, or Block Plan). Each plan type has a different threshold for Bronze, Silver, and Gold performance levels.</p> <p>All applicable development applications outside of the Intensification Areas as defined in Vaughan's Official Plan are expected to meet or exceed the Bronze Threshold Score. All applicable development applications within the Intensification Areas as defined in Vaughan's Official Plan are expected to meet or exceed the Silver Threshold Score.</p>	<p>None at this time. Vaughan is currently investigating plausible incentives (financial and non-financial) that could be awarded to qualifying applicants.</p>	<ul style="list-style-type: none"> - Site Plan (excluding minor applications) - Draft Plan of Subdivision - Block Plan applications. 	<p>Sustainability Metrics developed by the City of Vaughan in collaboration with the City of Brampton and the Town of Richmond Hill.</p> <p>Vaughan's Bird Safe treatment standards are mandatory for all development applications.</p> <p>The following application types are exempt:</p> <ul style="list-style-type: none"> - Plans of subdivisions of 9 units or less - Minor site plan applications subject to site plan control bylaw - Street townhouse dwellings within an approved Draft Plan of Subdivision or a registered Plan of Subdivision - Plans of Subdivisions for the purpose of subdividing large blocks of land for the sole purpose of creating lots for future employment, industrial, commercial, or institutional development, and which will require subsequent Site Plan approval - Site plan applications for single detached dwellings. 	<p>https://www.vaughan.ca/residential/building-and-construction/vaughans-planning-process/sustainability-metrics</p>
Whitby	Whitby Green Standard	<p>No applicable scale is specified for the majority of the checklist; however, a few of the performance measures are noted to only apply to certain scales:</p> <ul style="list-style-type: none"> - Residential - Low rise residential - Residential four storeys or more - Non-residential 	<ul style="list-style-type: none"> - Health and Happiness - Equity and Local Economy - Culture and Community - Land Use and Nature - Sustainable Water - Zero Waste - Local and Sustainable Food - Travel and Transport - Energy and Climate Change - Voluntary Performance Measures 	<p>At a minimum, all new applications must demonstrate compliance with Tier 1. Tiers 2, 3, and 4 are voluntary.</p> <p>Incentives (monetary or non-monetary) could eventually be awarded to developers who achieve Tier 2 or higher, however, there are no proposed incentives at this time. It has been identified that a study be undertaken in 2021 to determine what incentives would best fit the proposed Whitby Green Standard.</p>	<p>None at this time.</p>	<ul style="list-style-type: none"> - Site Plan - Plan of Subdivision 	<p>The performance measures increase every 4 years. In 2024, Tier 2 will become the mandatory Tier 1 and by 2036, today's Tier 4 will be Tier 1 mandatory. The goal is for all new development will be near zero emissions by 2036.</p>	<p>https://www.whitby.ca/en/work/whitby-green-standard.aspx</p>



APPENDIX C

Checklist



City of Hamilton Green Building Standards **CHECKLIST**



City of Hamilton Green Building Standards

 Energy and Carbon	 Ecology and Biodiversity	 Water	 Waste Management and Materials	 Community and Urban Design
Energy Performance	Native Species Planting	Reduced Water Use	Construction Waste Reduction and Management	Promotion of Public and Active Transportation
Embodied Carbon	Tree Planting	Benchmarking and Reporting	Operational Waste Reduction and Management	Services within Walking Distance
Refrigerant Leakage	Bird-Friendly Design	Water Metering	Material Reuse	Bicycle Facilities
Building Energy Resilience	Light Pollution	Stormwater Management		Accessible Design
On-Site Renewables	Climate Positive Landscape Design			Urban Agriculture
District Energy				Heat Island Effect
Building Systems Commissioning				Community Sustainability Outreach
Air Tightness Testing				Celebration of Heritage and Culture
Energy Metering				
Benchmarking and Reporting				
Electric Vehicle Charging Infrastructure				
Electric Bicycle Charging Infrastructure				

Instructions

The City of Hamilton's Green Building Standards (GBS) applies to all Part 3 and Part 9 building types in the urban area subject to a Site Plan or Draft Plan of Subdivision application. **Refer to the GBS Guidebook for details.**

A completed copy of this GBS Checklist and any supporting documentation must be included as part of your complete development application. Tier 1 metrics are required by the City of Hamilton. Tier 2 metrics are optional but encouraged.

Applicant Information:

Applicant/Agent:	
Name (First, Last Name):	
Email:	

Project Information:

Site Plan

Draft Plan of Subdivision

Project Name:	
Address of Subject Land (Street Number and Name):	
Registered Owner (First, Last Name):	
Telephone Number:	
Date Checklist Completed (yyyy-mm-dd):	
Is this checklist revised from an earlier submission (Yes/No):	
Gross Floor Area (square metres):	
Number of Units:	
Number of Storeys:	
Non-Residential Gross Floor Area (square metres):	

Proposal Description (narrative of your project):

Glossary

- Part 3 Buildings:** This refers to all mid to high-rise residential and all non-residential developments and refers to buildings that are subject to Part 3 of Division B of the Ontario Building Code, per Article 1.1.2 O.Reg. 332/12: Building Code. This includes buildings exceeding 600 m² in building area or exceeding three storeys in height.
- Part 9 Buildings:** This refers to low-rise residential developments and refers to buildings that are subject to Part 9 of Division B of the Ontario Building Code, per Article 1.1.2 O.Reg. 332/12: Building Code. This includes buildings of three or fewer storeys in height or with a building area not exceeding 600 m².
- Low-Density Residential Development:** Low-density residential uses generally include single-detached, semi-detached, duplex, triplex, fourplex, and street townhouse dwellings.
- Medium and High-Density Residential Development:** High and medium-density residential uses are characterized in the Urban Hamilton Official Plan as multiple dwelling forms containing five or more dwelling units. Examples include block townhouse dwellings, stacked townhouse dwellings, street townhouse dwellings fronting onto a condominium road, and apartment dwellings.
- Mixed-Use Development:** A development or area made up of mixed land uses either in the same building or in separate buildings. The mix of land uses may include commercial, industrial or institutional uses but must include residential units (*defined in the [UHOP](#)*).
- Institutional Development:** A development or area comprised of public or non-public institutions in individual buildings or groups of buildings. The uses may include but are not limited to educational facilities, religious facilities, cultural facilities, health care facilities, or daycare facilities (*not defined in the [UHOP](#), but a land use designation with permitted uses, development policies, etc. in Section E.6.0.*).
- Industrial Development:** A development or area that permits for a range of employment activity, including offices, business parks, and industrial uses including but not limited to manufacturing and warehousing. (*Employment Areas are defined in the [UHOP](#), the description is also based on policies for the Employment Area – Industrial Land designation in Section E.5.0.*)
- Commercial Development:** A development or area that are primarily located in mixed-use areas and accommodates a range of uses, including but not limited to retail, restaurants, and other similar service commercial uses (*not defined in the [UHOP](#), but described based on policies for the Commercial and Mixed Use Designations in Section E.4.0.*)



EC1 ENERGY PERFORMANCE

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
EC1.1	Tier 1	Part 9	Design, construct, and label the building(s) to meet the ENERGY STAR® for New Homes, version 17.1 or R-2000 requirements.		A Letter of Commitment signed by a qualified professional (Architect, Electrical Engineer, or Mechanical Engineer) and the owner/developer that includes confirmation that the requirements of this metric will be met.	Confirmation of ENERGY STAR rating by a qualified professional.	
EC1.2	Tier 2	Part 9	Design the building(s) to meet CHBA Net Zero Home Labelling Program or Passive House Classic Standard.		Confirmation of registration in the CHBA Program or Passive House Standard.	A Letter of Certification signed by an accredited professional (Architect, Electrical Engineer, or Mechanical Engineer) post-construction that the metric requirements have been implemented and verified.	
EC1.3	Tier 1	Part 3	<ul style="list-style-type: none"> Using whole-building energy modelling, demonstrate an annual Total Energy Use Intensity (TEUI), Thermal Energy Demand Intensity (TEDI), and GHG Emission Intensity (GHGI) that meets the Tier 1 performance limits. For all other Part 3 buildings: develop a whole-building energy model, and design and construct the building to meet the National Energy Code of Canada for Buildings (NECB) 2020 Tier 1. 		Energy Model Report summarizing key modelling inputs, outputs, and assumptions, signed by a licensed professional (Energy Modeller), and demonstrating compliance with the applicable target.		



Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
EC1.4	Tier 2	Part 3	<ul style="list-style-type: none"> Using whole-building energy modelling, demonstrate an annual Total Energy Use Intensity (TEUI), Thermal Energy Demand Intensity (TEDI), and GHG Emission Intensity (GHGI) that meets the Tier 2 performance limits. For all other Part 3 buildings: Develop a whole-building energy model, and design and construct the building to meet the National Energy Code of Canada for Buildings (NECB) 2020 Tier 2. Alternative Compliance Path (ACP): Achieve Zero Carbon Building (ZCB) Design Standard Certification. 		<p>Energy Model Report summarizing key modelling inputs, outputs, and assumptions, signed by a licensed professional (Energy Modeller), and demonstrating compliance with the applicable target.</p> <p>For ACP only: Confirmation of registration for ZCB-Design Standard certification.</p>	<p>Energy Modelling Report or other documentation demonstrating compliance with the targeted standard summarizing key modelling inputs, outputs, and assumptions, signed by a licensed professional.</p> <p>Updated Energy Model Report.</p> <p>For ZCB ACP only: CAGBC ZCB-Design Standard certification and complete workbook.</p>	

EC2 EMBODIED CARBON

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
EC2.1	Tier 1	Part 9	<ul style="list-style-type: none"> Conduct a Materials Emissions Assessment using BEAM (Building Emissions Accounting for Materials tool), or an equivalent tool, to measure A1-A3, stage emissions for all structural, enclosure, and major finishes (cladding, flooring, ceilings, interior wall sheathing). 		An Embodied Carbon report declaring the materials that are anticipated to be used and the estimated total embodied carbon emissions of these materials.		
EC2.2	Tier 1	Part 3	<ul style="list-style-type: none"> Conduct a whole building life cycle assessment (LCA) of the building's structure and envelope in accordance with the CaGBC Zero Carbon Building Standard v3 methodology. Report embodied carbon for the following life cycle stages: A1-A5, B1-B5, and C1-C4. 		An Embodied Carbon report declaring the materials that are anticipated to be used and the estimated total embodied carbon emissions of these materials.		
EC2.3	Tier 2	All	<ul style="list-style-type: none"> Demonstrate a minimum 5% reduction in embodied carbon compared to a baseline building. 		An Embodied Carbon report declaring the materials that are anticipated to be used, the estimated total embodied carbon emissions of these materials, and the achieved embodied reduction compared to a baseline building.		

EC3 REFRIGERANT LEAKAGE

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
EC3.1	Tier 1	Part 3.	<ul style="list-style-type: none"> Develop a Refrigerant Leakage Plan describing the ongoing refrigerant leakage tracking process and corrective action plan to address refrigerant leaks should they occur in any base building HVAC systems. The Plan should list the total quantity, type, and the Global Warming Potential (GWP) of each refrigerant contained in HVAC systems with a capacity greater than 19 kW (5.4 tons). 		Provide a Letter of Commitment signed by a qualified professional (Mechanical Engineer) and the owner/developer/builder that includes confirmation that the requirements of this metric will be met.	Refrigerant Leakage Plan	

EC4 BUILDING RESILIENCE

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
EC4.1	Tier 2	Part 3	<ul style="list-style-type: none"> Mid and High-Density Residential only: Provide a refuge area with heating, cooling, lighting, potable water. Provide back-up power to essential building systems for 72 hours. 			Drawings, plans, or other documentation demonstrating that the project incorporates resilient measures.	

EC5 ON-SITE RENEWABLES

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application / Plan of Subdivision Submission	Post Construction Submission	
EC5.1	Tier 1	Part 9	<ul style="list-style-type: none"> Plan of Subdivision only: Complete a Community Energy Plan demonstrating energy emissions and resiliency targets on a community scale. 		Plan of Subdivision only: Provide a Community Energy Plan		
EC5.2	Tier 1	All	<ul style="list-style-type: none"> Design all new buildings for solar readiness. Where applicable, include an opt-in for new owners to install solar PV or thermal systems at the new owner's expense. 		Site Plan Application only: Drawings, plans, specifications, or other documentation demonstrating that is project is solar-ready.		
EC5.3	Tier 2	Part 9	<ul style="list-style-type: none"> Design and install on-site renewable energy systems to supply at least 10% of the building's total energy load from one or a combination of energy source(s). OR Design and install on-site renewable energy systems to supply at least 20% of the building's total energy load from geo-exchange (geothermal or ground source heat pumps). 		Site Plan Application only: Drawings, plans, specifications, or other documentation demonstrating the project's on-site renewable sources. Energy Modelling Report or other documentation demonstrating the percentage of the project's energy needs provided by on-site renewable sources.		
	Tier 2	Part 3	<ul style="list-style-type: none"> Design and install on-site renewable energy systems to supply at least 5% of the building's total energy load from one or a combination of energy source(s). OR Design and install on-site renewable energy systems to supply at least 20% of the building's total energy load from geo-exchange (geothermal or ground source heat pumps). 		Site Plan Application only: Drawings, plans, specifications, or other documentation demonstrating the project's on-site renewable sources. Energy Modelling Report or other documentation demonstrating the percentage of the project's energy needs provided by on-site renewable sources.		

EC6 DISTRICT ENERGY

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application / Plan of Subdivision Submission	Post Construction Submission	
EC6.1	Tier 1	All	<ul style="list-style-type: none"> Investigate the feasibility of shared energy solutions, such as the development of low carbon thermal energy networks or connection to planned or existing district energy systems and identify the required provisions to be district energy ready. 		Site Plan Application and Plan of Subdivision: Provide a Letter signed by a qualified professional (Mechanical Engineer) and the owner/developer/builder that describes how opportunities for district energy have been explored.		
EC6.2	Tier 2	All	<ul style="list-style-type: none"> Connect to a district energy system where one exists or design for future connection where a future district energy system is slated for development. 			Drawings, plans, or other documentation demonstrating connection, or design will accommodate future connections.	

EC7 BUILDING SYSTEMS COMMISSIONING

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
EC7.1	Tier 2	All	<ul style="list-style-type: none"> Conduct best practice commissioning, per the requirements referenced in LEED BD+C v4.1 Fundamental Commissioning and Verification pre-requisite. 		Provide a Letter of Commitment signed by the owner/developer/builder that best practice commissioning will be performed OR Proof a commissioning agent is retained.	Commissioning Plan & Report.	

EC8 AIR TIGHTNESS TESTING

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
EC8.1	Tier 1	All	<ul style="list-style-type: none"> Conduct best practice commissioning, per the requirements referenced in LEED BD+C v4.1 Fundamental Commissioning and Verification pre-requisite. 		Provide a letter signed by a qualified professional (Building Envelope Engineer or Building Science Engineer) and the owner/developer/builder that describes the project's approach to achieving air tightness, and the process for any planned testing.		
EC8.2	Tier 2	All	<ul style="list-style-type: none"> Conduct a whole-building air leakage test to improve the quality and airtightness of the building envelope and report the performance achieved. 			Air Leakage Testing Report.	

EC9 ENERGY METERING

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
EC9.1	Tier 1	All	<ul style="list-style-type: none"> Install electricity and/or thermal sub-meters for all energy end-uses that represent more than 10% of the building's total energy consumption. 		Provide a Letter of Commitment signed by a qualified professional (Electrical Engineer and Mechanical Engineer) and the owner/developer/builder that includes confirmation that the requirements of this metric will be met.	<p>Electrical and mechanical single-line diagrams that indicate the provision of electricity and thermal sub-meters.</p> <p>A metering plan listing all meters along with type, energy source metered, diagrams, and/or references to design documentation.</p>	

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
EC4.2	Tier 2	All	<ul style="list-style-type: none"> For buildings with multiple tenants, provide energy submetering for each commercial/institutional tenant, or in each residential suite¹. 		Provide a Letter of Commitment signed by a qualified professional (Electrical Engineer and Mechanical Engineer) and the owner/developer/builder that includes confirmation that the requirements of this metric will be met.	<p>Electrical and mechanical single-line diagrams that indicate the provision of electricity and thermal sub-meters.</p> <p>A metering plan listing all meters along with type, energy source metered, diagrams, and/or references to design documentation.</p>	

EC10 BENCHMARKING & REPORTING

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
EC10.1	Tier 1	Part 3	<ul style="list-style-type: none"> Buildings 50,000 square feet (≈ 4645 m²), or larger: Enroll the project in ENERGYSTAR® Portfolio Manager to track energy and water consumption of the new development during operations in accordance with O. Reg. 506/18. 		Provide a Letter of Commitment signed by the owner/developer/builder that includes confirmation that the requirements of this metric will be met.	Confirmation of Registration.	
EC10.2	Tier 2	All	<ul style="list-style-type: none"> Enroll the project in ENERGYSTAR® Portfolio Manager¹ to track energy and water consumption of the new development during operations. 		Provide a Letter of Commitment signed by a qualified professional (Electrical Engineer or Mechanical Engineer) and the owner/developer/builder that includes confirmation	Confirmation of Registration.	

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
					that the requirements of this metric will be met.		

EC11 ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
EC11.1	Tier 1	Part 3 & Part 9 (Residential)	<ul style="list-style-type: none"> Ensure 100% of all parking spaces are EV-ready. 		On the Site Plan Drawing, Traffic Plan, or Parking Study.		
	Tier 1	Part 9 (Non-Residential)	<ul style="list-style-type: none"> Ensure at least 50% of all parking spaces are EV-ready. 		On the Site Plan Drawing, Traffic Plan, or Parking Study.		
EC11.2	Tier 2	Part 3 & Part 9 (Residential)	<ul style="list-style-type: none"> Provide at least 20% of all parking spaces with Electric Vehicle Supply Equipment (EVSE). 		Parking plan(s) indicating the location and number of EV chargers.		
	Tier 2	Part 9 (Non-Residential)	<ul style="list-style-type: none"> Provide at least 10% of all parking spaces with Electric Vehicle Supply Equipment (EVSE). 		Parking plan(s) indicating the location and number of EV chargers.		

EC12 ELECTRIC BICYCLE CHARGING INFRASTRUCTURE

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
EC12.1	Tier 1	Part 3 & Part 9 (Residential)	<ul style="list-style-type: none"> Provide Energized Outlets for 15% of the bicycle parking spaces for electric bicycle charging. 		Parking plan(s) indicating the location of electric bicycle charging.		



EB1 NATIVE SPECIES PLANTING

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application / Plan of Subdivision Submission	Post Construction Submission	
EB1.1	Tier 1	All	<ul style="list-style-type: none"> Use native or adapted species for 50% of the new landscaping planted areas (including grassed areas). Select drought-tolerant species from colder climate zones wherever possible. 		Landscape Plan with planting schedule demonstrating where species will be native or adapted.		
EB1.2	Tier 1	All	<ul style="list-style-type: none"> Per the Ontario Invasive Species Act, do not plant invasive species. 		Landscape Plan with planting schedule demonstrating that plant species do not include invasive species.		
EB1.3	Tier 1	All	<p>For sites adjacent to Agricultural lands, Natural Heritage features, Environmentally Significant Areas, and any other areas that are restricted from development:</p> <ul style="list-style-type: none"> Provide vegetated protection zones. Vegetated protective zones must include 100% native vegetation, with a preference for drought-tolerant species. 		Landscape Plan with planting schedule.		
EB1.4	Tier 2	All	<ul style="list-style-type: none"> Use native or adapted species for 75% of the new landscaping planted areas (including grassed areas), i.e. 75% of the total landscaped area should be covered by native or adapted plant species. Include permanent signage highlighting the native species planted on site. 		<p>Site Plan Application only: Landscape Plan with planting schedule demonstrating where species will be native or adapted.</p> <p>Drawings or plans with signage details highlighting species planted on site.</p>		

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application / Plan of Subdivision Submission	Post Construction Submission	
EB1.5	Tier 2	All	<ul style="list-style-type: none"> Support the City's "Bee City" designation by restoring or protecting a minimum of 30% of the site with native vegetation that includes at least two native flowering species that bloom at different periods over the growing season. 		Site Plan Application only: Landscape Plan with planting schedule demonstrating where species will be native, and indicating at least two native flowering species that bloom at different periods over the growing season.		

EB2 TREE PLANTING

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application / Plan of Subdivision Submission	Post Construction Submission	
EB2.1	Tier 1	All	<ul style="list-style-type: none"> Protect healthy, mature trees that exist within the project boundary. Comply with the requirements of the City of Hamilton Tree Protection Guidelines. 		Site Plan Application and Plan of Subdivision: A Tree Inventory Report and Preservation Plan.		
EB2.2	Tier 1	All	<ul style="list-style-type: none"> Provide each tree planted with access to 21 m³ of soil per tree. Where trees share soil, such as in a continuous planting trench, a reduction to 16 m³ per tree may be permitted. 		Site Plan Application only: Plan(s) or drawings demonstrating the volume of soil provided for each tree.		
EB2.3	Tier 1	All	<ul style="list-style-type: none"> Where surface parking is provided, plant 1 shade tree for every 5 parking spaces. 		Site Plan Application only: Plan(s) or drawings indicating the locations of all trees and parking spaces within the surface parking area.		



Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application / Plan of Subdivision Submission	Post Construction Submission	
EB2.4	Tier 1	All	<ul style="list-style-type: none"> Plant trees to shade at least 50% of the bike paths and walkway/sidewalk lengths. 		<p>Site Plan Application only: Canopy Cover Plan(s) or drawings demonstrating walkway/sidewalk area shaded within 10 years.</p>		
EB2.5	Tier 1	All	<ul style="list-style-type: none"> Provide a watering and maintenance program for trees for at least the first 4 years after planting. The maintenance programs should include measures to reduce the impact of de-icing salt on vegetation. 		<p>Site Plan Application only: A Letter of Commitment signed by an accredited professional (Landscape Architect, Architect, or Professional Engineer) and the owner/developer that describes the watering and maintenance program for trees.</p>	Operating and Maintenance plan or other documentation detailing the maintenance program for trees.	
EB2.5	Tier 2	All	<ul style="list-style-type: none"> Plant trees to achieve a 40% tree canopy cover for the site, excluding the building footprint. 		<p>Site Plan Application only: Landscape Plan(s) and supporting calculations demonstrating compliance.</p> <p>Canopy Cover Plan(s).</p>		

EB3 BIRD FRIENDLY DESIGN

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
EB3.1	Tier 1	All	<ul style="list-style-type: none"> Design in accordance with the guidelines laid out in the Canadian Standards Association's (CSA) Bird-Friendly Building Design Standard A460. Use a combination of Bird-Friendly Design strategies to treat at least 90% of the exterior glazing including transparent railings and barriers) located within the first 16 metres of the building above grade or to the height of the mature tree canopy, whichever is greater. Where there is glazing adjacent to green roofs and/or other rooftop vegetation, the bird collision mitigation strategy shall be applied to a height of 4 m from the surface of the green roof or the height of the adjacent mature vegetation, whichever is greater. Eliminate all fly-through effects (e.g., glass corners, parallel glass) and other traps from building design or use specified bird-safe glass or integrated protection measures. 		<p>Elevation drawings demonstrating the location of bird-friendly strategies and calculations demonstrating metric requirements will be achieved.</p> <p>Details or specifications and drawings indicating treated area, type of treatment, density of visual markers, etc.</p>		
EB3.2	Tier 1	All	<ul style="list-style-type: none"> Ground-level ventilation grates have a porosity of less than 20 mm X 20 mm (or 10 mm X 40 mm). 		<p>Site plan, or other documentation indicating the location and porosity of any ground-level ventilation grates.</p>		

EB4 LIGHT POLLUTION

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
EB4.1	Tier 1	All	<ul style="list-style-type: none"> All exterior fixtures must be Dark Sky compliant. 		Site plan, or other documentation indicating lighting type, orientation, location, and controls.		
EB4.2	Tier 1	All	<ul style="list-style-type: none"> Rooftop and exterior facade architectural illumination must be directed downward and turned off between the hours of 10 p.m. and 6 a.m. 				
EB4.3	Tier 1	All	<ul style="list-style-type: none"> Implement lighting controls in non-residential spaces that reduce nighttime spillage of light by 50% from 11 p.m. to 5 a.m. 		A Letter of Commitment from a qualified professional (Architect or Electrical Engineer), and the owner/developer/builder describing how metric requirements will be met.		

EB5 CLIMATE POSITIVE LANDSCAPE DESIGN

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
EB5.1	Tier 2	All	<ul style="list-style-type: none"> Use the Climate Positive Design's Pathfinder: Landscape Carbon Calculator to calculate the embodied carbon and the carbon sequestration potential within landscape designs. 		<p>Climate Positive Design Scorecard reporting the Net Project Impact.</p> <p>Site plan and/or landscape plans aligning with the information input in the Landscape Carbon Calculator.</p>		



W1 REDUCED WATER USE

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
W1.1	Tier 1	All	<ul style="list-style-type: none"> Water-consuming fixtures do not exceed the following maximum flow requirements and are WaterSense® labeled: <ul style="list-style-type: none"> High-efficiency toilets: 4.0 L/flush OR 3 and 6 L/flush (dual flush toilets); and Low flow lavatory faucets: 5.7 L/min. 		A Letter of Commitment signed by a qualified professional (Mechanical Engineer) and the owner/developer that includes confirmation that requirements of this metric will be met.	Plumbing fixture specifications or other documentation demonstrating WaterSense® labelling and flush/flow rates.	
W1.2	Tier 2	All	<ul style="list-style-type: none"> Reduce indoor potable water consumption by 40% over the baseline fixture (per LEED BD+C v4 guidance). 		Credit calculations demonstrating compliance with the metric requirements.	Plumbing fixture specifications or other documentation demonstrating flush/flow rates, and updated credit calculations (if necessary).	
W1.3	Tier 2	All	<ul style="list-style-type: none"> Outdoor: Reduce potable water used for irrigation by 60% (per LEED BD+C v4 guidance). 		Credit calculations demonstrating compliance with the metric requirements.	Irrigation specifications or other documentation demonstrating irrigation system, and updated credit calculations (if necessary).	

W2 BENCHMARKING AND REPORTING

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
W2.1	Tier 1	Part 9	<ul style="list-style-type: none"> Buildings 50,000 square feet ($\approx 4645 \text{ m}^2$), or larger: Enroll the project in ENERGYSTAR® Portfolio Manager to track energy and water consumption of the new development during operations in accordance with O. Reg. 506/18. 		Provide a Letter of Commitment signed by the owner/developer/builder that includes confirmation that the requirements of this metric will be met.	Confirmation of Registration	
W2.2	Tier 2	All	<ul style="list-style-type: none"> Enroll the project in ENERGYSTAR® Portfolio Manager to track energy and water consumption of the new development during operations. 			Confirmation of Registration	

W3 WATER METERING

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
W3.1	Tier 2	All	<ul style="list-style-type: none"> For buildings with multiple tenants, provide water submetering for each commercial/institutional tenant and per residential suite. 		Plans, drawings, or other documentation indicating individual water meters in building.		

W4 STORMWATER MANAGEMENT

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
W4.1	Tier 1	All	<ul style="list-style-type: none"> Provide long-term controls for Erosion and Sediment Control (ESC) in conformance with the Erosion and Sediment Control Guide for Urban Construction (2019). Demonstrate compliance with the Green Standards and Guidelines for Low Impact Development. 		Stormwater Management Report, Plan(s), and drawing(s) to verify compliance.		
W4.2	Tier 2	All	<ul style="list-style-type: none"> Design for future rainfall data instead of historical rainfall data to account for future climate change. 		Stormwater Management Report, Plan(s), and drawing(s) to verify compliance.		



WM1 CONSTRUCTION WASTE REDUCTION AND MANAGEMENT

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
WM1.1	Tier 1	All	<ul style="list-style-type: none"> Manage construction and demolition waste in accordance with O. Reg. 103/94. 		Construction and Demolition Waste Management Plan.		
WM1.2	Tier 1	All	<ul style="list-style-type: none"> Develop and implement a Construction and Demolition Waste Management Plan and demonstrate a diversion rate of 50% or more from landfill. 		Construction and Demolition Waste Management Plan.		
WM1.3	Tier 2	All	<ul style="list-style-type: none"> Demonstrate a waste diversion rate of 75% or more from landfill. 			Waste Diversion Report indicating total Construction and Demolition Waste diversion rate of the project.	

WM2 OPERATIONAL WASTE REDUCTION AND MANAGEMENT

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
WM2.1	Tier 1	Part 9 (Residential)	<ul style="list-style-type: none"> Design and construct the building(s) to meet section 3.5 of the City of Hamilton's waste design requirements for new developments. 		Drawings or plans indicating the type, floor area and location of the waste storage and sorting system.		
WM2.2	Tier 1	Part 3 & Part 9 (Residential)	<ul style="list-style-type: none"> Design kitchen cabinets to accommodate space for the separate collection of recycling, organics, and garbage. 		A Letter of Commitment signed by a qualified professional (Architect) and the owner/developer/builder that includes confirmation that requirements of this metric will be met.	Drawings or plans indicating the designated space.	



WM3 MATERIAL REUSE

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application Submission	Post Construction Submission	
WM3.1	Tier 2	All	<ul style="list-style-type: none"> Maintain the existing building structure and envelope for 30% of the existing floor area OR use existing interior non-structural elements for at least 30% of the entire completed building, including additions. 		<p>A Letter of Commitment signed by a qualified professional (Architect, Structural Engineer) and the owner/developer/builder that includes confirmation that requirements of this metric will be met.</p> <p>Calculations completed by a qualified professional (Architect, Structural Engineer) demonstrating this metric can be met.</p>	<p>Report/ drawings/ plans demonstrating the preserved and new components of the building,</p> <p>Calculations completed by a qualified professional (Architect, Structural Engineer) demonstrating this metric has been met.</p>	



CD1 PROMOTION OF PUBLIC AND ACTIVE TRANSPORTATION

Item #	Tier	Applicability	Metrics	Met	Documentation		Comments (Description of Compliance)
					Site Plan Application / Plan of Subdivision Submission	Post Construction Submission	
CD1.1	Tier 1	All	<ul style="list-style-type: none"> Develop a Transportation Demand Management (TDM) Plan and demonstrate a 25% reduction in single occupancy auto vehicle trips generated by the proposed development. 		Site Plan Application only: Transportation Demand Management Plan demonstrating a 25% reduction.		
CD1.2	Tier 1	All	<ul style="list-style-type: none"> Construct a network of suitable cycling facilities and multi-use paths within the development which also connects to the bicycle network and implement recommendations of the City's Transportation Master Plan and/or Cycling Master Plan (where applicable). 		Site Plan Application and Plan of Subdivision: Plan(s) indicating network of cycling facilities and multi-use paths.		
CD1.3	Tier	All	<ul style="list-style-type: none"> Provide safe and direct routes that encourage the use of active transportation modes and connect to transit, commercial areas, community facilities, and parks. 		Site Plan Application and Plan of Subdivision: Plan(s) indicating safe and direct active transportation routes		
CD1.4	Tier 1	All	<ul style="list-style-type: none"> Locate transit stops in accessible and safe areas 		Site Plan Application and Plan of Subdivision: Plan(s) indicating transit stops.		



APPENDIX D

Phase 3 Report



City of Hamilton

**CITY WIDE GREEN BUILDING STANDARDS
PHASE 3 REPORT**

February 2024



REVISION HISTORY

ISSUE/REVISION	DRAFT ISSUE	FINAL ISSUE
Remarks	None	None
Date	January 12, 2024	February 12, 2024
Prepared by	Nadia Dowhaniuk	Nadia Dowhaniuk
Prepared by	Alexander Adams	Alexander Adams
Prepared by	Jacqueline Da Rocha	Jacqueline Da Rocha
Reviewed and Approved by	Kirsten MacKenzie (Sustainability)	Kirsten MacKenzie (Sustainability)
Reviewed and Approved by	Robert Rappolt (Planning)	Robert Rappolt (Planning)
Project number	CA0010529.3231	CA0010529.3231
Report number	2	2



SIGNATURES

Reviewed by

Kirsten Mackenzie, LEED AP BD+C, ENV SP
Technical Lead - Sustainability

Robert Rappolt, MCIP, RPP
Senior Planner – Planning

Prepared by

Jacqueline Da Rocha, B.A.Sc, LEED AP BD+C, ID+C, ENV SP
Project Manager – Sustainability

Alexander Adams, B.A., M.PI
Planner – Planning

Nadia Dowhaniuk, B.A., M.PI.
Project Planner – Planning

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APPENDICIES

Appendix A: High-level Matrix Assessment

Appendix B: GBS Performance Requirements

Appendix C: Sub-topic Worksheet Template

1 INTRODUCTION

WSP is engaged to support the City of Hamilton in creating green building development requirements for their low-rise, mid-rise and high-rise residential, institutional, commercial and industrial uses. The City-Wide Green Building Standard (GBS) will be applied to all relevant development applications moving forward, which will include an assessment tool (Guidebook and checklist tool) to form part of the submission requirements for planning applications.

The GBS will aid in evaluating development applications through the lens of sustainability, energy and climate resilience by providing performance requirements across a range of Impact Categories. The development of a well-informed building standard will be influenced by City of Hamilton current sustainability initiatives and priorities, and provincial, regional policy and regulations.

The project is being delivered over the following key stages of development including associated deliverables:

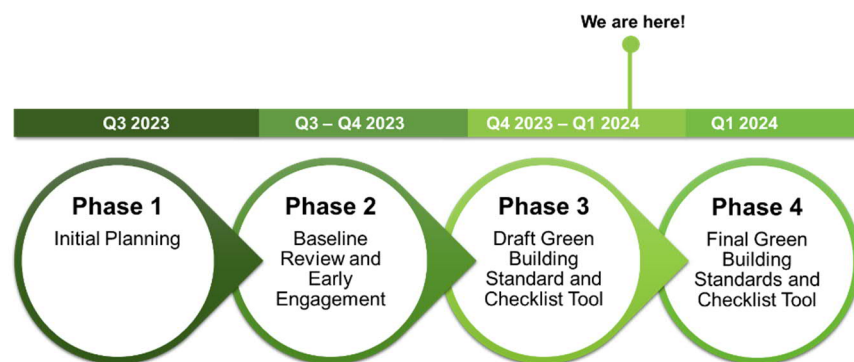


Figure 1 City-Wide Green Building Standards Timeline

In the previous phase of work (Phase 2) an engagement session (GBS Workshop #1) with internal interested parties was conducted to identify key considerations for the City-Wide GBS. The session outcome included identification of a set of sustainability Impact Categories and related sub-topics, and a follow-up survey to interested parties requesting that these Categories and sub-topics be ranked based on interested parties considered importance to the Corporation 'The City' and community. In November 2023, WSP issued the final City of Hamilton City-Wide Green Building Standard Baseline Review Report. The Baseline Review Report summarized an assessment of relevant City of Hamilton policies and plans, as well as an assessment of peer municipalities.

This Phase 3 report provides an overall summary of the Phase 3 work completed and contains the following key sections:

1. Overview of December 12th engagement session preparation and materials.
2. Consultation Summary of the feedback received during Phase 3.
3. Outcomes following the workshop and reference to the Appendix B containing the detailed performance requirements.
4. Next steps following the issuance of the Phase 3 Report.



2 WORKSHOP PREPARATION

2.1 Phase 3 Overview

The goal of the current Phase 3 scope of work is to develop the final Impact Categories and detailed performance requirements that will form the GBS, and to create the Guidebook and checklist tool. The second in-person engagement session (the “Workshop”) was conducted on December 12th, 2023 to collaboratively develop performance requirements. Draft performance requirements were provided to interested parties for feedback during the workshop, and through the completion of sub-topic worksheets. The extensive feedback received has informed the final Impact Categories and detailed performance requirements.

2.2 Workshop Preparation

During Phase 2, draft sub-topics were identified based on the peer municipality review and Phase 1 low-density residential scope.

As part of the preparation process, WSP conducted a *high-level matrix assessment* of the subtopics, included in Appendix A. The matrix outlines the subtopics and their priority ranking through two key lens; 1) WSP early Baseline Review Report analysis, and 2) interested parties’ survey ranking results received during GBS Workshop #1. For the purpose of streamlining the workshop session, the matrix subtopics are categorized as high, medium, and low focus. (Note that this high, medium and low categorization is *very preliminary* and was used only to inform and streamline the GBS Workshop Session #2 discussion).

Informed by the *high-level matrix assessment*, worksheets were developed for each subtopic to be considered by the interested parties during GBS Workshop Session #2. These worksheets were organized by topic and sub-topic and included preliminary performance requirements that were high-level and open to modification and further refinement based on input from interested parties. A copy of the Worksheets are included in Appendix C.

The worksheets were provided to interested parties in advance of the workshop for review and completion. In the worksheets, interested parties were requested to:

- Check the box for each performance requirement they felt should be implemented.
- Categorize performance requirements as Tier 1 (mandatory requirement) or Tier 2 (optional requirement).
- Offer feedback in support of decisions and choices indicated.
- Document potential opportunities and challenges related implementation of performance requirements.
- Identify specific Key Performance Indicators (KPIs) pertinent to the performance requirement.
- Assess performance requirement applicability to various building archetypes (e.g., mixed-use, commercial, etc.).
- Highlight any performance requirements that were not already proposed.

The worksheets were also used as a key tool to guide discussion and collect feedback during the engagement session conducted on December 12th, which is described in the section below.

3 CONSULTATION SUMMARY

3.1 Description of Consultation

WSP facilitated the Workshop on December 12th, 2023. The following section provides the details and a summary of input received throughout Phase 3, including how this input will be used to inform the outcomes and deliverables of the Project.

3.1.1 Purpose

The purpose of the Workshop was to receive feedback from interested parties on the preliminary performance requirements for the GBS.

3.1.2 Participants

Interested parties from the City of Hamilton and external organizations were invited to participate in the workshop. Interested parties who were invited to the Workshop included:

- City of Hamilton staff who work in zoning, development planning and development engineering, site plan, policy planning, heritage, buildings, water and wastewater systems, urban design, public health, and the office of climate change;
- External interested parties included representatives from advocacy groups such Birdsong Hamilton, the West End Home Builders' Association, and Environment Hamilton; and
- Other interested groups, such as staff from McMaster University.

Over 20 individuals from the groups identified above attended the in-person Workshop. Additional interested parties provided written feedback to the Project Team.

3.1.3 Worksheets

As outlined in Section 2 Workshop Preparation, detailed worksheets were distributed to interested parties prior to the session which served as a key discussion tool during the Workshop. This was beneficial for this second engagement session which delved further into both qualitative and quantitative metrics, building on the initial topic areas and proposed sub-topics that were discussed during the first engagement session with City staff on October 18th, 2023.

A copy of the sub-topic worksheets is provided in Appendix C.

3.1.4 Workshop

The Workshop was scheduled for two hours and was hosted at CityLab in the City of Hamilton. After welcoming participants to the Workshop, WSP provided a concise presentation, offering an overview of the project. This presentation covered background information, context, objectives, timelines and next steps.

Following the presentation, WSP facilitated a 90 minute workshop wherein interested parties were grouped at one of five tables based on their stated expertise and interests. Each table was allocated one topic (e.g., Water, Air, etc.), with the exception of one table, which was assigned two topics. Participants rotated through three tables and topics based on their interests, allocating a total of 25 minutes per table. This allowed participants to delve into the preliminary performance requirements and critically evaluate the Key Performance Indicators (KPIs). The session concluded with the Project Team dedicating time for general questions and a discussion of the next steps.



Figure 2 Snapshots from the Workshop

3.2 What We Heard

This section summarizes feedback received from interested parties regarding the preliminary performance requirements. Feedback was captured in advance of, during, and following the Workshop through submission of completed worksheets. The feedback is summarized at a high-level and grouped according to topic and sub-topic.

3.2.1 Energy and GHG Emissions

Energy Performance

- Interested parties generally agreed with the performance requirements.
- Some interested parties recommended the GBS adopt Tier 1 Absolute Targets for mixed-use, multi-unit residential and commercial buildings, and the GBS adopt GHG emissions limits and Total Energy Use Intensity/ Thermal Energy Demand Intensity requirements at Tier 1, Tier 2, and Tier 3 levels, similar to those set out in the City of Toronto Green Standards.
- Some interested parties felt that standards for Passive House should be a Tier 1 requirement for low-rise developments. Further, some interested parties questioned why only low-rise buildings would require an environmental verification, rather than all building types.
- Some interested parties recommended the City not implement measures that exceed Ontario Building Code requirements.
- Additional requirements were proposed by interested parties, including Tier 2 requirements for embodied emissions in materials for low and mid-rise building types and mixed use and commercial buildings.
- Interested parties from the City noted a possible conflict between the performance requirements and the City's recently approved Bayfront Industrial Strategy.
- Interested parties from the City noted recent City engagement with the Bay Area Climate Change Council has produced a list of environmental certification requirements with

consideration of eligible tax grant programs for the Downtown Community Improvement Plan (CIP) update. City staff suggested that there is an opportunity to incorporate environmental certification requirements into the GBS.

- One group recommended including a Tier 2 requirement for refuge area and back-up power generation for climate resilience and adaptation.

Energy Metering

- Interested parties indicated that energy sub-metering is a baseline requirement and should be required for all building types.

On-site Renewable Energy

- Interested parties expressed difficulty providing specific comments to the preliminary performance requirements without precise numbers and percentages.
- Rather than having three distinct preliminary performance requirements, interested parties suggested that the City consider a “menu” approach where applicants can pick and choose various performance requirements.
- Interested parties preferred geothermal energy due to its hyper-local nature, heightened efficiency, and financial feasibility. It was noted that thermal energy would have less variance from season to season unlike solar or wind, and that solar readiness should not be a requirement given it may not be the most appropriate method for supporting sustainability.
- Some interested parties were not in favour of the preliminary performance requirement to implement a feasibility study for energy generation from renewable resources, especially if they were not obligated to proceed with the implementation. Interested parties raised questions regarding the definition of feasibility in this context.
- Some interested parties felt that the determination of feasibility should be a Tier 1 requirement, as this aligned with Hamilton’s Climate Action Strategy.
- Some interested parties emphasized the important of a standardized approval procedure for geoexchange applications. Interested parties referred to a case study from Toronto where developers had to receive approvals from over ten different departments for geothermal energy.
- One stakeholder group raised concerns about the provision of on-site renewable energy from a cost and implementation perspective.

Considerations for District Energy

- Interested parties generally agreed district energy hook-up requirements should be classified as a Tier 2 requirement, acknowledging the City's limitation in mandating building hook-ups. However, some interested parties felt it should be a Tier 1 measure.
- Questions were raised about the City's role in mandating or requiring district or geothermal energy through secondary plans or master plans, and the option to offer incentives (e.g., through a CIP) for those opting to connect to a district or geothermal energy system.
- Concerns were expressed about the financial responsibility for hook-up costs, cost of building retrofits, and challenges related to the costs for HCE Energy when extending district energy lines.
- Additional issues were identified regarding the hook-up process. It was highlighted that HCE provides a district energy readiness guide which offers detailed insights into how a development can be prepared.



- The City has previously identified, in collaboration with the Bay Area Climate Change Council and HCE Energy, key building components to meet direct energy readiness. These include:
 - Provisions for space for the sole purpose of future equipment and thermal piping;
 - Securement of an easement between the mechanical room and the property line for thermal piping; and
 - Inclusion of two-way pipes in the building to carry thermal energy from the district energy network to the section in the building where the future energy transfer station will be located.

Building Systems Commissions & Air Tightness Testing

- Most interested parties emphasized that air tightness testing should be a Tier 2 requirement, however some felt that it should be a Tier 1 requirement and that it was a commonplace requirement for new development.
- Many implementation challenges were noted, including the legality of some of the provisions via the *Planning Act*.
- Interested parties suggested there should be an incentive beyond the standard energy rebate for air tightness testing. Interested parties suggested that conducting air tightness testing every five years to account for factors like window deterioration, and providing an incentive for large buildings to undergo testing within this five-year cycle.
- An additional Tier 2 requirement was proposed by interested parties to enroll the project in ENERGYSTAR portfolio manager to track energy and water consumption for new development.

3.2.2 Air

Promotion of Public & Active Transportation

- In general, interested parties indicated that it is important to apply Tier 1 and Tier 2 requirements to industrial developments, particularly for older urbanized industrial areas (e.g., Bayfront).
- In response to the preliminary performance requirement to construct a network of cycling facilities, interested parties felt that the sub-topic should be split into individual requirements. Interested parties discussed the purpose of the performance requirement, considering its existence in zoning regulations. Some interested parties suggested including it as a Tier 1 requirement and enhancing it beyond existing standards, while others viewed it as an opportunity to create a standardized approach across different developments.
- The ability to implement and the applicability of the sub-topic was discussed. Some aspects, like route planning, were deemed only applicable to site plans and subdivisions, while others, such as bicycle parking, were seen as extending into facilities planning.
- In response to the preliminary performance requirement for bicycle parking spaces, interested parties generally agreed this should be a Tier 1 requirement, and requirements should be extended to industrial and institutional development, and requirements could be further refined for developments in proximity to transit routes or within Major Transit Station Areas (MTSAs).
- Regarding requirements for change rooms and showers, interested parties raised concerns about the feasibility and potential pushback from the development industry.
- Some interested parties proposed more prescriptive requirements for long-term and visitor bicycle parking regarding their location, visibility, security, size, as well as additional repair station and locker requirements. It was also noted that the City has existing documents, such as the School Site Design Guidelines for Active and Sustainable Transportation, and Recreation

Trail Master Plan, and Transportation Demand Management Guidelines for Development which could be incorporated into these requirements.

- In response to proposed requirements for electric bicycle charging, interested parties were not unanimous in terms of whether this requirement should be Tier 1 or Tier 2. Interested parties also noted it should be conditional on the type of building. The City's current e-scooter pilot project, and possible charging station requirements, was also raised. It was also raised that the 1,100 mm requirement may be too specific or restraining.
- Interested parties agreed bike share location should be a Tier 2 requirement, or Tier 1 based on location. Interested parties shared rideshare locations should be identified based on user data. Challenges were also identified, such as the ability for the City to enforce a third party agreement, and concerns based on the City's role in bikeshare operations.

Electric Vehicle Charging Infrastructure

- Interested parties agreed that the preliminary performance requirements related to Electric Vehicle (EV) charging should be categorized as Tier 1.
- An additional Tier 1 requirement was proposed to facilitate a reduction in single occupancy vehicle trips generated by new development.
- Interested parties from the City noted that the City is currently development an EV Strategy, and recommended that any final EV-related performance requirement be informed by the outcomes of the EV Strategy.
- Interested parties noted the incorporation of EV infrastructure requirements into design criteria during the site plan stage, emphasizing the cost-effectiveness of installation at that phase.
- Some interested parties wanted to expand the applicability of EV charging stations to all building types, while other raised potential challenges associated with EV parking in commercial buildings, including considerations about energy costs and responsibility for payment.
- Some interested parties noted that there should be a decreased minimum or elimination of minimum parking requirements for all building types for a greater effect on GHG emissions, as well as additional benefits in residential contexts.

Heat Island Effect

- Preliminary performance requirements were identified as suitable for Tier 1.
- Interested parties expressed a preference for cool roofs over green roofs due to perceived implementation difficulties (related to combined sewer shed and approval authorities) and cost constraints associated with the latter. As an alternative, stakeholder suggested requiring a minimum solar reflective index, or implementation of cool roofs. The Toronto Green Standard requirements for mid and high-rise residential and non-residential buildings was referenced as a strong example.
- Some interested parties recommended integrating these requirements into the Zoning By-law.
- Interested parties mentioned the importance of incorporating urban forestry measures, as well as the potential for ancillary uses, such as public uses (e.g. pathways, picnic spaces).
- One stakeholder group noted that the mitigation of heat island effects though non-roof measures may be difficult to achieve depending on road pavers chosen, such as permeable pavers which are not durable in Ontario winters.
- One stakeholder noted potential conflicts between the proposed requirements for non-roof hardscapes and the City's stormwater fee program. Other conflicts may emerge in reducing impervious surfaces while promoting the use of high reflectivity paving materials.



3.2.3 Ecology and Biodiversity

Native Species Planting

- The preliminary performance metrics were generally categorized as Tier 1, with the exception of the requirement for an Invasive Species Management Plan and climate-positive design.
- Interested parties expressed concern with the implementation and monitoring of an Invasive Species Management Plan and the implementation of the native species planting requirements. One stakeholder noted that currently, it is difficult to get developers to plant any native species. Further, not all sites may be appropriate for a high number of native species, and availability of native species could also be an issue.
- Interested parties suggested that the City should create an updated native species list within site plan guidelines.
- Interested parties emphasized the importance of including and considering embodied carbon through landscaping as an important consideration that could be further informed through consultation with Indigenous communities.
- It was noted that there are opportunities for the City to incentivize private developers to use specific nurseries. One stakeholder proposed starting the requirement at 25% and gradually increasing the scale, where appropriate.
- The role of signage and education in promoting community engagement with pollinator gardens and native species-specific gardens was acknowledged. However, there was uncertainty about how the various preliminary performance requirements would work together, and questions were posed regarding the purpose of the invasive species management plan and its focus on natural heritage features.
- Some interested parties proposed adding an additional performance requirements regarding food landscapes, and for ensuring the long-term survivability of species that were planted through holding securities for landscaping components.
- One stakeholder group noticed that the LEED standard is “native and adapted” and that is it important that the City’s wording include “climate-adapted” or “adapted”.

Tree Planting

- Interested parties noted the proposed performance requirements were aligned with established standards. One stakeholder noted that some performance requirements may duplicate existing Tree Protection Plan requirements for development applications.
- Interested parties recommended maintaining consistency in tree planting requirements, including soil volume, by aligning them with the emerging standards for low density infill development specified in zoning regulations and design guidelines. The consensus was for uniformity in requirements across both public and private trees.
- There was a specific call for defining “shade trees,” especially concerning the free trees provided by the City’s public works department, clarifying that these trees are typically not shade trees to avoid interference with hydro lines.
- Interested parties emphasized the importance of ensuring that tree maintenance standards adhere to best practices for tree survival and align with the City’s Urban Forestry Strategy. The City’s current Urban Forest Strategy target of 30% tree canopy cover was also mentioned.
- Interested parties identified the absence of measures addressing salt and its impact on trees, and suggested requiring a Salt Management Plan.



- Interested parties identified a tension between sidewalk installation for active transportation use and the location of existing trees, and proposed including a cost/benefit calculation for determining when to remove a tree and put in a new sidewalk.

Bird-friendly Design

- One stakeholder group noted that all bird-friendly requirements are high priority, and the preliminary performance requirements are considered inadequate in comparison to other municipal standards.
- Interested parties raised concerns about the preliminary performance requirement for habitat structures and warned that it may result in negative outcomes.
- Interested parties recommended that the final requirements include a more detailed definition of what qualifies as a Bird Friendly Design Strategy, and to integrate the standards and best practices from the Canadian Standard Association's A460:19 Bird Friendly Design Standards.

Light Pollution

- One stakeholder group suggested that all proposal should be identified as high priority, as they are significant to bird-friendly design.
- It was noted that light performance requirements should follow Crime Prevention Through Environmental Design (CPTED) requirements, as referred to in the City's Recreational Trails Master Plan lighting requirements.

3.2.4 Water

Reduced Indoor & Outdoor Water Use

- The majority of interested parties categorized all preliminary performance requirements as Tier 1. There was a consensus that consumption/use requirements should be assigned medium priority, as they incentivize efficiency through non-governmental means, such as making end-user costs more affordable for higher efficiency fixtures.
- Overall, there was strong support for requiring high-efficiency fixtures due to their ease of implementation and enforceability, but interested parties emphasized that it is not as critical a focus as stormwater management in the realm of water conservation.
- The installation of high-efficiency fixtures, such as low-flow toilets and taps, and washers, were generally agreed upon as a priority for all new constructions.
- Interested parties expressed the view that the size/frequency of residential recreational fixtures consuming water, such as swimming pools and hot tubs, should be minimized in new construction, where feasible.
- The need for educational initiatives on water usage among residents was emphasized. Interested parties suggested the City should consider education and implementing a by-law to regulate early spring water use, aiming to limit water usage for gardening and lawn watering. Enforcement and measurement by the City would be essential for such a program.
- Regarding tree watering programs, it was noted that a better choice may be regulating individual fixtures. Outdoor fixtures should be required in appropriate locations, and the requirement for the tree watering program should be two years instead of one. It was also noted that the requirements should incorporate best practices for urban agriculture.



- Interested parties felt greater focus should be placed on mitigation than awareness, as there is already significant public awareness for high efficiency fixtures. Condo by-laws were identified as a tool to enforce fixture requirements.
- Interested parties felt that gray water recycling requirements should also be considered.
- Some interested parties suggested that individual water meters for tenants should be a requirement for industrial developments.
- Some interested parties expressed difficulty providing accurate comments on unspecified requirements, urging the team to reference industry standards for fixtures and ensure the GBS requirements represent improvements.

Enhanced Stormwater Management and Watershed Management

- The majority of interested parties designated all preliminary performance requirements as Tier 1. There was a unanimous agreement on assigning high priority to stormwater related preliminary performance requirements.
- Interested parties stressed the need for Low Impact Development (LID) requirements and stressed that the City's initiatives related to LIDs and the GBS need to function cohesively. Interested parties recommended avoiding redundancy and leveraging the work being done through the City's LID program, including the involvement of consultant engineers.
- Interested parties suggested that Industrial, Commercial, and Institutional (ICI) applications should be mandatory as part of all applications. Additionally, they advocated for an increase in mandatory tree planting.
- Interested parties expressed skepticism about the effectiveness of permeable pavers and recommended a greater emphasis on natural landscape features for stormwater management. They highlighted challenges such as susceptibility to damage, costly replacements, and limited effectiveness in specific site conditions. Natural features like rain gardens, bioswales, dry ponds, and dry wells were considered more critical and effective.
- Interested parties advocated for the inclusion of rainwater collection in new construction, emphasizing that grass is a poor surface for stormwater collection and may not align with other GBS goals like biodiversity. They emphasized the importance of maintaining stormwater management systems as healthy and safe environments.
- Interested parties expressed the view that if left to the development industry, there is a risk that water runoff and stormwater would be stored underneath buildings or underground. As an alternative, interested parties recommended the mandatory incorporation of natural surface features to promote effective stormwater management and sustainable urban development.
- Concerns were raised about the lack of specific green infrastructure elements in GBS requirements. Interested parties emphasized the need for measurable and prescriptive requirements, citing the Toronto Green Standard as an effective approach. Questions were raised about how the City's sewer rate intersects with GBS and how credits for on-site stormwater retention would be measured.
- More specificity was requested in planning for climate change, including consideration of Intensity-Duration-Frequency (IDF) curves. Interested parties stressed the importance of identifying modeling assumptions used for anticipated rainfall to evaluate requirements against them. Differentiation between building types and a higher focus on solutions such as green roofs and rainwater collection.

The need to address permeability and water retention/absorption on built-up urban sites, especially with solutions like green roofs and rainwater collection, was highlighted. Interested



parties questioned whether green roofs would be required for larger buildings and for sites with limited surface absorption space. The alignment of goals, such as biodiversity and stormwater management, was emphasized, and the City's stance on grey water reuse versus better infiltration was discussed, seeking clarity on how these goals would be pursued and where the focus would lie.

3.2.5 Waste and Materials

Construction Waste Reduction and Management

- Interested parties indicated that preservation and reuse of buildings, particularly heritage buildings, is an important element of heritage conservation and climate action.
- Interested parties held differing opinions as to whether this sub-topic should be categorized as Tier 1 or Tier 2. Some interested parties had the view that it should not be a Tier 1 requirement unless confirmation of compliance was required.
- Feedback received highlighted challenges with implementation, including concerns about the legality of the provisions, clarification on the mechanisms for follow-through, determination of responsibility, and enforcement measures.
- Additional proposed performance requirements were suggested, including a Tier 1 requirement to comply with O. Re. 103/49 regarding the management of construction and demolition waste, and a Tier 2 requirement for building material reuse (similar to Toronto Green Standard)
- Interested parties suggested adding diversion rate tiers, such as a mandatory diversion rate in Tier 1 (55%-60%) and a more ambitious Tier 2 target, similar to the Toronto Green Standard.

Operational Waste Reduction and Management

- Interested parties generally reached a consensus that this sub-topic should be classified as Tier 1 and applied where relevant.
- Challenges were also raised by interested parties, highlighting the need for convenient design and the observation that design standards may not fully align with the requirements for public pickup.
- Concerns were expressed about the necessity for more space for waste storage.
- Additional proposed performance requirements were suggested, including a minimum accessible dedicated waste storage floor space, with similar provisions to the Toronto Green Standard.

3.2.6 Community & Urban Design

Celebration of Heritage and Culture

- Interested parties proposed a combination of Tier 1 and Tier 2 classifications, contingent on location the applicable Zoning By-law provisions, as well as legislation in the *Ontario Heritage Act*.
- Interested parties expressed a need for greater specificity in the performance requirements. The discussion delved into determining the appropriateness and qualifying areas for implementation.
- Implementation challenges were highlighted, particularly in cases where certain green spaces require protection from the public, prompting questions about the decision-making process in such instances.



- Some interested parties expressed hesitation regarding the relocation of heritage buildings, as this should be an exception rather than the rule.

Other Subtopics

- With respect to urban agriculture, interested parties discussed the need to focus on planning for function and longevity, and determining the applicability of the subtopic. The importance of community-driven initiatives was underscored, with interested parties referencing the “Brampton Backyard Garden Program” as an example. There was also some discussion about risks due to ground contamination in the lower city or on sites with current/ former dry cleaners, gas stations, etc. A disclaimer referencing the Record of Site Condition/ Certificate of Property Use was suggested. Some interested parties noted that urban agriculture requirements should be Tier 1 due to a large shortage of available green space for community gardens in the City, in particular the downtown core, and increased interest by residents for space to grow food. They noted that the focus on urban agriculture should be on production for individual consumption or donation, not sales.
- With respect to services within walking distances, interested parties generally agreed that new subdivisions require additional requirements for constructing convenience-type buildings. The need for specificity based on location was emphasized, recognizing that the proposals are context-dependent and integration with the Zoning By-law must be considered. It was suggested that this could be a Tier 1 requirement based on location and context. It was also suggested that ‘amenities’ need to be further defined.
- Regarding community sustainability, interested parties reached a consensus that this should be categorized as Tier 1. They further discussed the necessity for long-term public signage regarding native species on the property, emphasizing the importance of communicating this information to residents, workers, and building owners. Lastly, interested parties raised the importance of incorporating the Public Health department in public communications.

4 OUTCOMES

The Project Team reviewed the feedback provided during and following the Workshop, and based on the Draft Phase 3 report to inform the final Impact Categories and Performance Requirements. Table 2 below presents the five (5) Impact Categories and Performance Requirements that fall under each Category.

Table 1: City-Wide Green Building Standards Impact Categories and Performance Requirements

1	2	3	4	5
Energy & Carbon	Ecology & Biodiversity	Water	Waste Management & Materials	Community & Urban Design
Energy Performance	Native Species Planting	Reduced Indoor Water Use	Construction Waste Reduction and Management	Celebration of Heritage and Culture
Embodied Carbon	Tree Planting	Reduce Outdoor Potable Water Use	Operational Waste Reduction and Management	Urban Agriculture
Energy Metering	Bird Friendly Design	Water Metering	Material Reuse	Services within Walking Distance
Refuge Area and Back-up Power	Heat Island Effect	Enhanced Stormwater & Watershed Management		Community Sustainability Outreach
On-Site Renewables	Climate Positive Landscape Design	Benchmarking & Reporting		Promotion of Public and Active Transportation
District Energy				Bicycle Facilities
Building Systems Commissioning				Accessible Design
Air Tightness Testing				
Benchmarking & Reporting				
Electric Vehicle & E-Bike Charging Infrastructure				

Appendix B includes a brief description of the Performance Requirements and the related feedback from Interested Parties that informed the requirements as shown in this Report.



5 NEXT STEPS

5.1 Implementation Workshop

The ability to implement the GBS by City staff as the reviewers of development applications, and by the development industry, was raised as an important consideration during the Workshop conducted as part of Phase 3. These concerns and comments have been captured in Section 4 of this Report.

The Project Team provided preliminary thoughts on implementation as part of the Baseline Review Report prepared during Phase 2 of the Project. Challenges and opportunities raised by interested parties during Phase 3 have been identified and will be addressed as part of an Implementation Workshop. The intent of the Implementation Workshop will be to facilitate a discussion with City staff to identify how the GBS will be used as part of the development review process, and to further refine the GBS to ensure alignment with other City initiatives.

5.2 Public Open House

A virtual Public Open House will be facilitated by the Project Team to inform and educate the public about the GBS, and to highlight the relationship between the GBS and other City-led initiatives. The virtual Public Open House will be accompanied by a public-facing webpage for the public to learn more about the Project, and to register for the Public Open House.

5.3 Finalizing the Green Building Standards

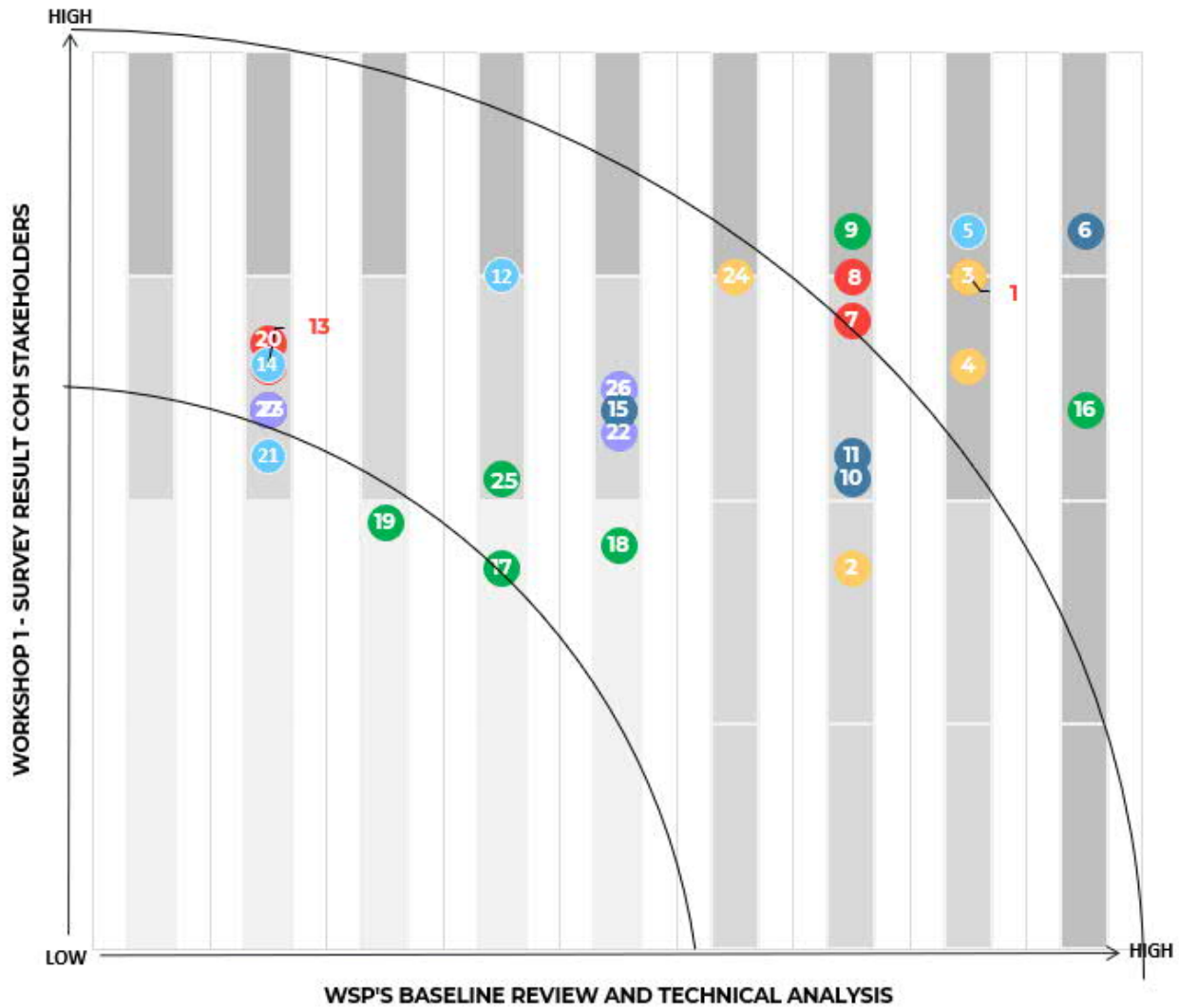
The Project Team will prepare a GBS Report, Guidebook and Checklist tool based on the Performance Requirements identified in the final Phase 3 Report. These documents are intended to support development applications in complying with the GBS once in effect, and highlight alignment with existing City of Hamilton Strategies, bylaws, other documents related to the GBS Performance Requirements. Draft copies of these documents will be prepared in advance of the Implementation Workshop and Public Open House for consideration, and will be finalized during Phase 4.



APPENDIX A

Sub-Topic High-Level Matrix Assessment





● Air
 ● Energy & GHG Emissions
 ● Ecology & Biodiversity
 ● Water
 ● Community & Urban Design
 ● Waste & Materials

HIGH FOCUS		MEDIUM FOCUS		LOW FOCUS	
6	Managing stormwater	11	Efficient irrigation systems	19	Airtightness Testing
3	Promotion of public and	12	Services within walking distance	21	Public art and culture
4	Bicycle parking facilities	24	Urban Heat Island Reduction		
1	Tree planting	14	Safety		
5	Access to public transpo	13	Embodied carbon of landscape design		
16	Energy Performance Targ	10	Efficient plumbing fixtures		
8	Native species planting	15	Water metering		
9	Renewable Energy	2	Electric Vehicle charging infrastructure		
7	Prohibit invasive specie	18	Building Systems Commissioning		
		25	District Energy		
		17	Energy Metering		
		20	Exterior lighting		
		23	Bird friendly design		
		22	Construction waste generation		
		26	Proper waste storage and		
		27	Procurement of building materials		



APPENDIX B

GBS Performance Requirements



City of Hamilton City-Wide Green Building Standards Performance Requirements



Performance Requirement	Intent	Impact Category	Metrics Note that where cell is grey this performance requirement is still being drafted. Specific draft text is shown in grey font.	Tier 1 (mandatory)	Tier 2 (optional)	Applicable developments	Related Feedback from Phase 3 Engagement Where blank, feedback from Interested parties was consistent with draft performance required presented
Construction Waste Reduction and Management	Facilitate the reduction of waste and the safe and proper disposal of waste generated during building construction. Diverting waste from landfills reduces the extraction of virgin natural resources and minimize land, water, and air pollution.	Waste Management & Materials	Tier 1 (mandatory): • Manage construction and demolition waste in accordance with O. Reg. 103/94, as amended: Industrial, Commercial and Institutional Source Separation Programs • Develop and implement construction waste management plan for non-hazardous construction, demolition, and land clearing waste diverted from landfill, and demonstrate a diversion of 50% or more of all non-hazardous construction, demolition, and land clearing waste from landfill.	X		All	Interested parties recommended including compliance with O.Reg. 103/94
Construction Waste Reduction and Management	Facilitate the reduction of waste and the safe and proper disposal of waste generated during building construction. Diverting waste from landfills reduces the extraction of virgin natural resources and minimize land, water, and air pollution.	Waste Management & Materials	Tier 2 (optional): • Develop and implement a Construction and Demolition Waste Management Plan to demonstrate diversion of 75% or more of all non-hazardous construction, demolition, and land clearing waste from landfill.		X	All	Interested parties suggested adding diversion rate tiers, such as a mandatory diversion rate in Tier 1 and a more ambitious Tier 2 target, similar to the Toronto Green Standard (TGS). Proposed Tier 2 performance (75%) aligns with TGS v4.
Operational Waste Reduction and Management	Facilitate the reduction of waste generated and the safe and proper disposal of waste generated during building operations. Diverting waste from landfills reduces the extraction of virgin natural resources and minimize land, water, and air pollution.	Waste Management & Materials	Tier 1 (mandatory): • Provide dedicated areas accessible to waste haulers and building occupants for the collection and storage of recyclable and compostable materials for the entire building. • Outlined minimum accessible, dedicated waste storage floor space of: - 25 m2 for the first 50 units plus an additional 13 m2 for each additional 50 units to accommodate containers and the compactor unit. - 10 m2 for bulky and special collections. - 1 m2 for every 100 units for HHW and/or electronic. • Provide a waste collection and sorting system for garbage, recycling and organics (e.g. single chute with a tri-sorter, three separate chutes, central location for separate collections, etc.).	X		MHR Residential	Interested parties generally agreed operational waste requirements should be Tier 1. Interested parties recommended aligning operational waste requirements with TGS v4.
Operational Waste Reduction and Management	Facilitate the reduction of waste generated and the safe and proper disposal of waste generated during building operations. Diverting waste from landfills reduces the extraction of virgin natural resources and minimize land, water, and air pollution.	Waste Management & Materials	Tier 1 (mandatory): • Provide a waste collection and sorting system for garbage, recycling and organics (e.g. single chute with a tri-sorter, three separate chutes, central location for separate collections, etc.).	X		MHR Residential	Interested parties generally agreed operational waste requirements should be Tier 1. Interested parties recommended aligning operational waste requirements with TGS v4.
Operational Waste Reduction and Management	Facilitate the reduction of waste generated and the safe and proper disposal of waste generated during building operations. Diverting waste from landfills reduces the extraction of virgin natural resources and minimize land, water, and air pollution.	Waste Management & Materials	Tier 1 (mandatory): • Design kitchen cabinets to accommodate space for the segregated collection of Recyclables, Organics and Garbage.	X		Low-Rise MHR Residential	Interested parties generally agreed operational waste requirements should be Tier 1. Interested parties recommended aligning operational waste requirements with TGS v4.
Material Reuse	Encourage reuse of existing materials to support total carbon reductions and reduce demolition and construction waste.	Waste Management & Materials	Tier 2 (optional): Maintain the existing building structure and envelope for 30% of the existing floor area OR use existing interior non-structural elements for at least 30% of the entire completed building, including additions.		X	All	Interested parties indicated that preservation and reuse of buildings, particularly heritage buildings, is an important element of heritage conservation and climate action. Additionally, Tier 2 requirement for building material reuse (similar to Toronto Green Standard) was suggested. Requirements align with LEED v4.1 and threshold for structure and envelope threshold aligns with TGS v4 SW2.1 Option 1 Path 1).
Energy Performance	Promote energy-efficient buildings that lower operating costs, reduce greenhouse gas emissions, and improve building resilience.	Energy & Carbon	Tier 1 (mandatory): Design the building(s) to meet or exceed one of the following: - A rating of 83 or more when evaluated in accordance with Natural Resources Canada's EnerGuide Rating: 0-100 Scale (or equivalent), as demonstrated by a qualified professional. - Meet the ENERGY STAR® for New Homes, version 17.1 or R-2000 requirements.	X		Low-Rise	
Energy Performance	Promote energy-efficient buildings that lower operating costs, reduce greenhouse gas emissions, and improve building resilience.	Energy & Carbon	Tier 2 (optional): Design the building(s) to meet CHBA Net Zero Home Labelling Program or Passive House Standards		X	Low-Rise	

City of Hamilton City-Wide Green Building Standards Performance Requirements



Performance Requirement	Intent	Impact Category	Metrics Note that where cell is grey this performance requirement is still being drafted. Specific draft text is shown in grey font.	Tier 1 (mandatory)	Tier 2 (optional)	Applicable developments	Related Feedback from Phase 3 Engagement Where blank, feedback from interested parties was consistent with draft performance required presented
Energy Performance	Promote energy-efficient buildings that lower operating costs, reduce greenhouse gas emissions, and improve building resilience.	Energy & Carbon	<p>Tier 1 (mandatory): Using whole-building energy modelling, demonstrate a annual Total Energy Use Intensity (TEUI), Thermal Energy Demand Intensity (TEDI) and GHG Emission Intensity (GHGI) performance limits:</p> <ul style="list-style-type: none"> - MURB (≥ 6 Storeys): (TEUI: 135 kWh/m²/yr., TEDI: 50 kWh/m²/yr., GHGI: 15 kgCO₂/m²/yr.) - MURB (≤ 6 Storeys): (TEUI: 130 kWh/m²/yr., TEDI: 40 kWh/m²/yr., GHGI: 15 kgCO₂/m²/yr.) - Commercial Office: (TEUI: 130 kWh/m²/yr., TEDI: 30 kWh/m²/yr., GHGI: 15 kgCO₂/m²/yr.) - Commercial Retail: (TEUI: 120 kWh/m²/yr., TEDI: 40 kWh/m²/yr., GHGI: 10 kgCO₂/m²/yr.) <p>All Other Part 3 Buildings: Develop a whole-building energy model, and design and construct the building to meet National Energy Code of Canada for Buildings 2020 Tier 2 (25% better).</p>	X		MHR Residential, Commercial, Institutional, Industrial.	<p>Absolute targets align with the energy performance requirements for TGS v4 and other peer municipalities.</p> <p>It is expected OBC will be aligning energy efficiency requirements with NECB 2020, and mandating Tier 1 level of performance. Tier 2 (25% better) is proposed.</p> <p>Note that NECB 2020/OBC only include energy efficient, and do not include carbon-specific reduction targets. It is recommended the City of Hamilton update future version of the GBS to include Tier 1 GHGI targets for additional archetypes (e.g. industrial, institutional, etc.).</p>
Energy Performance	Promote energy-efficient buildings that lower operating costs, reduce greenhouse gas emissions, and improve building resilience.	Energy & Carbon	<p>Tier 2 (optional): Using whole-building energy modelling, demonstrate a annual Total Energy Use Intensity (TEUI), Thermal Energy Demand Intensity (TEDI) and GHG Emission Intensity (GHGI) performance limits:</p> <ul style="list-style-type: none"> - MURB (≥ 6 Storeys): (TEUI: 100 kWh/m²/yr., TEDI: 30 kWh/m²/yr., GHGI: 10 kgCO₂/m²/yr.) - MURB (≤ 6 Storeys): (TEUI: 100 kWh/m²/yr., TEDI: 25 kWh/m²/yr., GHGI: 10 kgCO₂/m²/yr.) - Commercial Office: (TEUI: 100 kWh/m²/yr., TEDI: 22 kWh/m²/yr., GHGI: 8 kgCO₂/m²/yr.) - Commercial Retail: (TEUI: 90 kWh/m²/yr., TEDI: 25 kWh/m²/yr., GHGI: 5 kgCO₂/m²/yr.) <p>All Other Part 3 Buildings: Develop a whole-building energy model, and design and construct the building to meet National Energy Code of Canada for Buildings (NECB) 2020 Tier 3 (50% better) OR ZCB-Design.</p>		X	MHR Residential, Commercial, Institutional, Industrial.	<p>See comment above.</p> <p>Note that this metric has been revised to a NECB 2020 Tier 3 (50% better) OR Zero Carbon Building - Design certification.</p>
Embodied Carbon	Promote embodied carbon reductions to support total carbon reductions.	Energy & Carbon	<p>Tier 2 (optional):</p> <ul style="list-style-type: none"> • Report embodied carbon emissions for the structural and envelope materials for every building on site using LCA software. 		X	All	One group recommended including Tier 2 requirements regarding embodied emissions in materials.
Energy Metering	Promote energy awareness to drive energy-conscious behavior and reduce usage. Continuous consumption tracking and benchmarking ensures design goals are met.	Energy & Carbon	<p>Tier 1 (mandatory):</p> <ul style="list-style-type: none"> • Install electricity and/or thermal sub-meters for all energy end-uses that represent more than 10% of the building's total energy consumption. 	X		All	
Energy Metering	Promote energy awareness to drive energy-conscious behavior and reduce usage. Continuous consumption tracking and benchmarking ensures design goals are met.	Energy & Carbon	<p>Tier 2 (optional):</p> <ul style="list-style-type: none"> • For buildings with multiple tenants, provide energy (electricity and/or thermal) submetering for each commercial/institutional tenant and per residential suite. 	X		All	Metric has been moved to a "stretch goal" in response to feedback.
Refuge Area and Back-up Power	Encourage back-up power to essential building systems and refuge area for occupants during power failures resulting from extreme weather events.	Energy & Carbon	<p>Tier 2 (optional):</p> <ul style="list-style-type: none"> • Provide a refuge area with heating, cooling, lighting, potable water. • Provide back-up power to essential building systems for 72 hours. 		X	MHR Residential	<p>One group recommended including Tier 2 requirements regarding refuge area and back-up power generation for climate resilience and adaption.</p> <p>Requirements align with multiple peer municipalities.</p>
On-Site Renewables	Encourage cost-effective renewable energy solutions for climate change mitigation, and boost local renewable energy adoption to reduce on-site carbon footprint.	Energy & Carbon	<p>Tier 1 (mandatory):</p> <ul style="list-style-type: none"> • Determine the feasibility of energy generation from renewable resources. 	X		All	

City of Hamilton City-Wide Green Building Standards Performance Requirements



Performance Requirement	Intent	Impact Category	Metrics		Applicable developments	Related Feedback from Phase 3 Engagement Where blank, feedback from Interested parties was consistent with draft performance required presented
			Note that where cell is grey this performance requirement is still being drafted. Specific draft text is shown in grey font.			
On-Site Renewables	Encourage cost-effective renewable energy solutions for climate change mitigation, and boost local renewable energy adoption to reduce on-site carbon footprint.	Energy & Carbon	Tier 2 (optional): • Design all new buildings for solar readiness (i.e. conduit installed from roof to mechanical room/electrical box and appropriate electrical systems installed). • Use community or on-site renewable energy production (e.g. wind, solar, geothermal etc.) to provide at least 5% of the building's predicted energy requirements.		X	MHR Residential, Commercial, Institutional, Industrial. Promotion of solar PV and renewables aligns with Hamilton's Climate Action Strategy.
On-Site Renewables	Encourage cost-effective renewable energy solutions for climate change mitigation, and boost local renewable energy adoption to reduce on-site carbon footprint.	Energy & Carbon	Tier 2 (optional): • Use on-site solar photovoltaics (PV) or solar thermal technologies to provide at least 10% of the building's predicted energy requirements.		X	Low-rise Residential Promotion of solar PV and renewables aligns with Hamilton's Climate Action Strategy specifically "2031: all new homes have 30% annual load coverage by solar PV".
District Energy	Encourage district energy to reduce environmental and economic impacts associated with fossil fuel energy use.	Energy & Carbon	Tier 1 (mandatory) • Investigate the feasibility of shared energy solutions, such as the development of low carbon thermal energy networks or connection to planned or existing district energy systems and identify the required provisions to be district energy ready.	X		All
District Energy	Encourage district energy to reduce environmental and economic impacts associated with fossil fuel energy use.	Energy & Carbon	Tier 1 (mandatory) • Complete a Community Energy Plan demonstrating energy emissions and resiliency targets on a community scale.	X		All (Plan of Subdivision only)
District Energy	Encourage district energy to reduce environmental and economic impacts associated with fossil fuel energy use.	Energy & Carbon	Tier 2 (optional) Design buildings to connect to a district energy system where one exists or is slated for development.		X	All Interested parties noted alignment with existing downtown DES CIP
Building Systems Commissioning	To promote buildings that are designed to be energy-efficient with reduced operating costs and greenhouse gas emissions associated with building operations.	Energy & Carbon	Tier 2 (optional) • Conduct best practice commissioning, per the requirements referenced in LEED BD+C v4.1 Fundamental Commissioning and Verification pre-requisite. (Building commissioning is a systematic process of verifying that the various building sub-systems such as building envelope, mechanical (HVAC), plumbing and lighting systems are constructed and operational per the project requirements and design intent.		X	All
Air Tightness Testing	To reduce air leakage, while improving the greenhouse gas emission associated with building operations and thermal comfort of occupants.	Energy & Carbon	Tier 1 (mandatory) • Develop a air infiltration plan describing the project's approach to achieving air tightness, and the process for any planning testing. The plan should indicate the line of air tightness (including air barrier materials, systems and transitions) shown on drawings and indicative details.	X		All
Air Tightness Testing	To reduce air leakage, while improving the greenhouse gas emission associated with building operations and thermal comfort of occupants.	Energy & Carbon	Tier 2 (optional) • Conduct a whole-building air leakage test to improve the quality and airtightness of the building envelope and report the performance achieved.		X	All
Benchmarking & Reporting	Promote energy and water conservation through ongoing monitoring and reporting, and increased visibility for the City of Hamilton to track emissions of new developments.	Energy & Carbon	Tier 1 (mandatory) • Enroll the project in ENERGYSTAR® Portfolio Manager to track energy and water consumption of the new development during operations in accordance with O. Reg. 506/18 for buildings 50,000 square feet or larger.	X		All
Benchmarking & Reporting	Promote energy and water conservation through ongoing monitoring and reporting, and increased visibility for the City of Hamilton to track emissions of new developments.	Energy & Carbon	Tier 2 (optional) • Enroll the project in ENERGYSTAR® Portfolio Manager to track energy and water consumption of the new development during operations.		X	All An additional Tier 2 requirement was proposed by Interested parties to enroll the project in ENERGY STAR portfolio manager to track energy and water consumption for new development.
Electric Vehicle Charging Infrastructure	Promote the use of electric cars by providing electric vehicle (EV) charging stations to support GHG targets and improved air quality.	Energy & Carbon	Tier 1 (mandatory) • Provide at least 50% of all parking spaces with Electric Vehicle Supply Equipment (EVSE).	X		MHR Residential Commercial Institutional Industrial Metric aligns with draft zoning bylaw for electric vehicles.
Electric Vehicle Charging Infrastructure	Promote the use of electric cars by providing electric vehicle (EV) charging stations to support GHG targets and improved air quality.	Energy & Carbon	Tier 1 (mandatory) • Provide 100% of all parking spaces with Electric Vehicle Supply Equipment (EVSE).	X		Low-Rise As above
Electric Vehicle Charging Infrastructure	Promote the use of electric cars by providing electric vehicle (EV) charging stations to support GHG targets and improved air quality.	Energy & Carbon	Tier 2 (optional) • Provide at least 75% of all parking spaces with Electric Vehicle Supply Equipment (EVSE).		X	MHR Residential Commercial Institutional Industrial
Electric Bicycle Charging Infrastructure	Promote the use of e-bikes by providing charging stations to support GHG targets and improved air quality.	Energy & Carbon	Tier 1 (mandatory): Provide Energized Outlets (120V) for 15% of the bicycle parking spaces for electric bicycle charging.	X		Low-Rise, MHR Residential

City of Hamilton City-Wide Green Building Standards Performance Requirements



Performance Requirement	Intent	Impact Category	Metrics		Applicable developments	Related Feedback from Phase 3 Engagement Where blank, feedback from Interested parties was consistent with draft performance required presented	
			Note that where cell is grey this performance requirement is still being drafted. Specific draft text is shown in grey font.	Tier 1 (mandatory) Tier 2 (optional)			
Heat Island Effect	To reduce ambient surface temperatures and reduce the urban heat island effect.	Ecology & Biodiversity	Tier 1 (mandatory) • Individually or in combination provide a green roof, cool roof, or solar PV installed for at least 75% of available roof space • Use one or a combination of the heat island reduction strategies to treat at least 50% of the site's non-roof hardscape.	X	All		
Heat Island Effect	To reduce ambient surface temperatures and reduce the urban heat island effect.	Ecology & Biodiversity	Tier 2 (optional) • Treat 75% of the hardscapes (i.e., roads, sidewalks, and driveways) with heat island reduction measures.		X	All	
Native Species Planting	To preserve the long-term health of landscape design and minimize effects on broader natural systems.	Ecology & Biodiversity	Tier 1 (mandatory) • Use native or adapted species for 50% of the new landscaping planted areas (including grassed areas) • Per the Ontario Invasive Species Act, do not plant invasive species.	X	All		
Native Species Planting	To preserve the long-term health of landscape design and minimize effects on broader natural systems.	Ecology & Biodiversity	Tier 2 (optional) • Use native or adapted species for 75% of the new landscaping planted areas (including grassed areas) and include permanent signage highlighting the native species planted on site. • Support the City's "Bee City" designation by restoring or protecting a minimum of 30% of the site with native vegetation that includes at least two native flowering species that bloom at all periods over the growing season.		X	All	
Climate Positive Design	Promote GHG reductions through the landscape design.	Ecology & Biodiversity	Tier 2 (optional) • Enroll the project in the Climate Positive Design Challenge and use the Pathfinder tool and using Climate Positive Design's Pathfinder: Landscape Carbon Calculator, calculate the embodied carbon and the carbon sequestration potential within landscape designs.		X	All	
Tree Planting	To preserve and enhance our natural heritage for biodiversity, heat island mitigation, and stormwater management.	Ecology & Biodiversity	Tier 1 (mandatory) • Protect healthy, mature trees that exist within the project boundary. Comply with the requirements of the City of Hamilton Tree Protection Guidelines. • Provide each tree planted with access to 30 m3 of soil/tree. • Where surface parking is provided, plant 1 shade tree planted parking lots area for every 5 parking spaces. • Plant trees to shade at least 50% of the walkway, sidewalk and bike paths within 10 years. Trees should be spaced appropriately having regard to site conditions, and ensure that space is provided to accommodate mature trunk and root flare growth of each tree. • Provide a watering and maintenance program for trees for at least the first 4 years after planting. The maintenance programs should include measures to reduce the impact of de-icing salt on vegetation.	X	All	Interested parties identified the absence of measures addressing salt and its impact on trees, and suggested requiring a Salt Management Plan.	
Tree Planting	To preserve and enhance our natural heritage for biodiversity, heat island mitigation, and stormwater management.	Ecology & Biodiversity	Tier 2 (optional): • Plant trees to achieve a 40% tree canopy cover for the site, excluding the building footprint. Refer to the City of Hamilton Tree Protection Guidelines for details on tree planting.		X	All	Interested parties emphasized the importance of ensuring that tree maintenance standards adhere to best practices for tree survival and align with the City's Urban Forestry Strategy. The City's current Urban Forest Strategy target is 40% tree canopy cover.

City of Hamilton City-Wide Green Building Standards Performance Requirements



Performance Requirement	Intent	Impact Category	Metrics Note that where cell is grey this performance requirement is still being drafted. Specific draft text is shown in grey font.	Tier 1 (mandatory)	Tier 2 (optional)	Applicable developments	Related Feedback from Phase 3 Engagement Where blank, feedback from Interested parties was consistent with draft performance required presented
Bird Friendly Design	To prevent fatal collisions of birds with buildings.	Ecology & Biodiversity	Tier 1 (mandatory) <ul style="list-style-type: none"> Design in accordance with the guidelines laid out in the Canadian Standards Association's (CSA) Bird Friendly Building Design Standard A460. Use a combination of Bird Friendly Design strategies to treat at least 90% of the exterior glazing including balcony railings located within the first 16 metres of the building above-grade or to the height of the mature tree canopy, whichever is greater. Visual markers on the glass must meet the CSA Bird Friendly Building Design Standard A460 guidelines. Where there is glazing adjacent to green roofs and/or other rooftop vegetation, the bird collision mitigation strategy shall be applied to a height of 4 m from the surface of the green roof or the height of the adjacent mature vegetation, whichever is greater Eliminate all fly-through effects (e.g., glass corners, parallel glass) and other traps from building design or use specified bird-safe glass or integrated protection measures. <ul style="list-style-type: none"> Ground level ventilation grates have a porosity of less than 20 mm X 20 mm (or 10 mm x 40 mm). 	X		All	Interested parties recommended integrating the standards and best practices from the Canadian Standard Association's A460:19 Bird Friendly Design Standards.
Light Pollution	To minimize nighttime glare, light trespass, and light pollution, acknowledging their adverse effects on energy efficiency, nearby residents, and nocturnal wildlife.	Ecology & Biodiversity	Tier 1 (mandatory) <ul style="list-style-type: none"> All exterior fixtures must be Dark Sky compliant. Rooftop and exterior facade architectural illumination must be directed downward and turned off between the hours of 10 p.m. and 6 a.m 	X		All	Interested parties recommended integrating the standards and best practices from the Canadian Standard Association's A460:19 Bird Friendly Design Standards.
Light Pollution	To minimize nighttime glare, light trespass, and light pollution, acknowledging their adverse effects on energy efficiency, nearby residents, and nocturnal wildlife.	Ecology & Biodiversity	Tier 1 (mandatory) <ul style="list-style-type: none"> Implement lighting controls in non-residential spaces that reduce nighttime spillage of light by 50% from 11pm to 5am. 	X		All	Interested parties recommended integrating the standards and best practices from the Canadian Standard Association's A460:19 Bird Friendly Design Standards.
Reduced Indoor Water Use	Promotes water conservation by using efficient water fixtures, balanced irrigation practices and reducing overall water consumption.	Water	Tier 1 (mandatory) <ul style="list-style-type: none"> Indoor: All water-consuming fixtures are high-efficiency WaterSense® or meet the following maximum flow requirements, whichever is more restrictive: <ul style="list-style-type: none"> High-efficiency toilets (max. flow of 4.0 L/flush OR 3/6 L/flush siphonic dual flush toilets). Low flow lavatory faucets (max. flow of 5.7 L/min). 	X		All	
Reduced Indoor & Outdoor Water Use	Promotes water conservation by using efficient water fixtures, balanced irrigation practices and reducing overall water consumption.	Water	Tier 2 (optional) <ul style="list-style-type: none"> Indoor: Use WaterSense® water fixtures that obtain a 40% reduction over the baseline fixture (per LEED BD+C v4 guidance) Outdoor: Reduce potable water used for irrigation by 60% (per LEED BD+C v4 guidance) Design and construct greywater and/or rainwater re-use systems to capture and reuse for irrigation and/or indoor flushing fixtures. 		X	All	Interested parties felt that gray water recycling requirements should also be considered.
Benchmarking & Reporting	Promote energy and water conservation through ongoing monitoring and reporting, and increased visibility for the City of Hamilton to track water consumption of new developments.	Water	Tier 1 (mandatory) <ul style="list-style-type: none"> Enroll the project in ENERGYSTAR® Portfolio Manager to track energy and water consumption of the new development during operations in accordance with O. Reg. 506/18 for buildings 50,000 square feet or larger. 	X		All	
Benchmarking & Reporting	Promote energy and water conservation through ongoing monitoring and reporting, and increased visibility for the City of Hamilton to track water consumption of new developments.	Water	Tier 2 (optional) <ul style="list-style-type: none"> Enroll the project in ENERGYSTAR® Portfolio Manager to track energy and water consumption of the new development during operations. 		X	All	An additional Tier 2 requirement was proposed by Interested parties to enroll the project in ENERGY STAR portfolio manager to track energy and water consumption for new development.
Water Metering	Promotes awareness for water consumption to reduce usage.	Water	Tier 2 (optional) <ul style="list-style-type: none"> For buildings with multiple tenants, provide water submetering for each commercial/institutional tenant and per residential suite. 		X	All	Some Interested parties suggested that individual water meters for tenants should be a requirement for industrial developments.
Enhanced Stormwater Management	Enhance stormwater and watershed management to minimize the impact of polluted runoff flowing into water streams and to alleviate the strain that stormwater places on municipal infrastructure.	Water	Tier 1 (mandatory) <ul style="list-style-type: none"> SWM ESC: Provide long-term controls for ESC in conformance with the Greater Golden Horseshoe Area Conservation Authorities 2006 Erosion and Sediment Control Guideline. 	X		All	Proposed as a mandatory requirement for alignment with existing guidelines.

City of Hamilton City-Wide Green Building Standards Performance Requirements



Performance Requirement	Intent	Impact Category	Metrics Note that where cell is grey this performance requirement is still being drafted. Specific draft text is shown in grey font.	Tier 1 (mandatory)	Tier 2 (optional)	Applicable developments	Related Feedback from Phase 3 Engagement Where blank, feedback from interested parties was consistent with draft performance required presented
Enhanced Stormwater Management	Enhance stormwater and watershed management to minimize the impact of polluted runoff flowing into water streams and to alleviate the strain that stormwater places on municipal infrastructure.	Water	<p>TBD:</p> <ul style="list-style-type: none"> Stormwater Retention: Provide on-site retention of 50% of the total average annual rainfall depth (based on current City of Hamilton climate normals for Royal Botanical Gardens station) through infiltration, evaporation/evapotranspiration or through greywater reuse. For greywater reuse applications, ensure greywater volume is consumed prior to the next subsequent retention design rainfall event. Stormwater Water Quality Treatment: Provide an enhanced level of protection for water quality through the long-term average removal of 80% of Total Suspended Solids (TSS) on an annual loading basis from all runoff leaving the site. Stormwater Quantity Control: Control all storm events up to and including the 100-year storm down to the existing 2-year event using a maximum imperviousness of 50%. SWM designed to consider Climate Change: Consider designing for future rainfall data instead of historical rainfall data to account for future climate change. Provide control for the 100-year rainfall event down to the current control requirement using the Future 100-year modified rainfall intensity. [University of Western Ontario and the Canadian Water Institute IDF CC Tool for deriving rainfall Intensity-Duration-Frequency Curves (http://www.idf-cc- 			All	Additional feedback required from CoH staff to finalize performance requirement metrics.
Celebration of Natural Heritage and Culture	Develops a sense of place in the community and amplifies shared values.	Community & Urban Design	<p>Tier 1 (mandatory)</p> <ul style="list-style-type: none"> Where new developments are located near natural heritage features, locate amenities and green spaces nearby. Incorporate art into publicly accessible and visible spaces and into building designs as an architectural element. Where a cultural heritage resource will be relocated, it will be moved to a visually prominent location within the proposed development. 	X		All	
Celebration of Natural Heritage and Culture	Develops a sense of place in the community and amplifies shared values.	Community & Urban Design	<p>Tier 2 (optional)</p> <ul style="list-style-type: none"> Introduce beautification measures/amenities that beautify stormwater management ponds (e.g. public art, interpretive signage). The cultural heritage resource is conserved, and no elements that contribute to its cultural heritage value are demolished, removed, or relocated (excluding temporary removal for restoration purposes). 		X	All	
Urban Agriculture	Promote urban agriculture to raise awareness around local food, reduce environmental and economic impact from transport of food, and increase green space.	Community & Urban Design	<p>Tier 2 (optional):</p> <ul style="list-style-type: none"> Residential buildings: Provide 3 m² per dwelling unit of garden space 		X	Low-Rise, MHR Residential	Interested parties suggested including 3 m ² /dwelling unit as the threshold for compliance with this performance requirement. The feedback indicated this requirement should be Tier 1 mandatory for residential developments, however it has been assigned as Tier 2 for consistency with other peer municipalities; can be revised for final GBS.
Services within Walking Distance	Promotes healthy practices among occupants and encourages a more active lifestyle	Community & Urban Design	<p>Tier 1 (mandatory):</p> <ul style="list-style-type: none"> Development contains a retail and/or employment opportunities within the development Development is served by public transit or is connected to bikeway At least 90% of new buildings have a functional entry onto the road or other public space, such as a park or plaza, but not a parking lot. 	X		All (Plan of Subdivision only)	Feedback suggested these performance requirements could be Tier 1, based on location and context.
Services within Walking Distance	Promotes healthy practices among occupants and encourages a more active lifestyle	Community & Urban Design	<p>Tier 2 (optional):</p> <p>Locate the building(s) within 800m of at least one of the following:</p> <ul style="list-style-type: none"> Transit station or stop; Three amenities or services; or Public park or recreational trail 		X	All	

City of Hamilton City-Wide Green Building Standards

Performance Requirements



Performance Requirement	Intent	Impact Category	Metrics Note that where cell is grey this performance requirement is still being drafted. Specific draft text is shown in grey font.	Tier 1 (mandatory)	Tier 2 (optional)	Applicable developments	Related Feedback from Phase 3 Engagement Where blank, feedback from Interested parties was consistent with draft performance required presented
Community Sustainability Outreach	Promotes green building features and supports the continued involvement of tenants/homeowners.	Community & Urban Design	Tier 1 (mandatory): • Developers shall distribute a building specific sustainability handout to all new homeowners and tenants, outlining sustainability features, such as green building materials, waste management programs, transit stop locations & encouraging other activities (low-water gardening, green cleaning materials, alternate pest control measures, purchasing green power). • Familiarize tenants and homeowners with all on-site review of the building's green building feature	X		Low-Rise, MHR Residential, Commercial	Interested parties reached a consensus that this should be categorized as Tier 1.
Promotion of Public and Active Transportation	Reduce air pollution and GHG emissions related to car use by promoting active transportation Active transportation also reduces fuel-dependency, traffic congestion, noise pollution, and infrastructure.	Community & Urban Design	Tier 1 (mandatory): • Develop a Transportation Demand Management (TDM) Plan and demonstrate a 25% reduction in single occupancy auto vehicle trips generated by the proposed development.	X		All	Interested parties recommended the inclusion of this performance requirement as Tier 1.
Promotion of Public and Active Transportation	Reduce air pollution and GHG emissions related to car use by promoting active transportation Active transportation also reduces fuel-dependency, traffic congestion, noise pollution, and infrastructure.	Community & Urban Design	Tier 1 (mandatory) • Construct a network of suitable cycling facilities and multi-use paths within the development which is also connects to the bicycle network, and implement recommendations of the City's Transportation Master Plan and/or Cycling Master Plan. • Provide safe and direct routes that encourage the use of active transportation modes and connect to transit, commercial areas, community facilities, and parks.	X		All	
Bicycle Facilities	Reduce air pollution and GHG emissions related to car use, and encourages a more active lifestyle.	Community & Urban Design	Tier 2 (optional): Include dedicated bike share location onsite and engage in contract with Hamilton Bike Share program.		X	MHR Residential	
Bicycle Facilities	Reduce air pollution and GHG emissions related to car use, and encourages a more active lifestyle	Community & Urban Design	Tier 1 (mandatory) • Multiple Dwelling and Dwelling Unit, Mixed Use: a. Short-term - 0.1 parking space per unit (for Parking Rate Area 1 & 2), 0.05 parking space per unit (for all other areas) b. Long-term - 0.7 parking space per unit (for Parking Rate Area 1 & 2), 0.5 parking space per unit (for all other areas) • Commercial and Institutional Uses: a. Short-term - 0.2 for each 100 square metres of gross floor area (for Parking Rate Area 1 & 2), 0.15 for each 100 square metres of gross floor area (for all other areas) b. Long-term - 0.15 for each 100 square metres of gross floor area (for Parking Rate Area 1 & 2), 0.1 for each 100 square metres of gross floor area (for all other areas) • Industrial Uses: a. Long-term - 0.15 for each 100 square metres of gross floor area (for Parking Rate Area 1 & 2), 0.1 for each 100 square metres of gross floor area (for all other areas) • University, College: a. Short-term - 1.2 parking space for each 100 square metres of gross floor area b. Long-term - 1 parking space for each 100 square metres of gross floor area	X		All	Metric aligns with draft zoning bylaw for bicycle parking with the exception of short-term parking requirements which have been included for residential uses.
Bicycle Facilities	Reduce air pollution and GHG emissions related to car use, and encourages a more active lifestyle	Community & Urban Design	Tier 2 (optional) Provide an additional 20% long-term and short-term bicycle parking spaces, beyond the Tier 1 minimum space requirements.	X		All	
Accessible Design	Design to support persons with disabilities.	Community & Urban Design	Meet the AODA Integrated Accessibility Standards, sections 80.16 to 80.31 inclusive, for pedestrian infrastructure.	X		All	



APPENDIX C

Sub-Topic Worksheets Template



WORKSHEET OVERVIEW

The purpose of this worksheet is to provide a set of *proposed* performance requirements for the stakeholder to review in advance of the upcoming December 12th GBS Workshop session.

The December 12th workshop will focus on collaboratively developing *performance requirements* (under Preliminary Topics and related sub-topics) for inclusion in the City-Wide Green Building Standard (GBS). Attendees will be organized into groups and assigned to a table to begin the session. Each table will focus on one Topic, for stakeholders to provide feedback on all sub-topics and *performance requirements*. Stakeholders will be prompted to rotate to a new Topic 2-3 times during the workshop.

Background

In preparation for the December 12th workshop, WSP conducted a *high-level matrix assessment* which evaluated work completed to date to develop a consolidated list of *proposed* performance requirements. The matrix assessment evaluated and prioritized sub-topics through the following lens:

- Provincial, regional and City of Hamilton priorities, and industry best practice, as identified in the Phase 2 *City of Hamilton Green Building Standard Baseline Review Report*; and
- Stakeholder sub-topic survey feedback received in the October 18th GBS Workshop #1.

Preliminary Topics

1. Waste & Materials
2. Energy & Carbon Emissions
3. Air
4. Ecology & Biodiversity
5. Water
6. Community & Urban Design

Information Provided

The following worksheet has been broken out by the above noted **Topics**→**Sub-topics**, and each sub-topic includes the following information:

- 1 A brief statement of the Sub-topic Intent.
- 2 Identifying subtopic as a **Medium** or **High** Priority (as an outcome of the *high-level matrix assessment* note above)
- 3 A series of *proposed* performance requirements to be discussed and considered for inclusion in the GBS. Suggested document required to demonstrate compliance with performance requirement is noted under each requirement.
- 4 Performance requirement building archetypes applicability. Where a performance metric applies to the Low-rise, Mixed-use, MURB, and Commercial archetypes, we have noted “All” under this column.

Note that the *proposed performance requirements* are a combination of qualitative and quantitative metrics. We have kept the descriptions *high-level* to support the discussion. The final GBS will include a set of Performance Metrics, which will be more refined for inclusion in the GBS Manual and Checklist tool.



Instructions:

In advance of the session, we are requesting that all stakeholders set aside time to review the sub-topic worksheets; focusing on either all *performance requirements* or those that would be relevant to your department or expertise.

We are looking for the following important feedback:

- Please check the box of each *performance requirements* that you feel should be implemented and indicate whether it should be included as a Tier 1 (mandatory requirement) or Tier 2 (optional requirement).
- If you feel the performance requirement should not be included in the GBS, please leave both Tier 1 and Tier 2 boxes blank.
- In the Comments box, please provide the following feedback:
 - *Performance requirements* you feel present an opportunity/challenge to implement and the reasons why.
 - *Performance requirements* that may not be right for today but should be considered for the long-term.
 - Any specifics you feel should be included in the *performance requirements*.
 - Why you feel the *performance requirement* should be Tier 1 or Tier 2.
 - Applicability to building archetypes: Low-rise, Mixed-use, MURB, Commercial
 - Any other *performance requirements* that you feel have not been captured.
 - And any other feedback that you feel is important.
- Return a completed copy of the worksheets prior to the session with your feedback or come prepared to discuss your feedback on December 12th.
- Indicate below (or via email) which Topics you would like to participate in during the workshop on December 12th:

I would like to participate in the following Topics (select up to three):

Waste & Materials

Energy & Carbon Emissions

Air

Ecology & Biodiversity

Water

Community & Urban Design

Reminder: You do not need to complete every worksheet, only those relevant to your department, expertise or interest.

1. Waste & Materials

WM1.1 SUBTOPIC: Construction Waste Reduction and Management

Intent: Facilitate the reduction of waste and the safe and proper disposal of waste generated during building construction. Diverting waste from landfills reduces the extraction of virgin natural resources and minimizes land, water, and air pollution.

MEDIUM Priority

<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
Develop and implement construction waste management plan for non-hazardous construction, demolition, and land clearing waste diverted from landfill. <i>(reflected in CWMP)</i>	All		
As per CWMP, demonstrate compliance with diversion rate through submission of final weigh bills and tracking document at completion of construction. <i>(reflected in tracking tool, weigh bills, and receiving facility letters)</i>	All		

Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.

1. Waste & Materials

WM1.2 SUBTOPIC: Operational Waste Reduction and Management

Intent: Promotes waste reduction and diversion from landfills during construction to appropriate facilities or reuse alternatives.

MEDIUM Priority

<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
Provide dedicated areas accessible to waste haulers and building occupants for the collection and storage of recyclable and compostable materials for the entire building. <i>(reflected in drawings)</i>	Mix, MURB, Commercial		
Outlined minimum accessible dedicated waste storage floor space of: <i>(reflected in drawings)</i> <ul style="list-style-type: none"> – xx m2 for waste storage – xx m2 for bulky and special collections – xx m2 for HHW and/or electronic waste. 	Mix, MURB, Commercial		
MURBs: Provide a waste collection and sorting system for garbage, recycling and organics (e.g. single chute with a tri-sorter, three separate chutes, central location for separate collections, etc.). <i>(reflected in drawings)</i>	MURB		
Design MURB unit kitchen cabinets to accommodate space for the segregated collection of Recyclables, Organics and Garbage. <i>(reflected in drawings)</i>	MURB		
Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.			

WM1.2 SUBTOPIC: Operational Waste Reduction and Management Continued:

Empty content area for the subtopic.

2. Energy & Carbon Emissions

ECE2.1 SUBTOPIC: Energy Performance Intent: Promote energy-efficient buildings that lower operating costs, reduce greenhouse gas emissions, and improve building resilience. HIGH Priority			
<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
Achieve minimum XX% energy efficiency improvement over building code or meet National Energy Code of Canada (NECB) 2020, Tier 2. <i>(Energy Model Report submission)</i>	Mix, MURB, Commercial		
Design building(s) to meet or exceed Absolute Targets : - Using whole-building energy modelling, demonstrate an annual Total Energy Use Intensity (TEUI), Thermal Energy Demand Intensity (TEDI) and GHG Emission Intensity (GHGI) performance limits (TBD). <i>(Energy Report submission)</i>	Mix, MURB, Commercial		
Design the building(s) to meet or exceed one of the following: - A rating of 83 or more when evaluated in accordance with Natural Resources Canada's EnerGuide Rating: 0-100 Scale (or equivalent), as demonstrated by a qualified professional. - ENERGY STAR® for New Homes, version 17.1 or R-2000 requirements. - CHBA Net Zero Home Labelling Program or Passive House Standards - Building envelope designed and constructed to an alternate high-performance standard (Passivhaus or R-2000)	Low-rise only		
Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.			

ECE2.1 SUBTOPIC: Energy Performance Continued:

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2. Energy & Carbon Emissions

ECE2.2 SUBTOPIC: Energy Metering

Intent: Promote energy awareness to drive energy-conscious behavior and reduce usage. Continuous consumption tracking and benchmarking ensure energy performance goals are met.

MEDIUM Priority

<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
<p>Install electricity and/or thermal sub-meters for all energy end-uses that represent more than XX% of the building's total energy consumption. Including the development and implementation of Measurement & Verification Plan.</p> <p>For buildings with multiple tenants, provide energy submetering for each commercial/institutional tenant, and per residential suite.</p> <p><i>(Reflected in drawings and submitted M&V plan)</i></p>	Mix, MURB, Commercial		

Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.

2. Energy & Carbon Emissions

ECE2.3 SUBTOPIC: On-site Renewable Energy

Intent: Encourage cost-effective renewable energy solutions for climate change mitigation and boost local renewable energy adoption to reduce on-site carbon footprint.

HIGH Priority

<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
Determine feasibility of energy generation from renewable resources. <i>(memo provided to confirm feasibility was explored)</i>	All		
Design all new buildings for solar readiness. <i>(reflected in drawings, specification)</i>	All		
Use community or on-site renewable energy production (e.g. wind, solar, geothermal, etc.) to provide at least XX% of the building's predicted energy requirements. <i>(reflected in drawings, specification, energy modelling report)</i>	All		

Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.



2. Energy & Carbon Emissions

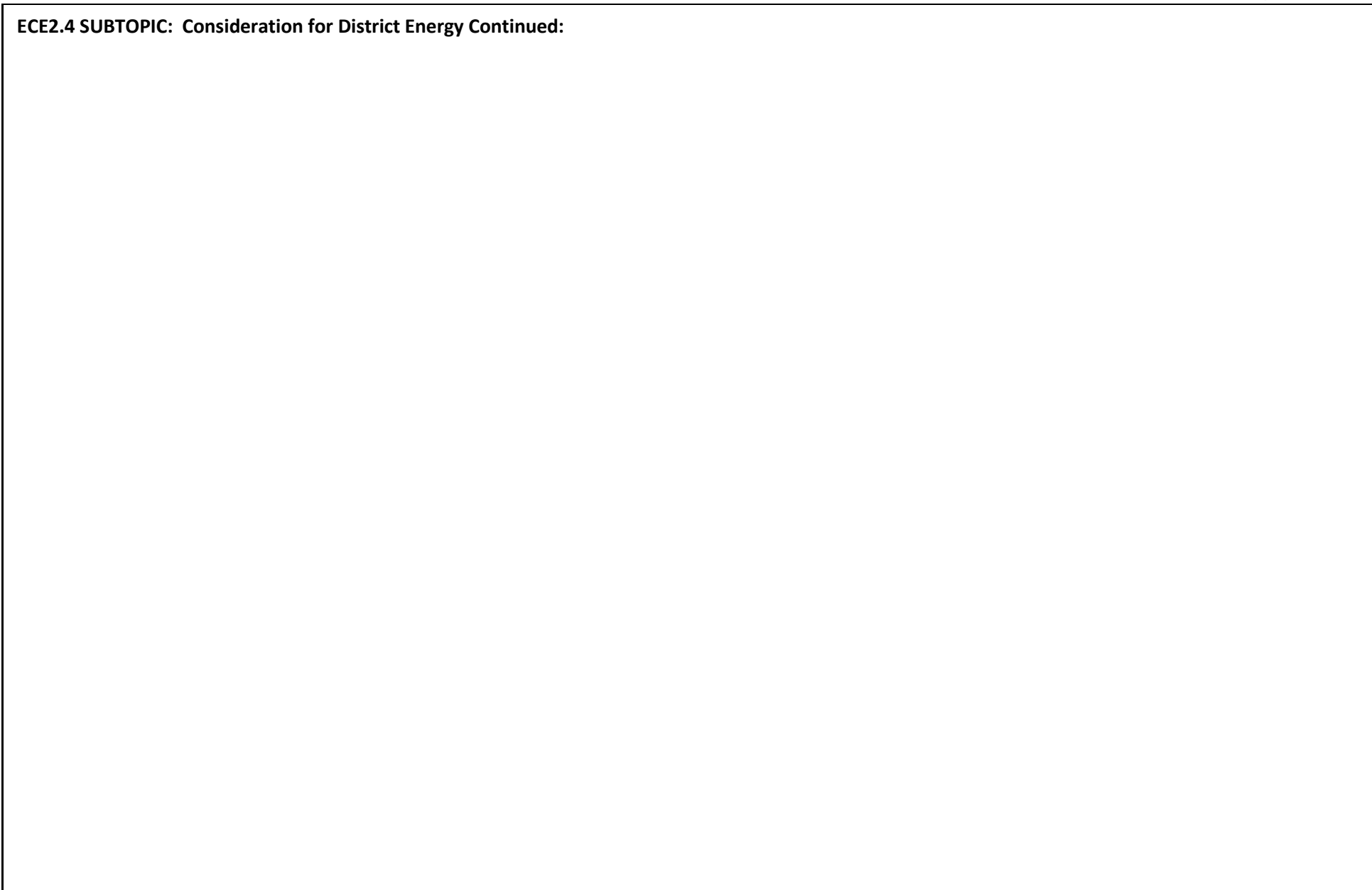
ECE2.4 SUBTOPIC: Consideration for District Energy

Intent: Encourage district energy to reduce environmental and economic impacts associated with fossil fuel energy use.

MEDIUM Priority

<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
Where District Energy is available for hook-up, the necessary infrastructure and a connection to the District Energy System is provided. <i>(reflected in drawings, specification)</i>	All		
Investigate the feasibility of shared energy solutions, such as the development of low carbon thermal energy networks or connection to planned or existing district energy systems and identify the required provisions to be district energy ready. <i>(reflected in feasibility memo)</i>	All		
Complete a Community Energy Plan demonstrating energy emissions and resiliency targets on a community scale through measures such as district heating systems, micro grids or other development agreements. Subdivisions may take several years to build out, the community energy plan must factor in the expected build out rate and advance buildings toward near zero emission buildings by 2030. <i>(reflected in Energy Plan Strategy Report)</i>	All (where applicable for scale of development)		
Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.			

ECE2.4 SUBTOPIC: Consideration for District Energy Continued:



2. Energy & Carbon Emissions

ECE2.5 SUBTOPIC: Building Systems Commissioning & Air Tightness Testing

Intent: To promote buildings that are designed to be energy-efficient with reduced operating costs and greenhouse gas emissions associated with building operations, air leakage, while improving the thermal comfort of occupants and enhancing building resilience.

MEDIUM Priority

<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
Conduct best practice commissioning, per the requirements referenced in LEED BD+C v4.1 Fundamental Commissioning and Verification pre-requisite. <i>(reflected in early contract and specification)</i>	Mix, MURB, Commercial		
Conduct a whole-building air leakage test to improve the quality and airtightness of the building envelope. Report the performance achieved. Conduct a whole-building air leakage test. <i>(reflected in Air Tightness testing report, early contract, and specifications)</i>	All		

Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.

3. Air

A3.1 SUBTOPIC: Promotion of Public & Active Transportation

Intent: Reduce air pollution and GHG emissions related to car use by promoting active transportation. Active transportation also reduces fuel-dependency, traffic congestion, noise pollution, and infrastructure.

HIGH Priority

<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
<p>Construct a network of suitable cycling facilities and multi-use paths within the development which is also connects to the bicycle network, and implement recommendations of the City's Transportation Master Plan and/or Cycling Master Plan.</p> <p>Provide safe and direct routes that encourage the use of active transportation modes and connect to transit, commercial areas, community facilities, and parks.</p> <p>Bicycle parking is provided in conformance with City Zoning Bylaw.</p> <p><i>(reflected in drawings and specification)</i></p>	All		
<ul style="list-style-type: none"> – High-density residential buildings: long-term (secure/protected) bicycle parking spaces are provided for XX% or more of the building's units. – Non-residential and mixed use buildings: long-term bicycle parking spaces are provided for XX% of employees and short-term bicycle parking spaces are provided for XX% of peak visitors. – Non-residential and mixed use buildings: Provide prescriptive # of showers and a change room. <p><i>(reflected in drawings and specification)</i></p>	Mix, MURB, Commercial		
<p>% of Energized Outlets (120V) at a maximum distance of 1100mm from bike racks for electric bicycle charging.</p> <p><i>(reflected in drawings and specification)</i></p>	Mix, MURB, Commercial		
<p>Include dedicated bike share location onsite and engage in contract with Hamilton Bike Share program.</p> <p><i>(reflected in drawings and contract with HBS)</i></p>	Mix, MURB, Commercial		



Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.

A large, empty rectangular box with a black border, intended for entering stakeholder feedback comments.



3. Air

A 3.2 SUBTOPIC: Electric Vehicle Charging Infrastructure

Intent: Promote the use of electric cars by providing electric vehicle (EV) charging stations to support GHG targets and improved air quality.

MEDIUM Priority

<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
Design and construct at least 25% of total parking spaces to have EV charging stations or infrastructure for the future installation of EV chargers (EV ready) <i>(reflected in drawings and specification)</i>	Mix, MURB, Commercial		
Design and construct at least 50% of dwelling units to have EV chargers or infrastructure for the future installation of EV chargers (EV ready) <i>(reflected in drawings and specification)</i>	Low-rise		
Design and construct at least 50% of total parking spaces to have EV charging stations or infrastructure for the future installation of EV chargers (EV ready) <i>(reflected in drawings and specifications)</i>	Mix, MURB, Commercial		
Design and construct at least 75% of dwelling units to have EV chargers or infrastructure for the future installation of EV chargers (EV ready) <i>(reflected in drawings and specification)</i>	Low-rise		

Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.



3. Air

A3.3 SUBTOPIC: Heat Island Effect

Intent: To reduce ambient surface temperatures and reduce the urban heat island effect. The urban heat island effect happens when development and human activity (such as paved surfaces, reduced vegetation, heat from vehicles) causes the urban area to become warmer than nearby rural spaces.

MEDIUM Priority

<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
50% of the roof area of all new buildings within the project have a cool roof (minimum solar reflectance index value of 82) or green roof. <i>(reflected in drawings and specification)</i>	All		
Use one or a combination of the heat island reduction strategies to treat at least 50% of the site's non-roof hardscape. Examples of strategies include: high-reflectivity paving materials, shade from tree canopy or architectural structures, open grid pavement. <i>(reflected in drawings and specification)</i>	All		
Use one or a combination of the heat island reduction strategies to treat at least 75% of the site's non-roof hardscape. <i>(reflected in drawings and specification)</i>	All		

Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.



4. Ecology & Biodiversity

EB4.1 SUBTOPIC: Native Species Planting			
Intent: To increase sequestration of carbon and preserve the long-term health of landscape design.			
HIGH Priority			
<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
Use native species for 50% of the new landscaping planted areas (including grassed areas). Per the Ontario Invasive Species Act, do not plant invasive species. <i>(reflected in drawings and specification)</i>	All		
Native plants make up at least 75% of total quantity of plants proposed on the landscape plan. <i>(reflected in drawings and specification)</i>	All		
Support the City's "Bee City" designation by restoring or protecting a minimum of 30% of the site with native vegetation that includes at least two native flowering species that bloom at all periods over the growing season. <i>(reflected in drawings and specification)</i>	All		
Provide and implement an Invasive Species Management Plan for a natural heritage feature, where not already required by the municipality. <i>(reflected in ISMP submission)</i>	All		
Enroll the project in the Climate Positive Design Challenge and use the Pathfinder tool and using Climate Positive Design's Pathfinder: Landscape Carbon Calculator, calculate the embodied carbon and the carbon sequestration potential within landscape designs. <i>(reflected in memo confirmation)</i>	All		



Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.

A large, empty rectangular box with a black border, intended for entering stakeholder feedback comments.

4. Ecology & Biodiversity

EB4.2 SUBTOPIC: Tree Planting Intent: To preserve and enhance our natural heritage for biodiversity, heat island mitigation, and stormwater management. HIGH Priority			
<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
Protect healthy, mature trees that exist within the project boundary. Where trees are removed, new trees are provided to mitigate the lost canopy. Create tree planting areas within the site and in the adjacent public boulevard that meet the soil volume and other requirements necessary to provide tree canopy, as demonstrated by a qualified professional. <i>(reflected in drawings and specification)</i>	All		
Trees planted along street frontages with access to 30 m ³ of soil/tree. Trees to be maintained and warrantied for a minimum of 2 years. <i>(reflected in drawings and specification)</i>	All		
Where surface parking is provided, plant 1 shade tree planted parking lots area for every 5 parking spaces. <i>(reflected in drawings and specification)</i>	All		
Trees will shade at least XX% of the walkway/sidewalk lengths within 10 years. Trees will shade at least XX% of parking areas within 10 years. Street trees are provided on both sides of the street at intervals averaging no more than 9 meters, or 8 meters or less, where supported by the municipality. <i>(reflected in drawings and specification)</i>	All		
All street trees are planted with a topsoil layer of a minimum depth of 75cm. All street trees are accompanied by the installation of enhanced street tree planting technology to improve the long-term health of all street trees within the development. <i>(reflected in drawings and specification)</i>	All		



Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.

A large, empty rectangular box with a black border, intended for entering stakeholder feedback comments.

4. Ecology & Biodiversity

EB4.3 SUBTOPIC: Bird-Friendly Design			
Intent: To prevent fatal collisions of birds with buildings. MEDIUM Priority			
<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
Use a combination of Bird Friendly Design strategies to treat at least 85 - 90% of the exterior glazing located within the first 12 - 16m of the building above-grade. <i>(reflected in drawings and specification)</i>	All		
Provide habitat structure(s) for species at risk, such as bird structures, butterfly boxes, and hibernaculum. <i>(reflected in drawings and specification)</i>	All		
Treat all-glass balcony railings within the first 12m of the building above grade. Fly-through conditions: Treat glazing at all heights resulting in fly-through conditions with visual markers. <i>(reflected in drawings and specification)</i>	All		
Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.			

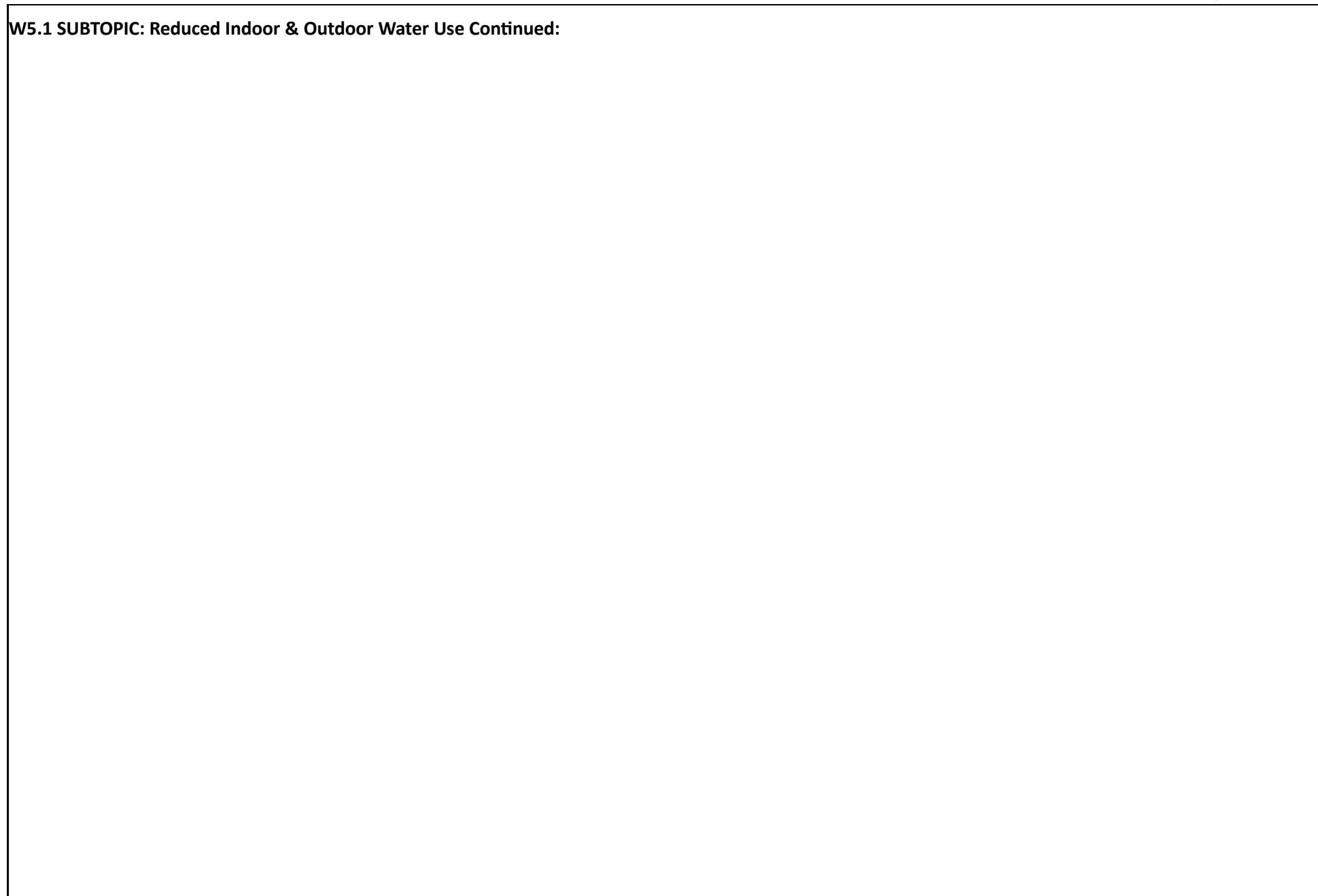
4. Ecology & Biodiversity

EB 4.4 SUBTOPIC: Light Pollution Intent: To minimize nighttime glare, light trespass, and light pollution, acknowledging their adverse effects on energy efficiency, nearby residents, and nocturnal wildlife. MEDIUM Priority			
<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
Use dark sky compliant (full cut-off) exterior lighting fixtures. Exterior (except emergency lighting) fixtures to be turn off between 10pm and 6am. <i>(reflected in drawings and specification)</i>	All		
Non-residential and Mixed-use buildings: Develop interior lighting controls that reduce nighttime spillage of light by 50% from 11pm to 5am. <i>(reflected in drawings and specification)</i>	Mix, MURB, Commercial		
Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.			

5. Water

W5.1 SUBTOPIC: Reduced Indoor & Outdoor Water Use			
Intent: Promotes water conservation by using efficient water fixtures, balanced irrigation practices and reducing overall water consumption.			
MEDIUM Priority			
<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
Indoor Water Use: All water-consuming fixtures are high-efficiency WaterSense® or meet the following maximum flow requirements. <i>(reflected in drawings and specification)</i>	All		
Outdoor Water Use: Provide a watering program for trees for the first year after planting and use non-potable water through rainwater harvesting. <i>(reflected in drawings and specification)</i>	All		
Indoor Water Use: Use water fixtures that obtain a XX% reduction over the baseline fixture (per LEED BD+C v4 guidance). <i>(reflected in drawings and water use calculator)</i>	All		
Outdoor Water Use: Reduce potable water used for irrigation by XX% over the baseline fixture (per LEED BD+C v4 guidance) <i>(reflected in irrigation drawings, water use calculator, rainwater reuse calculations)</i>	All		
Install individual water meters for multi-unit residential units, with a bulk municipal reader. Buildings are designed to include water meters for each tenant in multi-tenant residential, commercial/retail buildings. <i>(reflected in drawings and specification)</i>	Mix, MURB, Commercial		
Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.			

W5.1 SUBTOPIC: Reduced Indoor & Outdoor Water Use Continued:



5. Water

W5.2 SUBTOPIC: Enhance Stormwater & Watershed Management Intent: Enhance stormwater and watershed management to minimize the impact of polluted runoff flowing into water streams and to alleviate the strain that stormwater places on municipal infrastructure. HIGH Priority			
<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
Stormwater Retention: Include prescriptive requirements for retention volume, to be disposed of on-site via infiltration or through greywater reuse. <i>(reflected in drawings and specification)</i>	All		
Stormwater Water Quality Treatment: Include prescriptive requirements to achieve enhanced SW TSS removal for 90% annual rainfall beyond code. <i>(reflected in drawings and specification)</i>	All		
SWM ESC: Provide long-term controls for ESC in conformance with the <i>Greater Golden Horseshoe Area Conservation Authorities 2006 Erosion and Sediment Control Guideline</i> . <i>(reflected in drawings and specification)</i>	All		
Stormwater Quantity Control: More stringent controls beyond the minimum provincial requirements of post-development to pre-development level control for all storm events up to the 100-year event. <i>(reflected in drawings and specification)</i>	All		
SWM designed to consider Climate Change: Consider designing for future rainfall data instead of historical rainfall data to account for future climate change. [University of Western Ontario and the Canadian Water Institute IDF CC Tool for deriving rainfall Intensity-Duration-Frequency Curves (http://www.idf-cc-uwo.ca/default.aspx)]. <i>(reflected in drawings and specification)</i>	All		
Watershed Management: Ensure specific objectives and targets of watershed and/or sub-watershed plans/studies applicable to the development are implemented within the Site Development Area or Project Area (boundaries).	All		

Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.

Empty text area for stakeholder feedback comments.

6. Community & Urban Design

CUD 6.1 SUBTOPIC: Celebration of Heritage and Culture Intent: Develops a sense of place in the community and amplifies shared values. LOW Priority			
<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
Integrate natural heritage features into the public green space and parks systems (i.e. by locating public spaces adjacent to natural features) and the Municipality's trail system, where appropriate. <i>(reflected in drawings and specification)</i>	All		
The cultural heritage resource is conserved, and no elements that contribute to its cultural heritage value are demolished, removed, or relocated (excluding temporary removal for restoration purposes). <i>(reflected in drawings and specification)</i>	All		
Where a cultural heritage resource will be relocated, it will be moved to a visually prominent location within the proposed development. <i>(reflected in drawings and specification)</i>	All		
Incorporate art into publicly accessible and visible spaces and into building designs as an architectural element. <i>(reflected in drawings and specification)</i>	All		
Introduce beautification measures/amenities that beautify stormwater management ponds (e.g. public art, interpretive signage). <i>(reflected in drawings and specification)</i>	All		
Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.			



CUD6.1 SUBTOPIC: Celebration of Heritage and Culture Continued:

6. Community & Urban Design

Other Subtopics to consider under this Impact Category			
<i>Proposed Performance Requirement</i>	Applicability	Tier 1	Tier 2
<p>Potential Subtopic: Urban Agriculture</p> <ul style="list-style-type: none"> • Plan for community gardens, encouraging the growth and sale of local produce • Dedicate XX% of roof space for local food production • Residential buildings: Provide XX square feet per dwelling unit of garden space 	All		
<p>Potential Subtopic: Services within Walking Distance</p> <ul style="list-style-type: none"> • Provide public and/or private outdoor amenity spaces, where appropriate, for multi-residential development and non-residential development, particularly for development within Intensification Areas. • 3 or more amenities within 800m (equivalent to a 10 minute walk) of 75% of dwelling units. • Community: contains a mixed use node central to the cluster of neighborhoods that should include higher residential densities, retail, and employment opportunities, and served by public transit. • At least 90% of new buildings have a functional entry onto the Road Circulation Network or other public space, such as a park or plaza, but not a parking lot. 	All		
<p>Potential Subtopic: Community Sustainability Outreach</p> <ul style="list-style-type: none"> • Developers shall distribute a City-approved (or building specific) sustainability handout to all new homeowners/tenants, outlining sustainability features, such as green building materials, waste management programs, transit stop locations & encouraging other activities (low-water gardening, green cleaning materials, alternate pest control measures, purchasing green power). • Familiarize tenants/homeowners with all on-site review of the building's green building features. 	All		
<p>Stakeholder Feedback comments: Opportunities/Challenges/Other considerations.</p>			



CUD6.1 Other Sub-topics Continued:

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APPENDIX E

Consultation Summary Report





Final Phase 2 Consultation Summary

City of Hamilton Green
Building Standards

November 7th, 2023





Introduction

As part of the development of the City-wide Green Building Standards (GBS) project (the “Project”) being undertaken by the City of Hamilton (“City”), WSP facilitated an in-person focus group session (the “Focus Group”) on October 18th, 2023 and distributed a post-workshop survey to Focus Group participants. The Focus Group was held to engage City of Hamilton staff (“staff”) on the Project and obtain feedback on the preliminary topic areas for the City-wide GBS. It also focused on exploring indicators that are relevant to the mid- and high-rise development sectors.

This Phase 2 Consultation Summary (the “Consultation Summary”) provides a summary of key feedback received during the Focus Group. Feedback received during the Focus Group will be used to inform and prioritize impact categories and performance requirements for the City-wide GBS.

Description of Consultation

Consultation with key stakeholders is an important component of the Project. Phase 2 consisted of an in-person Focus Group and the distribution of a post-workshop survey to Focus Group participants. Twenty City of Hamilton staff (“staff”) from a range of departments, including Planning, Building, Climate Change, and Public Works, were in attendance including:

- **Shannon McKie**, Manager, Zoning and Committee of Adjustment, Planning
- **Trevor Imhoff**, Senior Project Manager, Office of Climate Change Initiatives, Planning
- **Cathrin Winkelmann**, Senior Project Manager, Office of Climate Change Initiatives, Planning
- **Ken Coit**, Director of Heritage and Urban Design, Planning
- **Rino Dal Bello**, Manager of Development Planning, Planning
- **Tricia Collingwood**, Manager, Development Planning and Business Facilitation, Planning
- **Dave Heyworth**, Manager, Sustainable Communities, Planning
- **Emily Coe**, Supervisor of Zoning, Planning
- **Charlie Toman**, Program Lead, Policy Planning and Municipal Comprehensive Review, Planning
- **Lauren Vraets**, Senior Planner, Planning
- **Sean Kenney**, Manager, Site Planning, Planning
- **Alana Fulford**, Senior Planner, Planning
- **Matt Stavroff**, Zoning Examiner, Planning
- **Alissa Golden**, Cultural Heritage Program Lead, Planning
- **Sterling Sztricsko**, Planning Student, Planning
- **Joyanne Beckett**, Manager, Building Division, Building
- **Gordana Krsmanovic**, Supervisor, Building Engineer, Building
- **Mark Hartley**, Senior Engineer, Stormwater
- **Don Curry**, Health Promotion Specialist, Healthy and Safe Communities
- **Hanna Daniels**, Manger, Water and Wastewater Systems Planning, Public Works



The Focus Group consisted of a brief presentation to set the stage for the Project. Following the presentation, WSP facilitated an activity designed to receive feedback for the preliminary topic areas and proposed sub-topics. The activity was structured as a “World Café” wherein six tables were each assigned one of the six preliminary topic areas identified through background research, including:

- 1. Energy & GHG Emissions**
- 2. Water**
- 3. Air**
- 4. Ecology & Biodiversity**
- 5. Waste & Materials**
- 6. Community & Urban Design**

Stationary, sticky notes, chart paper, and supporting materials were provided at each table to help facilitate the discussion and for City staff to document their ideas. While at each table, City staff were asked to consider and record their responses to two key questions within a ten minute time period, after which City staff rotated tables and moved to the next preliminary topic area. The discussion questions provided at each table were:

- 1. What are the opportunities or challenges for this preliminary topic area?**
- 2. Are there other related sub-topics that have not been identified?**

The Focus Group concluded with a brief review of next steps in the Project. An online survey was distributed to Focus Group participants afterwards to capture additional comments, input, and feedback from City staff regarding the preliminary topic areas and the Project broadly. The results of the survey are attached to this Consultation Summary as Appendix A.

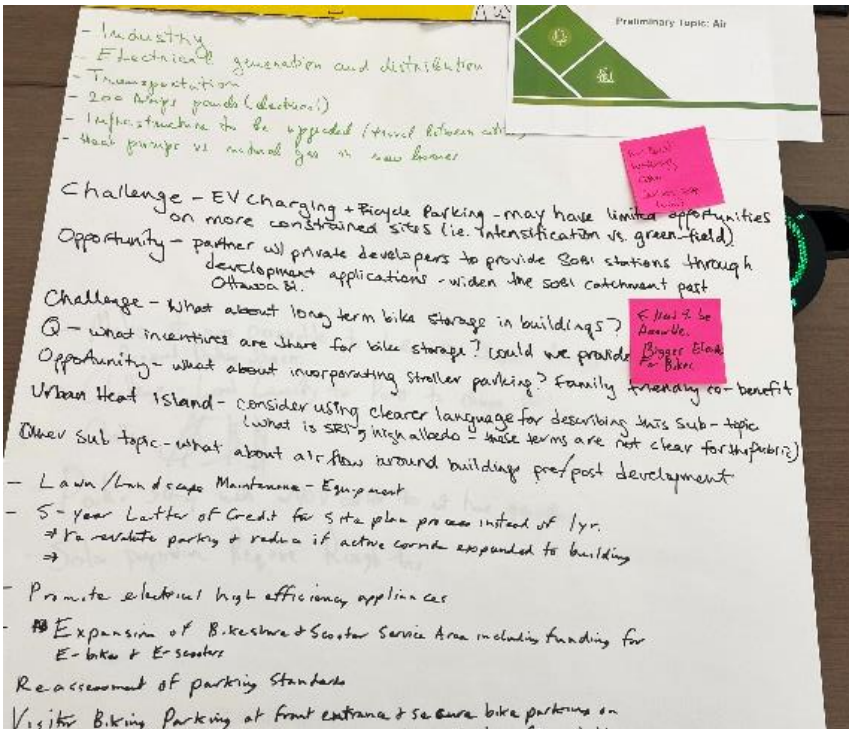
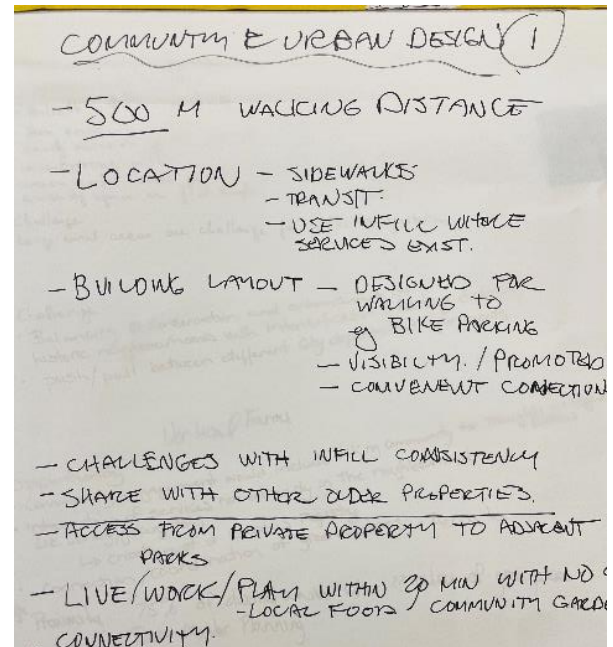


Figure 1: Snapshots from the World Cafe and preliminary feedback received for two of the six preliminary topic areas.

What We Heard

This section provides a summary of feedback received during the Focus Group and World Café in response to the questions identified in the section above. Most of the input received during the World Café was in response to the first question regarding challenges and opportunities with the preliminary topic areas. This input has been summarized in Table 1 and will be used to inform and prioritize impact categories and performance requirements for the City-wide GBS.

In response to the second question, City staff identified three key sub-topics not identified. These were captured as part of the Focus Group and the survey and include:

- Rainwater harvesting;
- Building air flow post-development; and
- Additional subtopics for the Community & Urban Design subtopic, such as compact built form, street patterns, green roofs, and public spaces.

These sub-topics will be reviewed and considered by WSP through the next phase of the project.

Table 1: Opportunities and challenges identified by City staff for the GBS preliminary topic areas.

Opportunities	Challenges
Energy & GHG Emissions	
<ul style="list-style-type: none"> — There is an opportunity for staff in planning and building groups through the planning approvals process to ensure energy and GHG emission sub-topics can be identified through the application process. — The City should consider use of incentives to encourage developers to go beyond the Ontario Building Code. — Greenfield development presents an opportunity to implement this preliminary topic area. 	<ul style="list-style-type: none"> — Unknown changes to and enforcement of development beyond the Ontario Building Code. — Training staff and resourcing to implement. — Funding opportunities to incentivize development. — Challenges associated with meeting individual targets and monitoring implementation of those targets. For example, if the City will issue incentives based on achieving targets, the City will need to determine when the incentive will be provided to the applicant (e.g., upon development, once the target is met, etc.) — Challenges with building efficiency assessments (e.g., air tightness testing) for buildings, specifically heritage buildings where there may be changes to heritage attributes as a result of required renovations.



	<ul style="list-style-type: none"> — District energy is only applicable to a certain scale of development or may need to be phased over time.
Water	
<ul style="list-style-type: none"> — To manage stormwater, there are opportunities for rainwater collection and harvesting (e.g., permeable pavements, bioswales, and stormsceptors). — There are methods available for the City to incentivize permeable surfaces or disincentivize impermeable surfaces. — The City can leverage implementation of a water bylaw to restrict water use for irrigation, and create incentives for rain barrels and rain harvesting. — There is an opportunity to change public perception on use of water for yard and lawn maintenance. For instance, educating the public about limitations on irrigation for watering. — There is an opportunity for a Servicing Allocation Policy to consider GBS. — The City should take a tiered approach to low intensity development measures. 	<ul style="list-style-type: none"> — Lot level control required for stormwater management.
Community & Urban Design	
<ul style="list-style-type: none"> — Create a general standard for convenient access to public transportation. This standard should be approximately 500 metres from building location to public transportation. — Buildings should be designed to facilitate and support connections to and use of active transportation (e.g., walking and bicycle parking) and should create convenient connections for people to access daily needs. — The City should facilitate and promote access to, and connection of green spaces. This can support the City's Parks Mater Plan. For example, the GBS could require that 75% of dwelling units are within a 	<ul style="list-style-type: none"> — Context is important. There are different contexts and needs in Hamilton's urban, rural and suburban communities with respect to community facilities and urban design. — There are significant challenges with access to and use of public transportation in Hamilton's rural areas. — There are general challenges with infill development. — It can be challenging to balance conservation and enhancement of historic neighbourhoods with intensification.



certain distance to green space. These connections should also be **equitably distributed**.

- New development should include **green roofs, solar panels, amenity spaces** on rooftops, and opportunities for **vertical farming** and **local food**.
- There is an opportunity to **increase cultural connectivity** by requiring amenity spaces and other elements that support connection and socialization.
- There is an opportunity to integrate services that may currently be **lacking or missing** in communities (e.g., library, grocery store, etc.). This should be identified through **engagement** with community members.

Ecology & Biodiversity

- | | |
|---|---|
| <ul style="list-style-type: none"> — There is an opportunity to educate property owners about the benefits of naturalized lawns and native plantings. This can be supported by implementing naturalized lawn bylaws and expanding the scope of the City's Private Tree By-law. — The City should require naturalized lawns and native plants thought Site Plan guidelines, which can be enforced through holding of financial securities. — There is an opportunity to integrate Traditional Ecological Knowledge into GBS. — Bird friendly policies should be implemented, particularly in nesting and migration corridors. — Revamping green space and landscaped areas should be prioritized. — New development should incorporate amenities that are appropriate for all ages. | <ul style="list-style-type: none"> — There are existing negative perceptions about native plantings as “messy” and “unkept”. — Invasive plants are sometimes mislabeled as native species. — There are challenges with monitoring and long-term enforcement to ensure native plantings will not be replaced after Site Plan Approval, particularly considering that vegetation may take at least two to five years to mature. — There are often conflicts between cost and evaluation with mass plantings. — There are perceived financial impacts of bird friendly policies, such as glazed windows or stickers. |
|---|---|

Air

- | | |
|--|---|
| <ul style="list-style-type: none"> — There is an opportunity to enhance relationships with and leverage industry for electrical generation and distribution. | <ul style="list-style-type: none"> — Implementation challenges with upgrading electric infrastructure, including load capacity for EV chargers. |
|--|---|



- | | |
|--|---|
| <ul style="list-style-type: none"> — EV charging infrastructure should be expanded. The City should permit the location of EV chargers throughout a site. — There is an opportunity for the City to improve monitoring and upkeep of EV equipment. — The City should expand bike share and scooter catchment areas and increase funding for e-bikes and e-scooters. — There is an opportunity to partner with private developers to provide Hamilton Bike Share stations through the development approvals process. — Bicycle parking guidelines should be reassessed, including incentives and requirements for bicycle storage, and the design, security and accessibility of visitor bicycle parking and long-term bicycle parking. — There is an opportunity to reconsider automobile parking requirements if new developments are located along existing and/or planned active transportation corridors. — Promote high efficiency appliances and equipment, such as landscaping equipment. Site Plan securities, in the form of a Letter of Credit, should be extended to 5 years. | <ul style="list-style-type: none"> — There has been a slow transition from natural gas to heat pumps in new homes. — There are limited opportunities for expanding bike parking infrastructure on more constrained sites. — In some cases, there are challenges with providing accessible bike storage, such as bigger elevators for bikes. |
|--|---|

Waste & Materials

- | | |
|---|--|
| <ul style="list-style-type: none"> — There is an opportunity to divert waste through source reduction and reuse. — The City should consider integrating waste diversion and adaptive reuse policies into existing buildings. — The City already requires a waste management plan for new subdivisions. This opportunity should be leveraged and integrated into the GBS. — There is an opportunity to develop a clean burning facility to generate energy. — Local manufacturing of materials should be encouraged and supported to lessen transportation costs. | <ul style="list-style-type: none"> — Ontario Building Code requirements that limit or prevent the use of salvaged or reclaimed materials. — Financial feasibility for using reclaimed materials. — Education of trades industry, designers and architects on best practices for adaptive reuse, and using salvaged or reclaimed materials. |
|---|--|



- The City should create clear policies for **retrofitting** existing buildings.
- The **three-chute waste system** should be expanded to developments beyond multi-unit residential buildings.
- Promote **modular construction** and **mass timber construction**.
- Building designs that are **replicable** and **scalable** should be promoted to reduce soft costs waste.
- City staff and the public should be educated on waste reduction and reuse and low carbon building materials.
- **The City should prioritize building reuse** over demolition and rebuild and **incentivize** the use of reclaimed materials on-site (e.g., bricks and masonry, concrete, etc.).

Next Steps

Submission of this Consultation Summary concludes Phase 2 of the Project. During Phase 3, WSP will use key findings from this Consultation Summary and the Baseline Review Report to further refine the impact categories, goals, targets, and key performance indicators (KPIs) for the Project. WSP will then develop a draft list of proposed goals, targets, and KPIs for City review and feedback. This information will be used as the basis for the second Focus Group ("Focus Group #2") planned as part of this Project.

The goal of Focus Group #2 will be to collect feedback on the performance requirements and indicators that are relevant to the low, mid-, and high-rise commercial and industrial development sector. Focus Group #2 will include a presentation to inform and educate stakeholders, as well as an engagement activity. Key stakeholders as determined by staff and WSP will be invited to participate in Focus Group #2. This includes internal and external stakeholders. Input and feedback gathered through Phase 3, including Focus Group #2, will be used to inform the Draft and Final GBS.



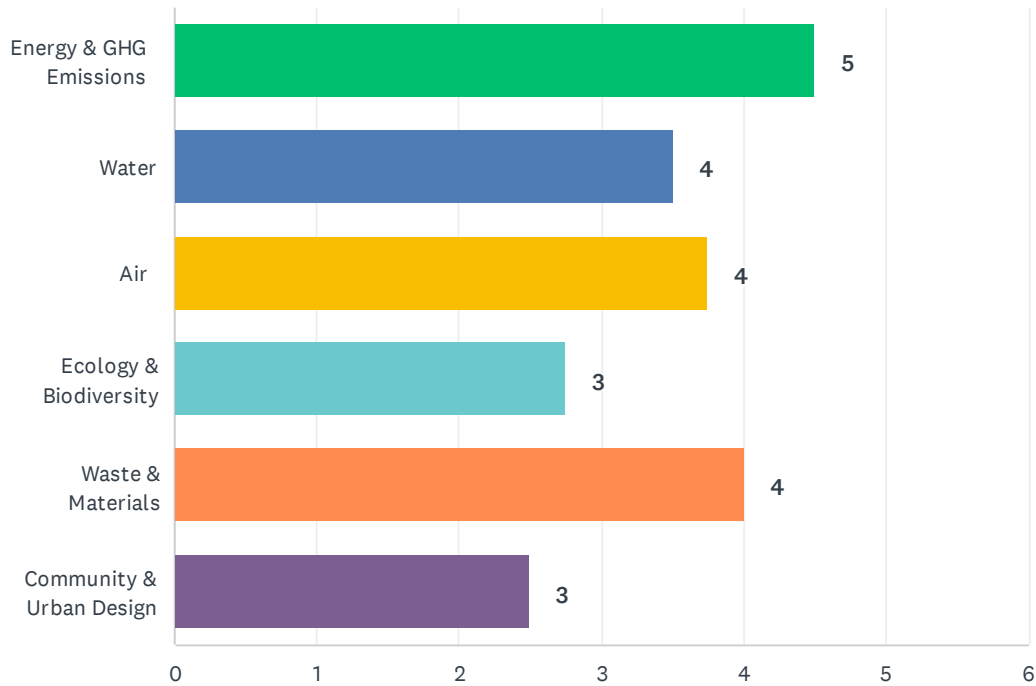
Appendix A

Post-Focus Group #1 Survey Results



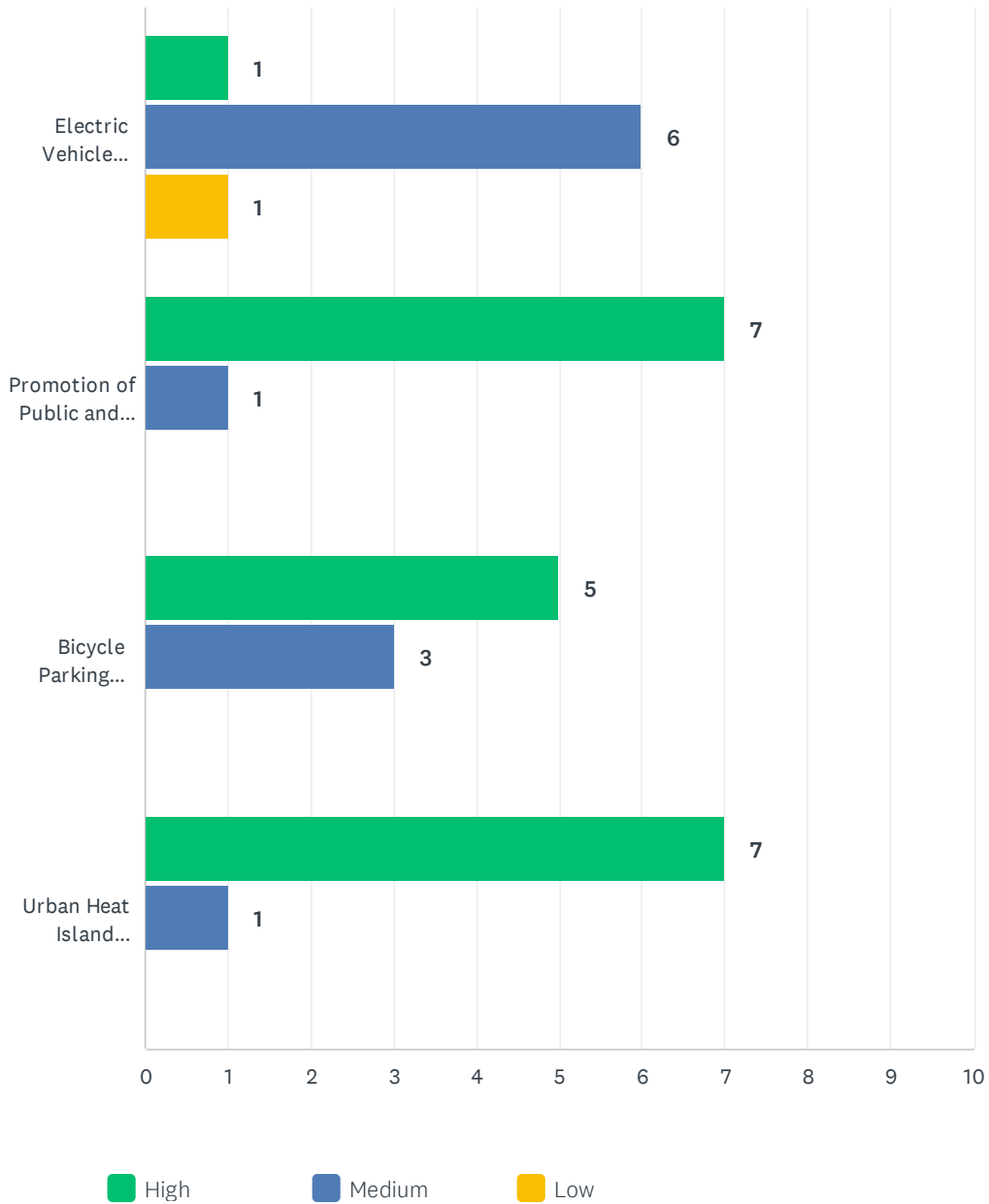
Q1 Please rank the following preliminary topic areas in order of importance from one (1) to six (6), with one (1) being the least important and six (6) being the most important for the City-wide Green Building Standards:

Answered: 8 Skipped: 0



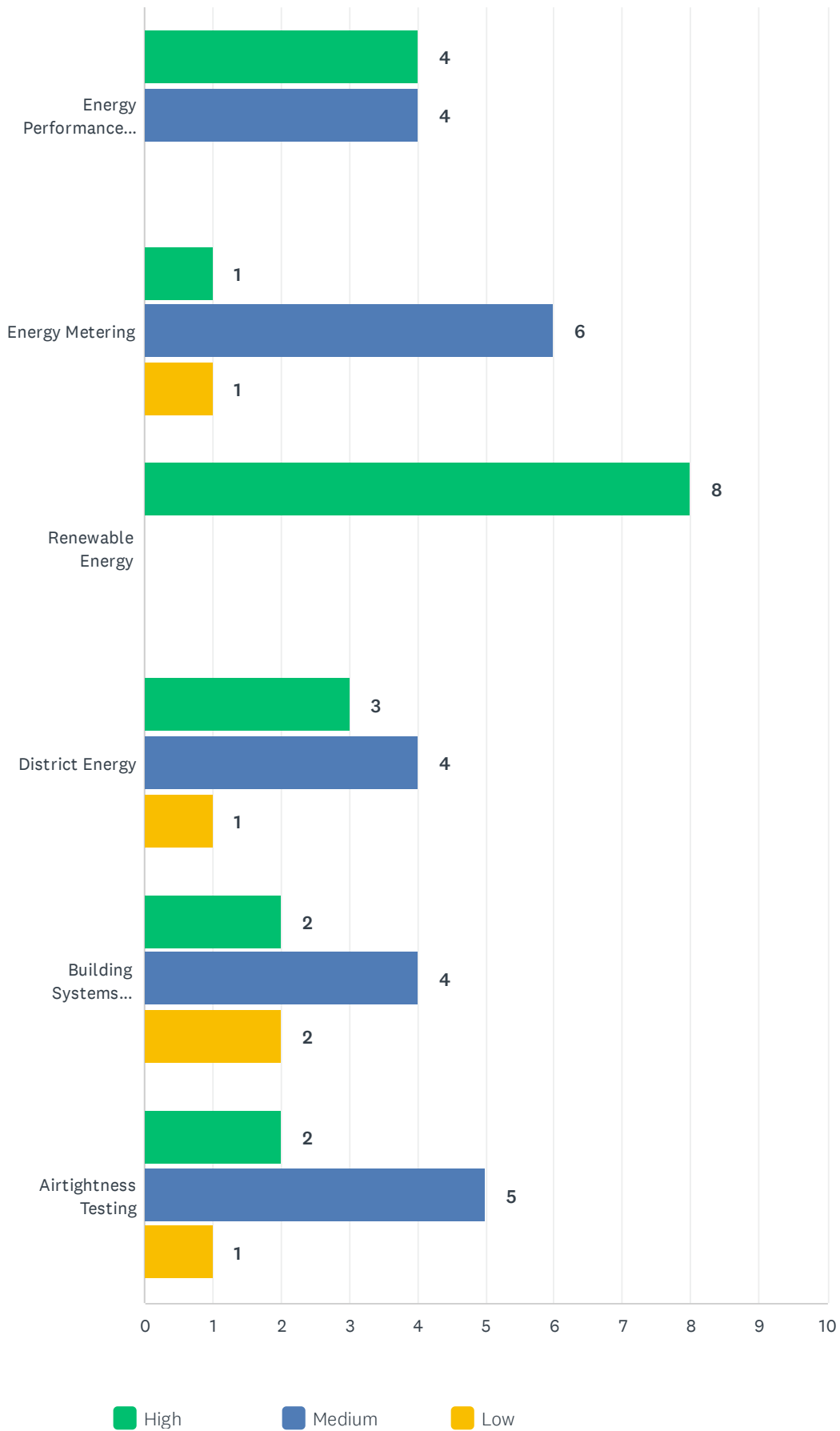
Q2 For the Air preliminary topic area, please assign a high, medium, or low-priority ranking, with high being the most important and low being the least important for the City-wide Green Building Standards.

Answered: 8 Skipped: 0



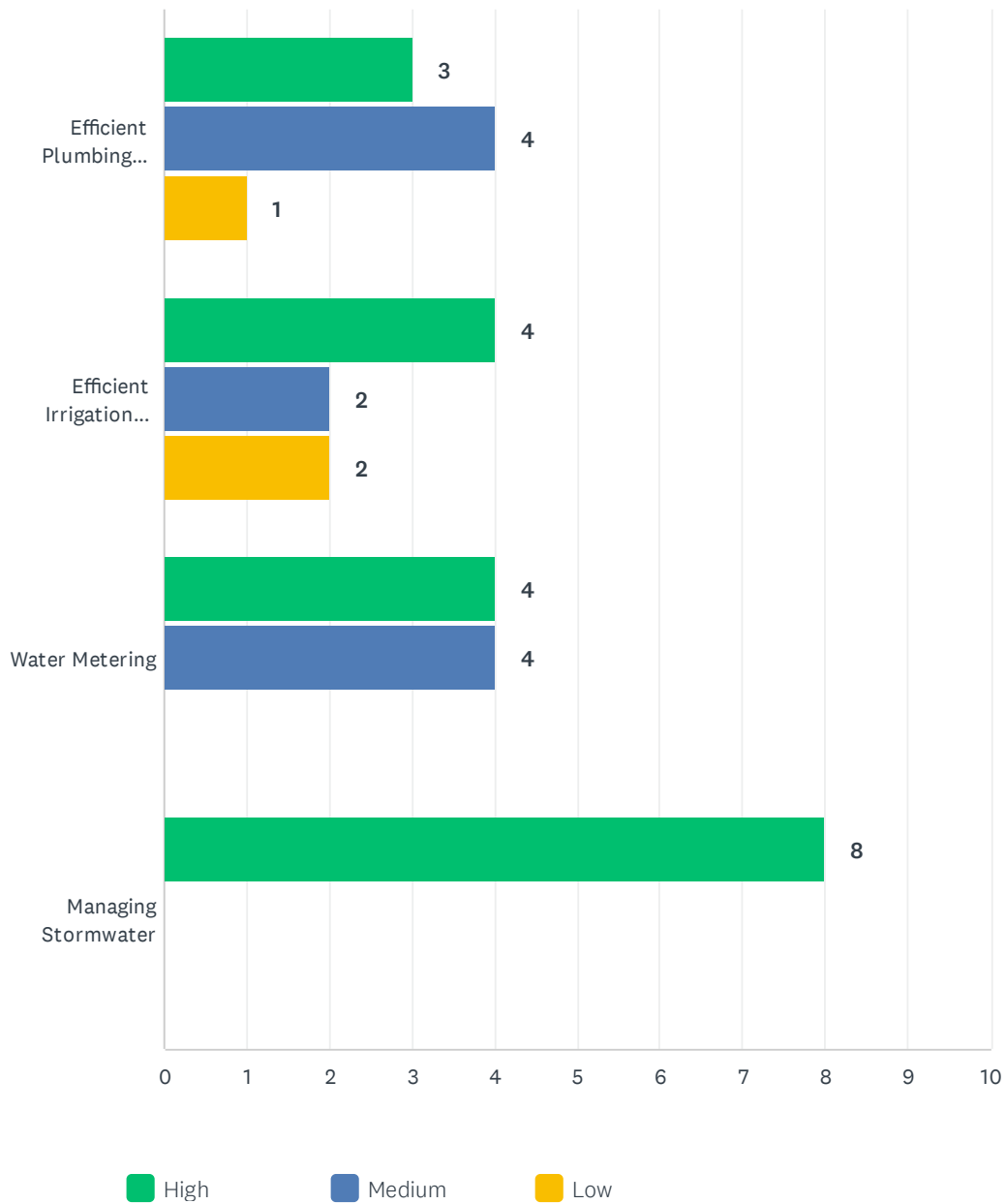
Q3 For the Energy & GHG Emissions preliminary topic area, please assign a high, medium, or low-priority ranking, with high being the most important and low being the least important for the City-wide Green Building Standards.

Answered: 8 Skipped: 0



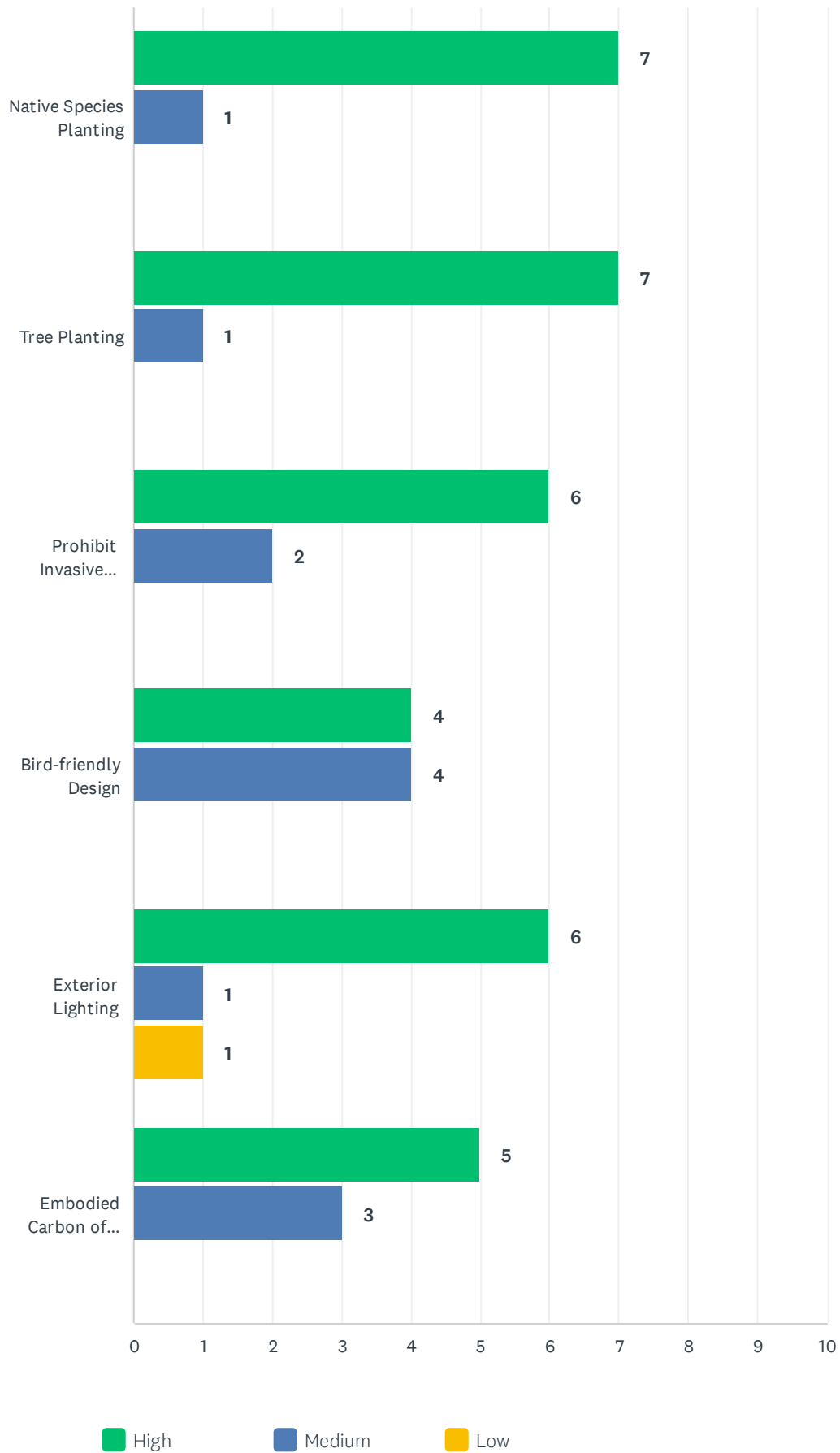
Q4 For the Water preliminary topic area, please assign a high, medium, or low-priority ranking, with high being the most important and low being the least important for the City-wide Green Building Standards.

Answered: 8 Skipped: 0



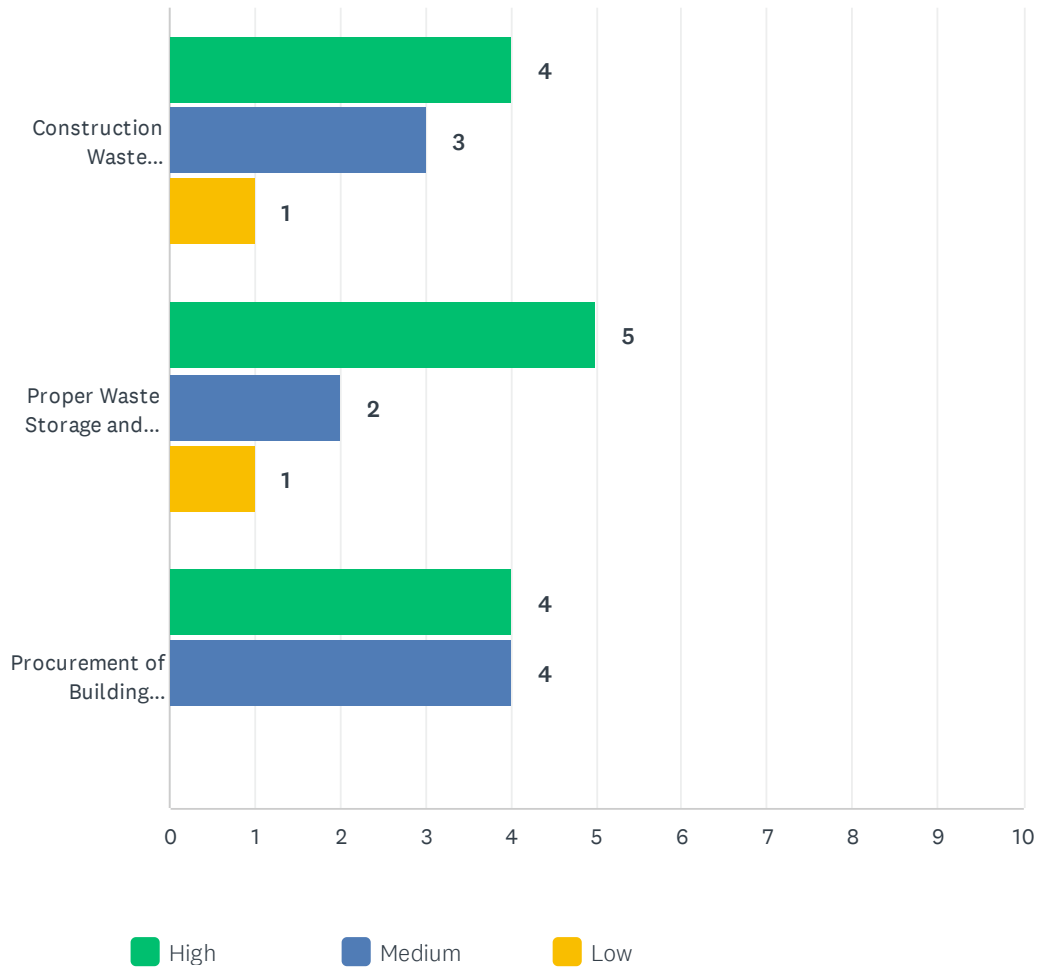
Q5 For the Ecology & Biodiversity preliminary topic area, please assign a high, medium, or low-priority ranking, with high being the most important and low being the least important for the City-wide Green Building Standards.

Answered: 8 Skipped: 0



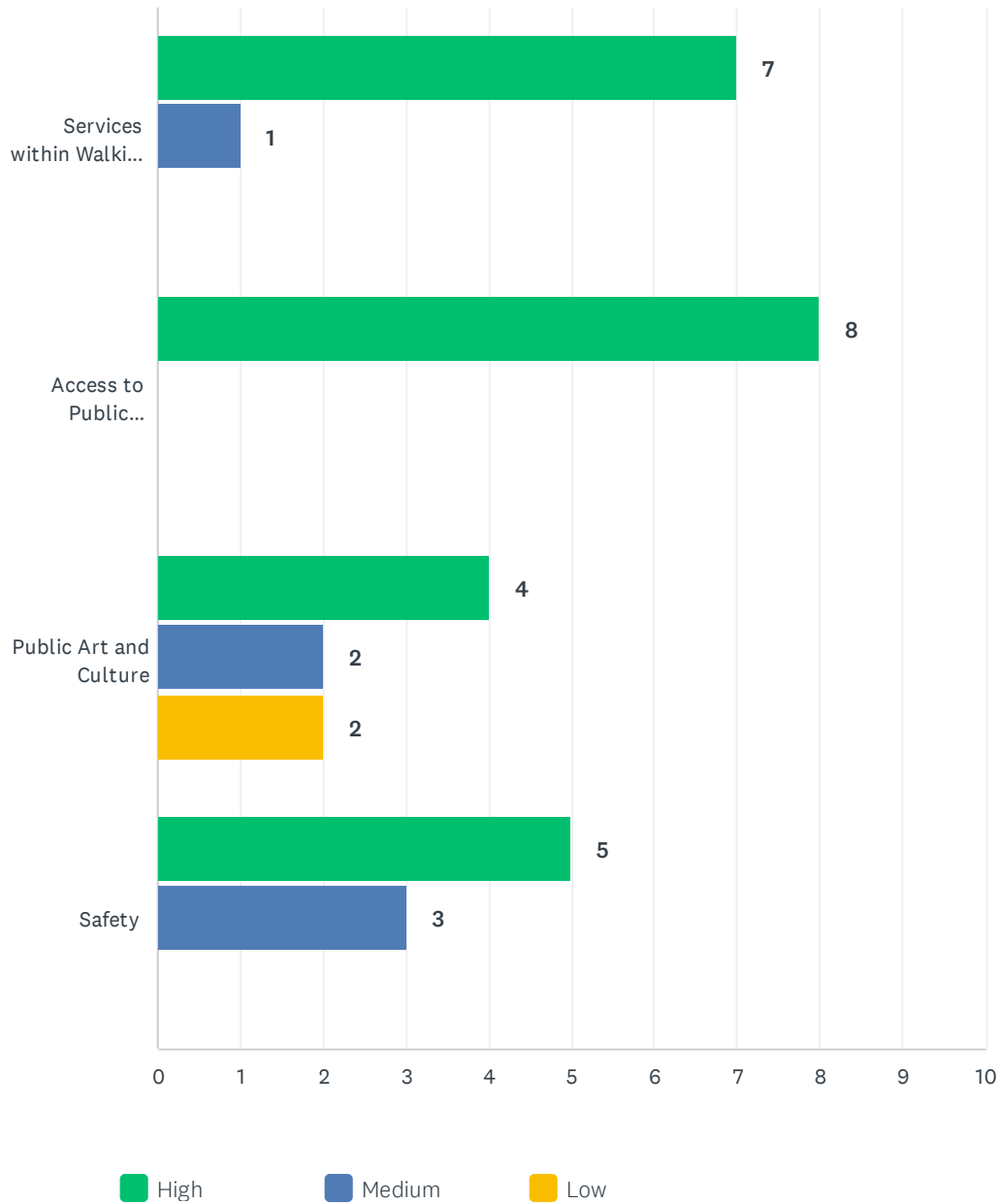
Q6 For the Waste & Materials preliminary topic area, please assign a high, medium, or low-priority ranking, with high being the most important and low being the least important for the City-wide Green Building Standards.

Answered: 8 Skipped: 0



Q7 For the Community & Urban Design preliminary topic area, please assign a high, medium, or low-priority ranking, with high being the most important and low being the least important for the City-wide Green Building Standards.

Answered: 8 Skipped: 0



Q8 Are there any preliminary topic areas or sub-topics that have not yet been captured?

Answered: 2 Skipped: 6

#	RESPONSES	DATE
1	I would suggest focusing on few more subtopics for C&UD such as compact built form, street pattern (small blocks for pedestrian friendly connections), green roofs, public spaces and green networks (green streets, urban food, etc.).	10/30/2023 10:01 AM
2	Not that I can think of. I think the overall themes were captured well but there are some areas which could be further expanded upon. I will explain these in the next question.	10/30/2023 9:41 AM

Q9 Do you have any additional feedback that should be considered in the development of the City-wide Green Building Standards or that you would like to discuss with the project team?

Answered: 2 Skipped: 6

#	RESPONSES	DATE
1	-Green roofs (and possible requirement) are missing from a sub-topic area in "Ecology and Biodiversity" -when thinking about implementation, measureability of a target is important (i.e., 25% native species required; 0 invasive species).	11/1/2023 1:48 PM
2	In relation to ecology and biodiversity, I think more needs to be done with our existing greenspaces, especially parks and non-used mowed areas. Greenspaces should be areas where both humans and nature and coexist I see that most of these area are ecologically desolate and do not really contribute to the whole ecology and biodiversity of a given area. Look at some city parks and parkettes and see that they are mostly just mowed grass. many of these areas could include pollinator gardens, meadow, or even just larger pockets of trees.	10/30/2023 9:41 AM



APPENDIX F

Engagement Snapshot



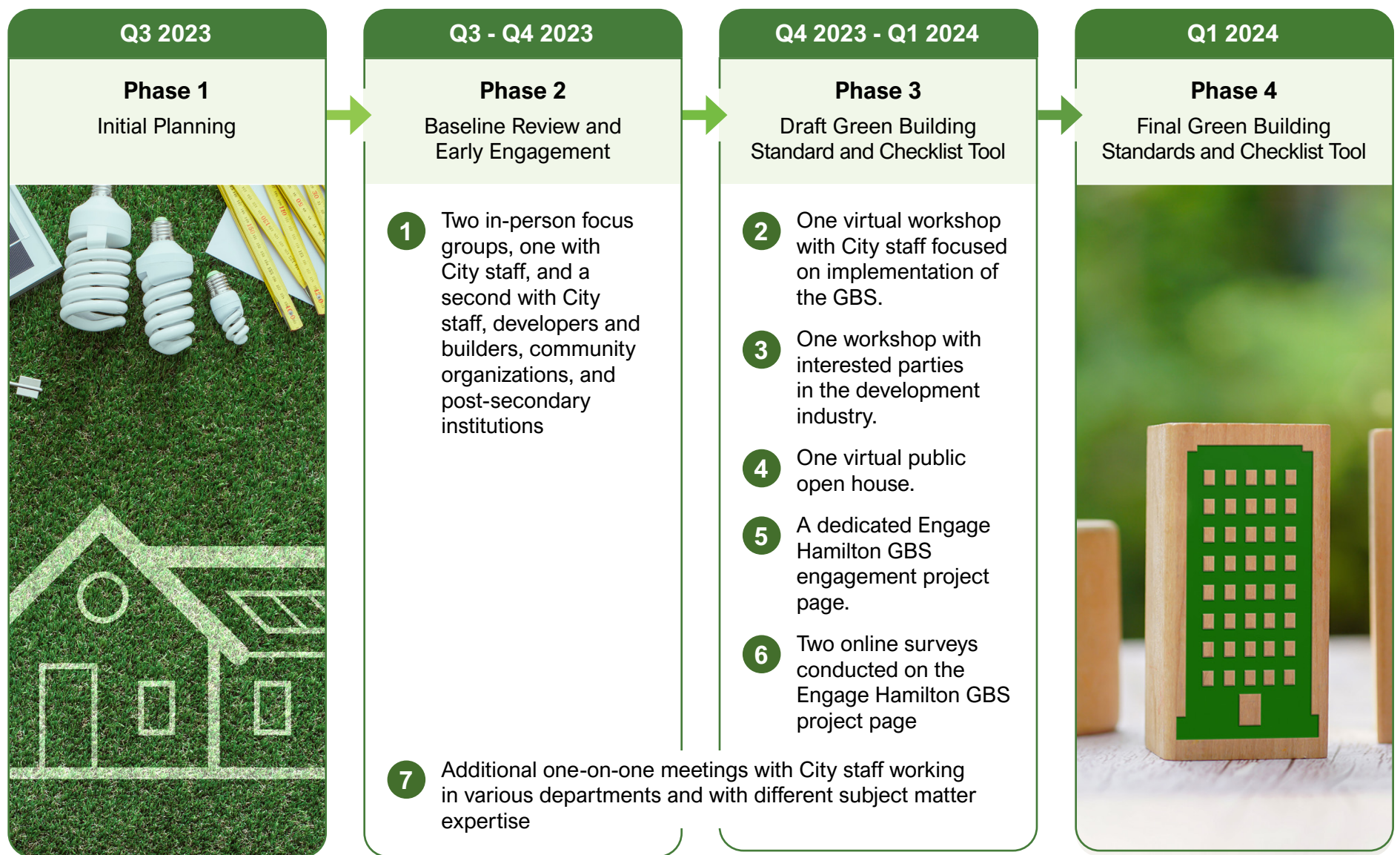
GREEN BUILDING STANDARDS CONSULTATION SUMMARY

Overview of the GBS

To meet the City's climate change and sustainability objectives, including a target of achieving net zero greenhouse gas emissions by 2050, Green Building Standards (GBS) are being developed. Once implemented, the GBS will apply to new residential, institutional, commercial and industrial uses in the Urban Area.

Timeline

Consultation on the Impact Categories, Performance Requirements, and Metrics of the Green Building Standard and implementation have been ongoing since Fall 2023.



Who has been involved?

- City staff with expertise in Planning, Building, Engineering, Heritage, Infrastructure Planning, Climate Change, and Public Health;
- Representatives from the development industry, including the West End Home Builders' Association; and
- Representatives from community groups and organizations, including Birdsong Hamilton, Indwell, Environment Hamilton, and McMaster University.

Public Consultation Participants



58

Participants in the virtual public open house.



123

Participants in the public survey



OVER 1,000

Webpage visits



GREEN BUILDING STANDARDS CONSULTATION SUMMARY

What We've Heard

1
It is important that the GBS is aligned and coordinated with other City-led projects and initiatives to achieve and realize sustainability and climate objectives and targets.

2
The GBS should be inspired by standards for development in other municipalities and best practices for climate resilient and sustainable development, while uniquely tailored to the context in Hamilton.

3
The GBS must balance different priorities for various interested parties including the City, the development industry, community partners, and the public.

4
The metrics must be realistic and achievable to advance the City's sustainability priorities while balancing continued growth and development that contributes to new housing opportunities and employment.



5
There are many different environmental related priorities that may be advanced through the GBS, including a focus on clean air and water, climate change adaptation, waste reduction, adaptive re-use, bird-friendly development, dark sky compliance, and drought tolerant and native plant species, among others.

6
Incentivising the GBS is an important consideration for implementation, in particular to achieve the Tier 2 Metrics, which are voluntary.

7
Clarity, simplicity, and flexibility of the GBS is important for effective interpretation, administration, and implementation for both the City and the development industry.

8
The GBS should be regularly reviewed and updated to ensure it remains relevant and responsive to Hamilton's sustainability priorities.