CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF MAY 17, 2022

Item 1, Report No. 21, of the Committee of the Whole, which was adopted, as amended, by the Council of the City of Vaughan on May 17, 2022, as follows:

By receiving the following Communications:

C1. Bryan Purcell, The Atmospheric Fund, Elizabeth Street, Toronto, dated May 2, 2022; and

C5. Memorandum from the Deputy City Manager, Planning & Growth Management, dated May 11, 2022.

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1. SUSTAINABILITY METRICS PROGRAM UPDATE FILE 22.24.3

The Committee of the Whole recommends:

1) That the recommendations contained in the report of the Deputy City Manager, Planning and Growth Management dated May 3, 2022, be approved; and

2) That staff provide information to introduce a protocol in the site plan approval process to request applicants to consider the use of solar panels in all future developments.

Recommendations

1. That the minimum updated Sustainability Metrics threshold scores be endorsed as a requirement for all new private developments;
2. That the Sustainability Metric IB-18 Bird-Safe Design standards, implemented through the Vaughan Official Plan and site plan application approval process, be endorsed as a requirement for all new private and City-owned developments;
3. That staff be directed to review and update the bird-safe design standards as needed to address new best practices;
4. That staff be directed to retrofit existing City-owned buildings with bird-safe design treatments subject to assessing budgetary requirements and need; and
5. That staff be directed to prepare an education and outreach program to encourage the retrofit of existing private buildings in the community to increase sustainability performance, including bird-safe design treatments.

Committee of the Whole (1) Report

DATE: Tuesday, May 3, 2022 **WARD(S):** ALL

TITLE: SUSTAINABILITY METRICS PROGRAM UPDATE FILE 22.23.3

FROM: Haiqing Xu, Deputy City Manager, Planning & Growth Management

ACTION: DECISION

Purpose

To provide Council with an update on the Sustainability Metrics Program and to seek endorsement to require minimum Sustainability Metrics threshold scores and mandatory bird-safe design standards (Metric IB-18 Bird-Safe Design standards) for public and private buildings.

Report Highlights

- Staff from the Cities of Vaughan, Brampton, Richmond Hill, and Markham (the partner municipalities) confirmed final changes to the Sustainability Metrics Program in collaboration with the Building Industry and Land Development Association.
- The partner municipalities retained the consultant Sustainability Solutions Group to update the Sustainability Metrics threshold scores.
- Bird-safe design standards were developed using best management practices identified from several bird-friendly/bird-safe guidelines and in consultation with the Fatal Light Awareness Program Canada.
- Integrating mandatory bird-safe design standards (treatments) into the site plan application approval process is necessary to reduce bird-window collisions.
- Retrofitting existing City-owned buildings and educating the public on bird-safe design standards would allow Vaughan to lead by example.

Recommendations

1. That the minimum updated Sustainability Metrics threshold scores be endorsed as a requirement for all new private development;
2. That the Sustainability Metric IB-18 Bird-Safe Design standards, implemented through the Vaughan Official Plan and site plan application approval process, be endorsed as a requirement for all new private and City-owned developments;
3. That staff be directed to review and update the bird-safe design standards as needed to address new best practices;
4. That staff be directed to retrofit existing City-owned buildings with bird-safe design treatments subject to assessing budgetary requirements and need; and
5. That staff be directed to prepare an education and outreach program to encourage the retrofit of existing private buildings in the community to increase sustainability performance, including bird-safe design treatments.

Background

The Sustainability Performance Metrics Program began as a collaboration between the Cities of Vaughan, Brampton, and Richmond Hill

The Sustainability Performance Metrics (SPM) Program was developed in 2013 as a partnership between the Cities of Vaughan, Brampton, and Richmond Hill ('the partner municipalities'). The SPM Program testing stage was approved by Council in 2015; Full implementation of the SPM Program and accompanying threshold scores were approved by Council in 2018. The municipal partners were joined by the City of Markham in 2020.

The SPM Program implements a specific objective of Green Directions Vaughan (GDV) 2019 Objective 2.3 "to create a City with a sustainable built form that is compact, resilient and designed to promote citizen health", implements actions of the Municipal Energy Plan 2016 and recognizes the need for sustainable design in complete communities.

Richmond Hill retained the consultant Morrison Hershfield to update the Sustainability Performance Metrics Program

In November 2018, Richmond Hill led the SPM Update and Incentives Project in collaboration with the partner municipalities to streamline, clarify, and update the SPM Program to reflect new Provincial and Regional Policy, sustainable best practices, and stakeholder feedback. In March 2021, Vaughan Council endorsed the updated SPM Program in principle, allowing staff to make further updates as needed.

Vaughan Council directed staff to confirm final changes to the 2021 updated Program with the Building Industry and Land Development Association

Following Council's endorsement of the 2021 updated SPM Program, a working group consisting of seven staff from the partner municipalities, and five members of the Building Industry and Land Development Association (BILD) – York and Peel Chapters was formed. Between February and May of 2021, eight Working Group sessions were held to discuss BILD's feedback on the updated metrics and confirm final changes. Changes made to the metrics included elements of clarification as well as changes to metric standards and point allocations. The Sustainability Metrics Guidebook, included as Attachment 1, was updated to reflect these changes. The Sustainability Performance Metrics Program was renamed to the Sustainability Metrics Program ('the Program').

Bird-safe design standards are captured within the Program's suite of metrics, and highlight the importance of protecting vulnerable bird populations by reducing bird-window collisions

Environment Canada ranks bird-window collisions as one of the highest human-related causes of bird deaths in Canada. Second only to cat predation, it is estimated that bird-window collisions result in approximately 25 million bird deaths annually.

Bird-friendly/bird-safe design treatments have been included in the suite of metrics since the adoption of the Program in 2014. According to the York Region Bird-Friendly Strategy Report 2018, "many local municipalities of York Region have implemented official plan policy or design guidelines that address bird-friendly strategies to a varying degree". The Cities of Ottawa (2020), Markham (2014), Toronto (2017), Vancouver (2015), and Calgary (2011) have approved policies and guidelines to implement bird-safe design treatments.

According to York Region's Bird-Friendly Strategy Report, 2018, the City of Markham's Bird-Friendly Guidelines, 2014, implemented through site plan approval process, is considered best practice at the local municipal level. As per Markham's Bird-Friendly Guidelines, "the most effective documented solutions to prevent bird-window collisions are to make the glass visible to birds by reducing reflection and transparency. It has been determined that contiguous unbroken glass surfaces present hazards to birds if larger than $2m^2$ in area."

The City-wide Urban Design Guidelines, 2018 were updated to include bird-friendly standards to align with metrics included in the original suite. These standards, now titled IB-18 Bird-Safe Design were subsequently refined in the 2021/2022 update of the Program and are discussed later in the report.

Vaughan's current threshold scores were endorsed by Council in May 2018 with expectations to encourage high-quality and sustainable development

Currently, all site plan (excluding minor applications), draft plan of subdivision, and block plan applications are required to submit a completed Excel Scoring Tool identifying the overall application score, and a sustainability summary letter forming part of a complete development application.

The following Council-endorsed expectations for threshold scores (outlined in Table 1) came into effect for applicable development applications deemed complete after October 1, 2018:

- All applicable development applications outside of the Vaughan Metropolitan Centre are expected to meet or exceed the Bronze threshold score.
- All applicable development applications within the Vaughan Metropolitan Centre are expected to meet or exceed the Silver threshold score.

Table 1: 2018 Council Endorsed Sustainability Metrics threshold scores

Performance Level	Site Plan	Draft Plan of Subdivision	Block Plan
Bronze	31 to 45 points	21 to 30 points	31 to 40 points
Silver	46 to 60 points	31 to 40 points	41 to 50 points
Gold	61 or More points	41 or more points	51 or more points

The update of the Program allowed the comprehensive review of relationships between the partner municipalities' existing threshold scores, types of development (e.g. residential, mixed-used, commercial etc.), and the impact of industry standards prior to recommending updated threshold scores through this report.

Sustainability Solutions Group was retained to update the threshold scores and provide Program recommendations to address climate change mitigation and adaptation

The City of Brampton, in collaboration with the partner municipalities, retained Sustainability Solutions Group (SSG) to evaluate and update the threshold scores through a consistent approach applied across all partner municipalities. SSG presented the following methodologies:

- Universal: considers the context-specific nature of development and specifies "Good" level metrics as the baseline. The Diffusion of Innovation model is then applied to develop the Bronze, Silver, and Gold threshold scores.

- Percentage Improvement: uses the median sustainability score of applications from each municipality based on the updated metrics to determine the baseline.

- Benchmarking: uses the average score of sample development applications from each municipality to calculate the baseline.

- External Standard: establishes the baseline based on a third-party green standard (such as Leadership in Energy and Environmental Design).

In addition to these methodologies, the following approaches to integrating climate change performance with the Program were identified:

- Minimum Performance
- Climate Grade
- Project Greenhouse Gas Emissions
- Climate Ranking

These approaches, alongside the methodologies are detailed in Attachment 2 of this report.

The approach to update the threshold scores using the Universal methodology option was selected through consultation with members of the development industry and other stakeholders

The following workshops were held with key stakeholders from BILD – York and Peel Chapters, the development industry, municipalities, York and Peel Region, and non-profit organizations who participated in engagement activities:

- October 29, 2021 Workshop: threshold development methodologies, including approaches to integrate climate change considerations, were presented for feedback. Participants ranked each element and participated in a multi-criteria analysis that measured the level of support.

- December 7, 2021 Workshop: SSG presented the recommended Universal Threshold methodology and the Minimum Climate Performance approach that incorporated participant feedback from the first workshop. The proposed approach for development in intensification areas was also presented for feedback.

At the request of BILD, an additional meeting with the working group was held on January 6, 2022 to discuss recommendations presented at the workshops. Feedback from BILD expressed a desire for program incentives, overall coordination between City staff, and sufficient time for program transition. Continuous education for public evaluators and private applicants was said to be important for a successful program transition.

Previous Reports/Authority

The February 8, 2022, communication entitled “Climate Emergency Declaration Update” can be accessed via the link below:
https://pub-vaughan.escribemeetings.com/FileStream.ashx?DocumentId=94635

The March 8, 2021, report entitled “Sustainability Metrics Program Update (File 22.24.3)” can be accessed via the link below:
https://pub-vaughan.escribemeetings.com/filestream.ashx?DocumentId=62577

The May 23, 2018, report entitled “Final Report on the Testing Stage of the Sustainability Performance Metrics Program File No. 22.24.3” can be accessed via the link below:
https://www.vaughan.ca/council/minutes_agendas/AgendaItems/CW_0508_18_13.pdf

Analysis and Options

Two sets of threshold scores were developed: Proposed Threshold Scores and Enhanced Threshold Scores

Through stakeholder engagement, members of the building industry stated some metrics were more context-specific than others, limiting the availability of some points for certain applications. An example is metric IB-5 Cultural Heritage Conservation, where points are awarded for conserving on-site cultural heritage and archeological resources; however, if the site has no cultural heritage or archeological resources, these points are not available to the applicant. In addition, the partner municipalities heard feedback that metrics related to interior design, including those considering energy efficiency, were more challenging to address as compared with other metrics.

In response to this feedback, two sets of threshold scores were created. The Proposed Threshold Scores, shown in Table 2, adjusted for points allocated to metrics that are more context-specific and metrics related to interior design. The Enhanced Threshold Scores, depicted in Table 3, only adjusted for points allocated to the more context-specific metrics.

Table 2: Proposed Sustainability Threshold Scores (Pathway 1)

Performance Level	Site Plan	Draft Plan of Subdivision	Block Plan
Bronze	41 to 61 points	27 to 40 points	14 to 20 points
Silver	62 to 75 points	41 to 49 points	21 to 25 points
Gold	76 to 241 points	50 to 194 points	26 to 76 points

Table 3: Enhanced Sustainability Threshold Scores (Pathway 2)

Performance Level	Site Plan	Draft Plan of Subdivision	Block Plan
Bronze	55 to 81 points	44 to 65 points	14 to 20 points
Silver	82 to 101 points	66 to 80 points	21 to 25 points
Gold	102 to 241 points	81 to 194 points	26 to 76 points

The two sets of threshold scores were developed with the recommendation that the partner municipalities implement the Proposed threshold scores first, then implement to the higher Enhanced threshold scores at a later point in time. This would ease the transition to higher threshold scores for the development community and allow development proponents time to assess and implement new sustainable technologies. The dual approach to the threshold scores is a pathway for new development to support the City's sustainability performance goals related to the Climate Adaptation and Resilience Framework being developed as part of the Official Plan Review.

Richmond Hill and Brampton have minimum threshold score requirements, and Markham, Ottawa, Toronto, and Whitby have sustainability performance requirements

Setting a minimum performance level elevates the standard for design excellence, and follows suite with many Greater Toronto Area (GTA) and Ontario municipalities:

- Richmond Hill and Brampton: have required minimum threshold scores for applicable development applications since 2015 and 2018 respectively.
- Markham: requires all new buildings in new community areas and Regional Centres and Corridors in Markham be constructed to Leadership in Energy and Environmental Design - Silver or equivalent.
- Ottawa, Toronto, and Whitby require, at a minimum, all new site and subdivision applications meet the tier 1 performance level in their respective green development standards.

All referenced sustainability performance programs, and the Sustainability Metrics Program, were updated between 2019 to 2022 collaboratively through inter-municipal

coordination. This coordinated review allowed municipalities to align their programs to contribute to a level playing field for development industry members working across the GTA and Ontario.

Vaughan needs minimum threshold scores requirements to successfully implement the 2021 updated Program

Leadership and innovation occur in the development industry when sustainable technologies are identified, integrated, and evaluated. Setting minimum performance levels in a practical manner that shows material improvement is important to successfully introduce new technologies that gain momentum throughout society.

This said, staff recommend all new block plan, draft plan of subdivision, and site plan applications (excluding minor applications) located within Intensification Areas be required to meet the proposed Silver threshold scores and applications located elsewhere in the City be required to meet the proposed Bronze threshold scores.

There are fifty-two metrics in the Program that support a variety of sustainable benefits and co-benefits. The climate change performance approaches, listed on page 5 of this report and detailed in Attachment 2, highlight and the reinforce metrics most closely related to carbon reduction. Staff will continue to monitor uptake of the Program, assess the feasibility of the climate change performance approaches, and seek Council approval to implement these approaches at a later date.

Staff initiated the process of building an online, user-friendly Sustainability Assessment Tool and is examining incentives to support the Program

Vaughan's new Sustainability Assessment Tool (SAT), targeted for completion in Q1 2023, will support the implementation of the updated Program and replace the current Microsoft Excel Scoring Tool ('Excel Tool'). In comparison to the Excel Tool, the SAT will increase user-friendliness, clarity, accessibility, and functionality; all of which have been requested by the development industry. The SAT will be aligned with the webtools developed by the partner municipalities within similar timeframes. Staff will support and educate applicants and staff through the transition to the updated Program. The Excel Tool and will remain accessible for applicants with development applications subject to the original suite of metrics. City staff will formally launch the new metrics and associated thresholds after completion of the SAT tool in Q1 2023, with ample notice given to the building industry.

On June 4, 2019, Mayor and Members of Council unanimously passed a Climate Emergency Declaration for Vaughan that made actions and incentives related to the Program a priority. Work to consider a multi-pronged approach to providing financial

and non-financial incentives began is part of the 2021 Program update and is ongoing. The incentive plan and an update on the SAT will be brought to Council by Q1 2023.

Bird-Friendly/Bird-Safe Design Standards

Building owners have a responsibility through Vaughan's environmental stewardship to undertake reasonable measures to protect birds from harm

Vaughan is currently pursuing certification as a Bird-Friendly City with Nature Canada. Bird-Friendly City requirements state a municipality must demonstrate it is taking measures to reduce bird-window collisions by developing and implementing bird-friendly design standards that conform with the Canadian Standards Association Bird-Friendly Building Design standard for new construction (CSA A460:19).

For Vaughan to lead by example, staff recommend existing public buildings be retrofit with bird-safe design treatments identified in Attachment 3 subject to a budgetary assessment for need of retrofit. Not all buildings will need to be retrofitted with bird safe strategies as it is dependent on the amount of exposed glass on a building's façade. It is recommended Council direct staff from the Policy Planning and Special Programs department to prepare an education and outreach program, with support from the Corporate and Strategic Communications department, to encourage the retrofit of existing buildings in the community to increase sustainability performance. These encouraged retrofits would include the application of bird-safe design treatments.

It is imperative all new private and public development be required to meet Bird-Safe Design standards to reduce bird-window collisions

According to Fatal Light Awareness Program Canada data, an estimated one to ten birds die in window collisions per structure every year in Vaughan. These include any structure with windows that are low, mid, or high-rise structures. This results in approximately one million annual bird-deaths in the City. To protect birds, Vaughan must require bird-safe standards for all new development. For new private development applications, these standards would be implemented through the site plan application approval process and updates to the Vaughan Official Plan. It will also be implemented through the building permit process managed by Buildings Standard department.

As the City of Vaughan continues to grow, so does the need for sustainable building design and energy performance in pursuit of creating a low-carbon community. Identification and alignment of implementation tools will help the community be more healthy and complete. Staff will continue to explore through the monitoring of the

Program opportunities for continuous improvement of the individual metrics as they apply to new development.

Financial Impact

The ongoing partnership between Vaughan, Richmond Hill, Brampton, and Markham allows for continued cost-sharing benefits and opportunities to receive grant funding through the Federation of Canadian Municipalities, as well as non-profits such as the Toronto Atmospheric Fund.

Policy Planning and Special Programs department has an allocated budget of $46,350.00 for the development of the Program Sustainability Assessment Tool, the online webtool through Account PL-9574-19.

There are no costs to the City of Vaughan as a result of the Program being implemented by the development community.

Facilities Management staff will assess the financial impacts associated with the retrofitting of existing public facilities with bird-safe design treatments through Facilities Management 2023 Capital Program.

Broader Regional Impacts/Considerations

Vaughan and its partner municipalities remain leaders in green development standards

Vaughan, alongside its partner municipalities, has supported and will continue to support other municipalities in the development of their own Green Development Standards (GDS) to provide for further consistency across the Greater Toronto Area and Ontario. Vaughan and its partner municipalities have also supported the non-profit organization Clean Air Partnership in the development of a 2020 GDS toolkit available to all municipalities. In addition, York Region has initiated an effort to support municipalities in developing GDS and has consulted with Vaughan staff.

York Region Council has committed to ensure the protection of a healthy natural heritage system that is rich in native diversity

On June 28, 2018, York Region committed to apply bird-safe design strategies to three Regional buildings, transit facilities, and bus shelters. Regional staff has identified implementation of bird-safe strategies through site plan control as a best practice for local implementation.

Conclusion

This report provides Council with an update on the Program and seeks endorsement to require minimum Sustainability Metrics threshold scores for all new private development, and mandatory bird-safe design standards (Metric IB-18 Bird-Safe Design standards) for private and City-owned buildings.

Continued implementation of the Program, supported by the recommendations outlined in this report, will further realize the actions in Council's formal Climate Emergency Declaration, 2019 and the 2018-2022 Term of Council Priorities. Implementation will also support the goals of Green Directions Vaughan, 2019, and the Municipal Energy Plan, 2016 currently under revision.

The Program remains a critical tool to encourage and accelerate the delivery of complete communities that result in long-term economic, environmental, and social benefits for the city. Vaughan continues to demonstrate leadership by taking a comprehensive approach towards supporting a resilient community for generations to come.

For more information, please contact: Ruth Rendon, Senior Environmental Planner of Environmental Sustainability at extension 8104.

Attachments

1. Sustainability Metrics Program Guidebook 2022.
2. Updating the Sustainability Threshold Scores: Final Report 2022.
3. City of Vaughan Bird-Safe Design Standards.

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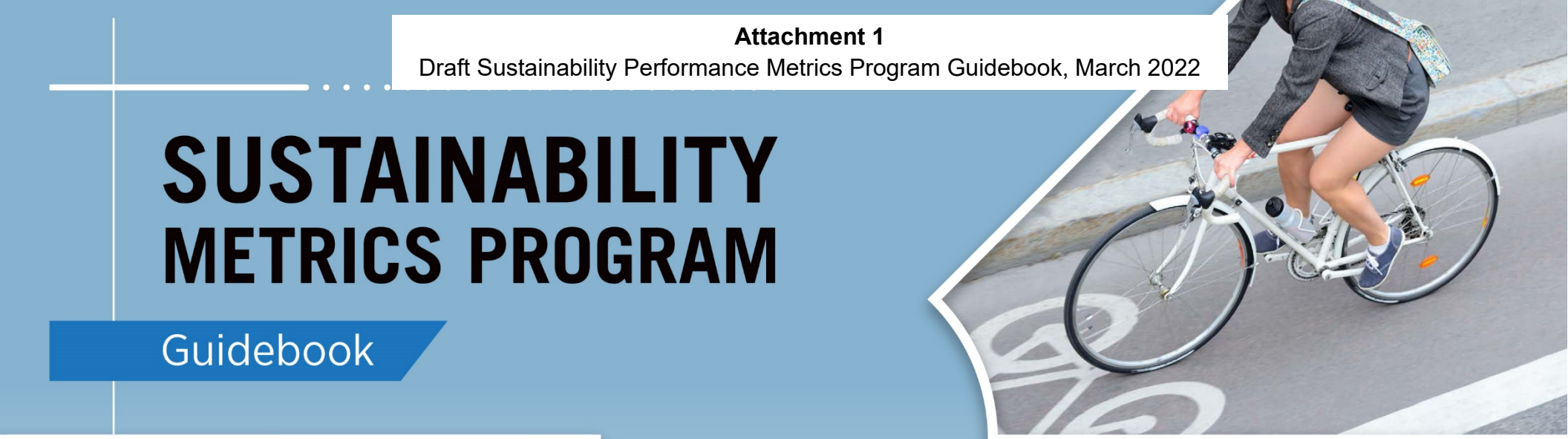
Attachment 1
Draft Sustainability Performance Metrics Program Guidebook, March 2022

SUSTAINABILITY METRICS PROGRAM

Guidebook



BRAMPTON MARKHAM Richmond Hill VAUGHAN

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Over the last decades, cities and towns across the Greater Toronto and Hamilton Area (GTHA) have experienced significant and rapid growth. Municipalities play a pivotal role in responsibly managing growth and facilitating the development of communities that are environmentally, social, and economically sustainable.

To foster more sustainable new communities the Cities of Brampton, Vaughan, Richmond Hill, and Markham collaboratively offer a set of tools to evaluate and score the sustainability performance of development proposals, and encourage builders / developers to achieve a minimum level of performance. This included:

a) *Sustainability Metrics (Metrics):*
   A set of performance metrics to encourage and evaluate the sustainability performance of new development, organized around the categories of Built Environment, Mobility, Natural Environment and Open Space, and Green Infrastructure and Building. Each of the over 120 Sustainability Metrics available to choose from are assigned a point value, and the combination of Metrics selected by the development proponent results in a Sustainability Score. Development proponents are able to select a combination of Metrics to achieve the minimum required Score. This enables the proponent to choose Metrics that best suit their individual property, project, and level of sustainability aspiration.

b) *Sustainability Assessment Tool (SAT):*
   A digital tool that development proponents use to calculate their Sustainability Score by answering a series of questions regarding the Metrics achieved in their development proposal.

c) *Sustainability Score Thresholds (Thresholds):*
   Performance levels achieved by the Sustainability Scores of a development proposal, and categorized as Bronze, Silver, or Gold.

The Sustainability Metrics Program is an important instrument to help implement both Provincial and Municipal land use planning, sustainability, and climate change goals and objectives. It facilitates creating healthy, complete, and sustainable communities that support quality of life for residents of all ages and abilities, energy efficiency and lower GHG emissions, more efficient use of land and infrastructure, local economic development, and cultural and natural heritage conservation. The Program also offers flexibility that enables development proponents to choose the sustainability approaches that best suits their project.

SUBMISSION REQUIREMENTS

As part of a complete planning application submission, development proposals are required to achieve a minimum Sustainability Score of Bronze.

WHAT TYPE OF APPLICATIONS REQUIRED A SUSTAINABILITY SCORE?

- All Block Plans
- Plans of Subdivision
- Site Plans

WHAT TYPE OF APPLICATIONS ARE EXEMPT?

- Minor site plan applications subject to site plan control bylaw 123-2013 Section 6 (v).
- Street townhouse dwellings within an approved Draft Plan of Subdivision or a registered Plan of Subdivision (Landscape Letter of Undertaking)
- Site plan applications for single detached dwellings.

IS THERE A MINIMUM REQUIRED SCORE?

Yes. Applications must achieve a Score that falls at least within the Bronze Threshold.

PRE- APPLICATION Consultation (PAC)

Applicants advised of Sustainability Score requirement.

PLANNING APPLICATION SUBMISSION

Complete application will include Sustainability Score & Summary. Application to achieve at least a Bronze Score.

CIRCULATION / TECHNICAL REVIEW

Staff review plans/drawings and component studies to verify metrics achieved and Sustainability Score.

PUBLIC MEETING REPORT

Report on application's Preliminary Sustainability Score.

RE-SUBMISSIONS

Re-submission(s) will include an updated Sustainability Score & Summary.

RECOMMENDATION REPORT / SITE PLAN AGREEMENT

Report on application's Final Sustainability Score. Include Plan of Subdivisions or Site Plan condition(s).

DETAILED DESIGN

Demonstrate that Sustainability Score is being achieved.

The Sustainability Metrics are organized into four main categories: Built Environment, Mobility, Natural Environment and Open Space, Infrastructure and Buildings. A new category, Innovation, has also been added.

Built Environment (BE)

The indicators for Built Environment speak to how we inform places and connections within the development. The intensity and diversity of land uses influences decisions on where we live, work, and how we move around the community. A mix of housing types, amenities, and employment and live-work opportunities located within walking distance provides the opportunity for residents to meet their day to day needs without reliance on the private automobile. Further provision for life-cycle housing and accessible buildings allows residents to establish and remain in their communities throughout the various periods of their lives.

Mobility (MB)

The indicators of Mobility identify how a variety of transportation options must be available to residents to carry out their daily lives within and beyond the community. A sustainable community is one that encourages physical activity, facilitates active transportation, and supports public transit in place of automobile dependence. The most vulnerable population groups (children, elderly, disabled, and low income individuals) are the most affected by choices available to them for mobility and access to services and amenities. Designing a safe, convenient, and accessible environment for walking and cycling encourages these alternative modes of transportation. Emphasis on mobility and active transportation not only reduces energy use and GHG emissions, but contributes directly to improving public health and the quality of life of residents.

Natural Environment and Open Space (NE)

The natural environment, urban forest, and the open space system are essential components of a healthy, sustainable community. Firstly, the preservation and enhancement of the natural heritage system ensures the health of the environment and supports recreational and cultural opportunities in a community. Secondly, ensuring residents have convenient access to a connected and diverse range of open spaces, parks, and recreation facilities offers opportunities for improved public health and connections within the community.

Infrastructure and Buildings (IB)

The Infrastructure and Buildings indicators identify the means to maximize energy and water conservation and minimize the consumption of non-renewable resources. New buildings and communities should be designed with a focus on reducing water, waste, and energy use. Since human activity is the principal cause of elevated levels of greenhouse gases and demands on energy, water, and waste systems, the measures focus on means of reducing this impact on both the built and natural environments.

Innovation (IN)

The innovation metric is intended to encourage true innovation resulting in real sustainability benefit. This new theme allows flexibility for users of the tool to propose innovative sustainability measures that are not specifically captured but which provide a measurable sustainability benefit. This flexibility is intended to allow users to think progressively and outside of the box when proposing sustainability measures on their development site.

Indicators

The following are the performance indicators organized by category. Each performance indicator has associated metrics that are allocated a point score. The metrics reflect characteristics of a sustainable community and are designed to outline the required measures or standards for each category to ensure that the overall objectives of the Sustainability Metrics are achieved.

BUILT ENVIRONMENT	MOBILITY	NATURAL ENVIRONMENT AND PARKS
• BE-1: Proximity to Amenities • BE-2: Mixed-Use Development • BE-3: Housing Diversity • BE-4: Community and Neighbourhood Scale • BE-5: Cultural Heritage Conservation • BE-6: Urban Tree Canopy and Shaded Walkways/Sidewalks • BE-7: Salt Management • BE-8:Carshare and Carpool Parking • BE-9: Surface Parking Footprint • BE-10: Electric Vehicle Charging Stations	• MB-1: Block Length • MB-2: School Proximity to Transit and Cycling Network • MB-3: Intersection Density • MB-4: Walkable Streets • MB-5: Pedestrian Amenities • MB-6: Bicycle Parking • MB-7: Trails and Cycling Infrastructure • MB-8: Active Transportation Network • MB-9: Distance to Public Transit • MB-10: Traffic Calming	• NE-1: Tree Conservation • NE-2: Soil Quantity & Quality for New Trees • NE-3: Healthy Soils • NE-4: Natural Heritage Connections • NE-5: Natural Heritage System Enhancements • NE-6: Supporting Pollinators • NE-7: Dedicated Fruit/Vegetable Garden Space • NE-8: Park Access • NE-9: Stormwater Quantity • NE-10: Stormwater Quality • NE-11: Potable Water Use • NE-12: Multi-purpose Stormwater Management

INFRASTRUCTURE AND BUILDINGS	INNOVATION
• IB-1: Buildings Designed/Certified Under Green Rating System • IB-2: Accessibility for Multi-Unit Dwellings • IB-3: Building Accessibility (Barrier Free Entry/Egress) • IB-4: Embodied Carbon of Building Materials: Supplementary Cementitious Materials • IB-5: Embodied Carbon of Building Materials: Life Cycle Assessment • IB-6: Embodied Carbon of Building Materials: Material Efficient Framing • IB-7: Heat Island Reduction: Non-Roof • IB-8: Heat Island Reduction: Roof • IB-9: Solar Gain Control • IB-10: Solar Readiness • IB-11: Energy Strategy • IB-12: Building Energy Efficiency, GHG Reduction, and Resilience • IB-13: Rainwater and Greywater Use • IB-14: Back-Up Power • IB-15: Extreme Wind Protection for Ground Oriented Development • IB-16: Sub-Metering of Thermal Energy and Water • IB-17: Light Pollution Reduction • IB-18: Bird-Friendly Design • IB-19: Solid Waste	• IN-1: Innovation

BUILT ENVIRONMENT

BE-1: PROXIMITY TO AMENITIES			
Intent:	To encourage development within and near existing amenities, create more walkable communities, and reduce auto dependency.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	**☒ Site Plan**

	Points	Requirement	Documentation
Good:	1 point	3 or more amenities are within 800 meters (equivalent to a 10 minute walk) of 75% of dwelling units.	In the Community Design Guidelines (Block Plan), Planning Justification Report (Draft Plan), or Site Plan Drawing(s)/ Urban Design Brief (Site Plan): Provide a map of the subject site with the proposed development overlaid and: • Highlight the area that accounts for 75% of the Dwelling Units (DU), and • Identify the approximate geographic center. • Identify the amenities within 800m and/or 400m radius from the geographic center. Note: • Amenities include: library, public parks and outdoor recreational facilities, public community/recreation centre, general retail, bank, place of worship, convenience store, restaurant, food retail (grocery store, supermarket), licensed adult/senior care, licensed child care, theatre, salon/barber shop, hardware store, laundry, medical office, dental office, post office, pharmacy, school, fitness center, and museum. • Other amenities not specifically listed above may also be considered, where permitted by the municipality, provided that they meet the intent of the metric. • One building can be considered to host multiple amenities (e.g. pharmacy included in a grocery store). • If amenities are included in the proposed plan but have yet to be defined, use the zoning by-law coupled with best judgment (based on size, location and planning allocations) to assume the expected end-use of the planned amenity.
Great:	+2 additional points (total 3 points)	3 or more amenities are within 400 meters (equivalent to a 5 minute walk) of 75% of dwelling units.	

References:	• Thinking Green (2018): 20, 21, 22 (Draft Plan of Subdivision) • LEED ND (v4) SLL: Housing and Jobs Proximity • LEED ND (v4) NPD: Mixed-Use Neighborhoods; NPD: Access to Civic and Public Space; NPD: Access to Recreation Facilities; NPD: Neighborhood Schools • Community Wellbeing Framework (2018): Economic Domain, Complete Community 2A • Whitby Green Standard v1 (2020): HH.V.3 (Site Plan)

BE-2: MIXED-USE DEVELOPMENT			
Intent:	To support locating housing, services, recreation, schools, shopping, jobs, work space, and other amenities on the same lot or block to facilitate wise use of land, make it easier for people to walk or cycle to these destinations, and reduce auto dependency.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	1 point	A mix of uses is provided on the same lot or block.	On the Block Plan, Draft Plan, or Site Plan: • Indicate the mix of uses within the proposed development.
References:	• LEED ND (v4) NPD: Mixed-Use Neighborhoods; NPD: Compact Development • Community Wellbeing Framework (2018): Economic Domain, Local Economy 4A		

BE-3: HOUSING DIVERSITY			
Intent:	To encourage a range of housing options and facilitate aging in place.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	**Ownership**		In the Planning Justification Report identify: • The percent (%) of the Ownership, Housing Type, and/or Accommodation Type included in the proposed development. • The total percent (%) by category should each add up to 100%. On the Block Plan, Draft Plan or Site Plan, identify the following: • Ownership Types, • Housing Types, and/or • Accommodation Types. Note: • Good level metric under Ownership is not applicable for Block Plans. • For the definition of affordable housing, refer to the applicable Regional Official Plan, Vaughan's Official Plan – Section 7.5 Housing Options, or Provincial Policy. • Where there is a conflict between Provincial Policy and a municipal Official Plan, Provincial policy takes precedence.
	2 points	At least 10% of affordable/ low income or purpose-built rental housing is provided.	
Good:	**Housing Type**		
	1 point	Two of the housing typologies listed below are provided: • Single Detached, • Semi Detached, • Townhouse, • Mid-rise, • High-rise, and/or • Additional dwelling unit within a single detached, semi detached or townhouse dwelling (e.g. second unit, secondary suite).	
Great:	+1 additional point (total 2 points)	Three of the housing typologies listed below are provided: • Single Detached, • Semi Detached, • Townhouse, • Mid-rise, • High-rise, and/or	

		• Additional dwelling unit within a single detached, semi detached or townhouse dwelling (e.g. second unit, secondary suite).
Excellent:	+ 1 additional point (total 3 points)	Four or more of the housing typologies listed below are provided: • Single Detached, • Semi Detached, • Townhouse, • Mid-rise, • High-rise, and/or • Additional dwelling unit within a single detached, semi detached or townhouse dwelling (e.g. second unit, secondary suite).
	Accommodation	
Good:	1 point	Two accommodation types listed below are provided: • Live-work, • Purpose-Built Rental, • Studio, • 1 bedroom, and/or • 2 or more bedrooms.
Great:	+1 additional point (total 2 points)	More the two accommodation types below are provided: • Live-work, • Purpose Built Rental, • Studio, • 1 bedroom, and/or • 2 or more bedrooms.
References:	• Thinking Green(2018): 29 (Draft Plan of Subdivision); 33 (Site Plan) • LEED ND (v4) NPD: Housing Types and Affordability • Community Wellbeing Framework (2018): Economic Domain, Affordability 1A • Whitby Green Standard v1 (2020): ELE1.1, ELE.V.1, ELE.V.2 (Draft Plan of Subdivision); ELE1.1, ELE 1.2, ELE.V.1, ELE.V.2 (Site Plan)	

BE-4: COMMUNITY AND NEIGHBOURHOOD SCALE			
Intent:	To focus on retail, personal, and community services within community core areas (neighbourhood centre and mixed-use node) so that people can meet their daily needs within their communities.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	☐ Site Plan
	Points	**Requirement**	**Documentation**
Excellent:	3 points	The proposed community form is based on a hierarchy that is listed below: • Community: contains a mixed use node central to the cluster of neighbourhoods that should include higher residential densities, retail, and employment opportunities, and served by public transit.	In the Community Design Guidelines (Block Plan) or Planning Justification Report (Draft Plan) include a figure of the proposed development and its surrounding area that highlights the: • Community mixed use node and the cluster of surrounding neighbourhoods. • Uses and densities within the mixed use node. • Neighbourhood Centre and 400 meter radius. • Uses and densities within the Neighbourhood Centre.
	3 points	The proposed community form is structured to contain: • Neighbourhood(s): defined by 400 meter radius (5 minute walk) from the neighbourhood centre to the neighbourhood perimeter with a distinct edge or boundary defined by other neighbourhoods or larger open spaces. **AND** • Neighbourhood Centre(s): a distinct centre with a compatible mix of uses that should include a neighbourhood park; high or medium residential densities; and retail or community facilities (e.g. school, library).	
References:	• Region of Peel, Health Background Study Development of a Health Background Study Framework, May 2011. • Whitby Green Standard v1 (2020): TT.V.3 (Draft Plan of Subdivision).		

BE-5: CULTURAL HERITAGE CONSERVATION			
Intent:	To conserve cultural heritage resources, including built heritage resources (listed or designated), cultural heritage landscapes (listed or designated), and archaeological resources.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Excellent:	3 points	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).	In the Cultural Heritage Impact Assessment and/or Heritage Conservation Plan and/or other documents acceptable to the municipality, provide: • An outline of the cultural heritage attributes that contribute to the cultural heritage value and confirm that no portions of the resource that contribute to its cultural heritage value are to be demolished, removed, or relocated. Note: For the purposes of this metric, "conserved" means: • The identification, protection, management and use of cultural heritage resources in a manner that ensures their cultural heritage value or interest is retained under the Ontario Heritage Act. • This may be achieved by the implementation of recommendations set out in a Cultural Heritage Impact Assessment, Conservation Plan, Archaeological Assessment, and/or other documentation accepted by the municipality. • Mitigated measures and/or alternative development approaches can be included in these plans and assessments. Conservation and conserve have corresponding meanings. • The Standards and Guidelines is the guiding document for the conservation of cultural heritage resources in Canada.
Great:	2 points	A portion of the cultural heritage resource is retained, and the integrity of the cultural heritage resource is conserved.	In the Cultural Heritage Impact Assessment and Heritage Conservation Plan, or other document accepted by the municipality, provide: • An outline of the attributes that contribute to the cultural heritage value, identification of the portion(s) of the cultural heritage resource to be conserved, and rationale demonstrating that the integrity of the cultural heritage resource is being conserved. Note: • This metric is not applicable for Block Plans. For the purposes of this metric, "integrity" means: • A measure of its wholeness and intactness of the cultural heritage values and attributes. • Examining the conditions of integrity requires assessing the extent to which the property/cultural heritage resource includes all elements necessary to express its cultural heritage value; is of adequate size to ensure the complete representation of the features and processes that convey the cultural heritage resource's significance; and the extent to which it suffers from adverse affects of development and/or neglect.

			• Integrity should be assessed within the Cultural Heritage Impact Assessment, or other documentation accepted by the municipality.
Good:	1 point	Where a cultural heritage resource will be relocated, it will be moved to a visually prominent location within the proposed development.	In the Cultural Heritage Impact Assessment and/or Heritage Conservation Plan and/or other documents acceptable to the, identify: • The proposed location of the cultural heritage resource that ensures its visual prominence.
Good:	1 point	Where reusable materials from a cultural heritage resource are being removed, a portion will be salvaged and reused within the proposed development.	In the Cultural Heritage Impact Assessment and/or Heritage Conservation Plan and/or other documents acceptable to the municipality identify: • The materials that will be salvaged and how they will be reused on site. Note: • This metric is not applicable for Block Plans • The reuse of the salvaged materials should also be demonstrated in appropriate supporting documents (e.g. site plan drawings, landscape plan).
References:	• Community Wellbeing Framework (2018): Cultural Domain, Cultural Vitality 1B, Sense of Belonging 2B • Whitby Green Standard v1 (2020): CC1.2 (Draft Plan of Subdivision), CC1.3 (Site Plan) • LEED ND v4 GIB: Historic Resource Preservation and Adaptive Reuse • Thinking Green (2018): 31 (Draft Plan of Subdivision); 36 (Site Plan)		

BE-6: URBAN TREE CANOPY AND SHADED WALKWAYS/SIDEWALKS			
Intent:	To provide street trees that create a more pleasant pedestrian environment and mitigate the urban heat island effect. Street trees provide ecosystem services and health benefits.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	1 point	Trees will shade at least 50% of the walkway/sidewalk lengths within 10 years.	On a Landscape Plan: • Identify the total length of existing and or planned sidewalk in the proposed development, and the total length of existing and or planned sidewalk with trees abutting the sidewalk, measured as a percentage of sidewalk length. Note: • New trees will be selected in accordance with the applicable municipal guidelines and standards (e.g. species, size, diameter breast height, etc.). Vaughan's Tree Protection guidelines Tree Protection Protocol.pdf (vaughan.ca)
Great:	+1 additional point s (total 2 points)	Trees will shade at least 75% of the walkway/sidewalk lengths within 10 years.	
Great:	2 points	Trees will shade at least 50% of parking areas within 10 years.	On a Landscape Plan: • Identify total parking area and the total parking area that will be shaded by the tree canopy and quantify as a percentage.

Good:	1 point	Street trees are provided on both sides of street at intervals averaging no more than 9 metres, where supported by the municipality.	On a Landscape Plan: • Identify the distance intervals of street trees. Vaughan's Tree Protection guidelines Tree Protection Protocol.pdf (vaughan.ca)
Excellent:	+ 2 additional points (total 3 points)	Street trees are provided on both side of streets within the project at distance intervals averaging 8 metres or less, where supported by the municipality.	
References:	• LEED ND (v4) NPD: Tree-Lined and Shaded Streetscapes • Toronto Green Standard v3 Tier I: Ecology (EC1.3) (CF, LR, MHR); Tier II: Ecology (EC1.5) (LR, MHR)		

BE-7: SALT MANAGEMENT			
Intent:	To reduce the use of salt and its negative impacts on water bodies, soils, wildlife, buildings, and vehicles. Reducing salt use also helps protect the natural environment from salt exposure.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	2 points	Two of the following measures are provided: • 2 to 4% grade throughout all outdoor parking lots to ensure proper drainage and limit refreezing. • Use of salt-tolerant species of vegetation in areas that will receive meltwater. • Use of trees as windbreaks around the site perimeter. • Heated or covered walkways near building entrances. **AND** • Providing well-planned, designated snow storage area(s) to ensure meltwater drains as intended in the site design.	On a Landscape Plan: • Document the measures being used to promote salt reduction. Note: Landscape Ontario Horticultural Trades Association lists the following as salt tolerant plants: • Sea Thrift - Armeria maritima, • Karl Foerster Reed Grass – Calmagrostis acutifolia 'Karl Foerster', • Helen Allwood Pinks – Dianthus pulminarius x allwoodii, • Blue Lyme Grass – Elymus arenarius, • Fountain Grass – Pennisetum alopecuroides.
References:	• Parking Lot Design Guidelines to Promote Salt Reduction. Lake Simcoe Region Conservation Authority, 2017.		

BE-8: CARSHARE AND CARPOOL PARKING			
Intent:	To encourage carpooling and reduce dependence on single-occupant vehicle trips. Carpooling contributes to GHG emission reduction, less air pollution, less congestion, and improved social connections.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	**☒ Site Plan**

	Points	Requirement	Documentation
Good:	1 point	Dedicate 3% of parking spaces on-site to carpooling and/or carshare/zip car (does not apply to compact cars). Provide preferred parking for these vehicles by incorporating signage and/or pavement markings.	On the Site Plan: • Quantify the total parking spaces included per building on the site. • Quantify the total parking spaces that are dedicated to carshare/zip car or carpooling. • Identify the dedicated parking spaces and highlight proximity/preferred location relative to building entry.
Great:	+1 additional point (total 2 points)	Dedicate 5% of parking spaces on-site to carpooling and/or carshare/zip car (does not apply to compact cars). Provide preferred parking for these vehicles by incorporating signage and/or pavement markings.	
References:	• Toronto Green Standard v3 Tier I: Air Quality (AQ1.2) (CF, MHR) • LEED ND (v4) LT: Reduced Parking Footprint • LEED BD+C (v4) LT: Reduced Parking Footprint • Whitby Green Standard v1 (2020): TT1.8 (Site Plan) • Thinking Green (2018): 29 (Site Plan)		

BE-9: SURFACE PARKING FOOTPRINT			
Intent:	To promote efficient use of land and to support on-street retail and pedestrian-oriented built environments. Surface parking can block access and visibility to homes and businesses. Minimizing or carefully locating surface parking can result in more pedestrian-friendly and valuable streetscapes.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	1 point	All surface parking on site is located at the side or rear of buildings.	On the Site Plan: • Identify the building frontage and the surface parking location(s). Note: • Should aim for no more than 20% of the total development area dedicated to off-street surface parking facilities, and surface parking lot should not be larger than 2 acres.
Great:	2 points	Less than 15% of the total developable area is provided to parking at grade and is located at the rear or side of buildings.	On the Site Plan: • Identify the building frontage and the surface parking location(s). • Calculate the total area dedicated to surface parking/parking facilities and the total area of the proposed development. • Identify the percent (%) of site area allocated to surface/facility parking.
Excellent:	3 points	All new on-site parking is provided below grade or in structured parking, and no surface parking is provided.	Note: • For this metric, surface parking facilities include ground-level garages unless they are under habitable building space. • Underground or multi-story parking facilities within the habitable building space and on-street parking spaces are exempt from this limitation. • Excludes spaces dedicated to short-term parking and pickup/drop-off.

References:	• LEED ND (v4) LT: Reduced Parking Footprint • LEED BD+C (v4) LT: Reduced Parking Footprint • Whitby Green Standard v1 (2020): TT1.9 (Site Plan) • Thinking Green (2018): 31 (Site Plan)

BE-10: ELECTRIC VEHICLE CHARGING STATIONS			
Intent:	To facilitate the use of electric vehicles.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	3 points	Electric vehicle supply equipment (EVSE) is provided to serve 10% of parking spaces.	On the Site Plan and Landscape Plan: • Provide the number of total parking spaces included per building on the site. • Provide the number of total parking spaces that will be provided with EVSE. • Provide the percentage of parking spaces that will be provided with EVSE. For Site Plans and Draft Plan Applications: • A Letter of Commitment from a qualified professional (e.g. electrical engineer, landscape architect, architect) and the owner/developer/builder confirming the number of EV charging stations and the percent of parking spaces with EVSE. Note: • *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 power transfer and information exchange between the branch circuit and the electric vehicle. For the requirements of this metric, applicants are encouraged to consult with the local municipality to determine the appropriate level or equivalent for EVSE. • *Rough-in provisions* are defined as empty raceways starting in a junction box in the electrical room and terminating in a junction box central to each parking floor. Raceways will be empty to accommodate future wiring. • Establishing electric vehicle charging stations are achieved by agreement at the development stage and implementation at the building stage. It is important for developers and builders to agree to install electrical vehicle charging stations prior to commitment.
Great:	+2 additional points (total 5 points)	Electric vehicle supply equipment (EVSE) is provided to serve 20% of parking spaces.	
Excellent:	2 points	At least 50% of the parking spaces are designed and constructed to permit future EVSE installation (e.g. rough-in).	
References:	• Toronto Green Standard v3 Tier I: Air Quality (AQ1.3) (CF, MHR) • Whitby Green Standard v1 (2020): TT1.10 (Draft Plan of Subdivision); TT1.15 (Site Plan) • LEED BD+C v4 LT: Electric Vehicles • Thinking Green (2018): 27 (Draft Plan of Subdivision); 30 (Site Plan)		

MOBILITY

M-1: BLOCK LENGTH			
Intent:	To develop shorter blocks that increase permeability offering pedestrians and cyclists multiple routes to reach their destination(s) and to allow blocks with the flexibility to accommodate both residential and commercial lot sizes. Walkable blocks improve connectivity and reduce dependence on vehicles.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	☐ Site Plan

	Points	**Requirement**	**Documentation**
Good:	1 point	75% of block lengths do not exceed 250 meters.	On the Block Plan or Draft Plan provide: • Measurement of the block lengths for all blocks included in the proposed development. • Identify and confirm the percentage (%) of block lengths that are less than 250 meters. • Blocks are determined by roads/streets, and not pathways or trails.
Great:	+1 additional point (total 2 points)	All block lengths do not exceed 250 meters.	On the Block Plan or Draft Plan provide: • Measurement of the block lengths and the block perimeter lengths for all blocks included in the plan. • Confirm that all block lengths are less than 250 meters. • Blocks are determined by roads/streets, and not pathways or trails.
Excellent:	+1 additional point (total 3 points)	All blocks do not exceed 80 meters x 150 meters in size.	On the Block Plan or Draft Plan provide: • Measure the block sizes and confirm there are no blocks greater than 80 meters x 150 meters. • Blocks are determined by roads/streets, and not pathways or trails.
References:	• Thinking Green (2018): 19 (Draft Plan of Subdivision) • Region of Peel, Health Background Study (2011), Core Element 4: Street Connectivity • Whitby Green Standard v1 (2020): TT1.7 (Draft Plan of Subdivision)		

M-2: SCHOOL PROXIMITY TO TRANSIT AND CYCLING NETWORK			
Intent:	To encourage students to walk and/or cycle to school to reduce vehicle use, traffic congestion at school sites, and promote active transportation. Walking, cycling, and transit use result in GHG emissions savings and less air pollution. Walking and cycle also provide health benefits.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	☐ Site Plan

	Points	**Requirement**	**Documentation**
Good:	1 point	All public schools are located within a 400 m walking distance to transit routes and/or dedicated cycle network.	On the Block Plan, Draft Plan, or within the Planning Justification Report, provide a map that includes:

Great:	+1 additional point (total 2 points)	All public schools are located within a 200 meter walking distance to transit routes and/or dedicated cycle networks.	• Radial circles to illustrate 400 m and 200 m from each school, • Location of the proposed development, • Existing or planned public school(s), • Existing or planned transit stops, and • Existing or planned dedicated cycle network(s).
References:	• Region of Peel, Healthy Background Study Framework (2011) • Whitby Green Standard v1 (2020): TT.V.3 (Draft Plan of Subdivision)		

M-3: INTERSECTION DENSITY			
Intent:	To encourage shorter blocks and increase permeability and connectivity offering pedestrians and cyclists multiple routes to reach their destination(s). Walkable blocks improve connectivity and reduce dependence on vehicles.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	☐ Site Plan
	Points	**Requirement**	**Documentation**
Good:	1 point	Provide for 40-50 multi-use trails, paths, and/or streets intersections per square kilometre (sq.km).	In the Urban Design Brief or Planning Justification provide a map that: • Highlights the eligible intersections. • Delineates each square kilometers. • Identifies the number of eligible intersections within the proposed development per sq.km.
Great:	+1 additional point (total 2 points)	Provide for 51-60 multi-use trials, paths, and streets intersections per square kilometre (sq.km).	Note: • Eligible intersections include: Multi-use trails, cycling paths, walking paths, publicly accessible streets, laneways, and transit right-of-ways • Non-Eligible intersections generally include intersections where you must enter and leave an area through the same intersection, for example, cul-de-sacs and gated street entrances • Square Kilometre is defined as the total area of land available for development, similar to the net developable area, and its calculation excludes water bodies, parks larger than 0.2 hectares, natural heritage system lands, public facility campuses, airports, existing and proposed 400-series highways, and rail yards.
Excellent:	+2 additional points (total 4 points)	Provide for more than 61 multi-use trails, paths, and streets intersections per square kilometre (sq.km).	
References:	• LEED ND (v4) NPD: Connected and Open Community • Whitby Green Standard v1 (2020): TT.V.1 (Draft Plan of Subdivision)		

M-4: WALKABLE STREETS			
Intent:	To encourage walking through the provision of safe and comfortable street environments. Walkable streets reduce the dependence on vehicles, improve safety, enhance connectivity, and are an important component for healthy and complete communities.		
Applicable to:	☒ **Block Plan**	☒ **Draft Plan of Subdivision**	☒ **Site Plan**

	Points	**Requirement**	**Documentation**
Good:	2 points	Where not a mandatory requirement, and where supported by the municipality, provide/ extend continuous sidewalks or multi-use trails on both sides of public and private roads/streets.	On the Block Plan, Draft Plan or Site Plan: • Provide continuous sidewalk or multi-use trails on both sides of public and provide roads/streets. • Verify and document that the sidewalks comply with Municipal Standards.
References:	• LEED (v4) ND NPD: Walkable Streets • Whitby Green Standard v1 (2020): TT1.5 (Draft Plan of Subdivision); TT1.6 (Site Plan) • Thinking Green (2018): 23 (Draft Plan of Subdivision, Site Plan)		

M-5: PEDESTRIAN AMENITIES			
Intent:	To promote the installation of amenities that contribute to a positive pedestrian experience and ensure destinations in communities are connected through convenient, safe, and accessible pedestrian connections. Walkable connections improves the physical and mental wellbeing of residents of all ages and abilities, and helps to reduce dependence on motor vehicle use, and limit air pollution and GHG emissions.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	☒ **Site Plan**

	Points	**Requirement**	**Documentation**
Good:	1 point	Pedestrian connections are provided between building entry and other destinations on the site and to destinations on adjacent properties. **AND** 1 type of pedestrian amenity is consistently included along on-site connections.	On the Landscape Plan: • Identify the pedestrian connections that link a building entry to destinations on site and to destinations on adjacent properties. • Highlight the pedestrian amenities provided along the pedestrian connections. Note: • Amenities include: benches, pedestrian oriented lighting, waste receptacles, public art, map stands, interpretive/commemorative signage, and weather shelters. • Destinations include: walkways, transit stops, parking areas (vehicle and bicycle), existing trails or pathways, schools, community centres, or commercial areas. • Pedestrian connections are only required to be built to the site boundary and not beyond (to establish future connection possibilities). • Privately owned public spaces (POPs) would incorporate multiple pedestrian amenities and can be a proposal considered under the Innovation metric.
Great:	+1 additional point (total 2 points)	More than 1 type of pedestrian amenity is consistently included along on-site connections and between the site and adjacent destinations.	

References:	• Toronto Green Standard v3 Tier I: Air Quality (AQ3.1) (CF, MHR)

M-6: BICYCLE PARKING			
Intent:	To facilitate cycling and reduce dependence on motor vehicle use.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	1 point	Bicycle parking spaces are provided at a rate of 20% higher than municipal standards/guidelines.	On the Site Plan drawing identify the: • Building types included in the proposed development (e.g. mixed-use, residential, commercial, retail, and institutional). • Location of bicycle parking provided. • Total number of bicycle parking spaces required by the municipal standard/guideline. • Total number of bicycle parking spaces provided per building. • Percent of total bicycle parking provided relative to the municipal standard/guideline. • Distance to entrances or access from bicycle parking. Vaughan's municipal standards/ and guidelines are the By-law 1-2021 Table 6-7 (VMC), 6-8 (all other areas).
Great:	+1 point additional point (total 2 points)	Bicycle parking spaces are provided at a rate 50% higher than municipal standards/guidelines.	
Excellent:	2 points	Bicycle parking is located in close proximity to building entrances. Short-term bicycle parking is located within 25m of building entrance if outdoors. Long-term bicycle parking is within 50 meters of an exit or entrance area. **AND** All bicycle parking is weather protected.	
Excellent	1 point	1 shower and change room are provided (for men and women) per 30 bicycle parking spaces associated with non-residential development.	
References:	• Community Wellbeing Framework (2018): Environment Domain, Mobility 3B • Whitby Green Standard v1 (2020): TT1.2, TT1.12, TT1.13 (Site Plan) • Thinking Green Item (2018): 25 (Site Plan) • Toronto Green Standard v3 Tier I: Air Quality (AQ2.2, AQ2.3, AQ2.4) (CF, MHR); Tier II: Air Quality (AQ2.5) (MHR)		

M-7: TRAILS AND CYCLING INFRASTRUCTURE			
Intent:	To implement pedestrian and cycling infrastructure to further promote active forms of transportation. Walking and cycling results in GHG emissions savings and less air pollution. Active transportation also provides health benefits.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**

Good:	1 point	Advance the objectives of the applicable municipal Active Transportation Master Plan and/or Trails/Pathways Master Plan by implementing the objectives of the Plan.	In the Transportation Study: • Identification of any existing or planned multi-use trails and/or bicycled lanes located in the proposed development. • If applicable, highlight the multi-use trails and/or bicycle lanes that comply with the municipal active transportation/trails master plan. • If applicable, identify the additional features that advance the objectives of the active transportation/trails master plan (e.g. trailheads, trail signs, information signage, and/or seating areas).
References:	• Community Wellbeing Framework (2018): Environment Domain, Mobility 3B • Whitby Green Standard v1 (2020): TT1.2 (Draft Plan of Subdivision, Site Plan) • Thinking Green (2018): 25 (Draft Plan of Subdivision); 26 (Site Plan)		

M-8: ACTIVE TRANSPORTATION NETWORK			
Intent:	To promote active transportation through the provision of public multi-purpose trails/paths and cycling infrastructures. Cycling results in carbon savings and less air pollution. It also provides health benefits.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	2 points	100% of residents/jobs are within 400 meters of: • An existing public multi-use trail or cycling infrastructure; or • A municipally approved public multi-use trail or cycling infrastructure (identified in a Council approved trail/cycling master plan, but not yet constructed); or • A proposed public multi-use trail or cycling infrastructure that is proposed within the development.	In the Traffic Impact Study, Transportation Demand Management Plan, or Transportation Study: • Provide a map showing the subject lands, a 400 meter buffer from the boundaries of the subject lands, as well as any existing or planned cycling networks. Note: • These points are only awarded if a cycling network is included in the project boundary.
References:	• Community Wellbeing Framework (2018): Environment Domain, Mobility 3B		

M-9: DISTANCE TO PUBLIC TRANSIT			
Intent:	To promote and support alternative transportation modes to personal automotive vehicle use. Transit-oriented communities reduce vehicle-kilometres traveled and associated emissions, have reduced traffic casualty rates and support walking and cycling which improves community health.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**

Good:	1 point	The site is within 800 meters walking distance to an existing or planned commuter rail, light rail, bus rapid transit or subway with frequent stops. OR The site is within 400 meters walking distance to 1 or more existing or planned bus stops with frequent service.	In the Urban Design Brief and/or Transportation Study (Draft Plans) and Traffic Impact Study and/or Transportation Demand Management Plan (Site Plan): • Include a map that shows the 200 meter, 400 meter, and/or 800 meter radii and the existing or planned commuter rail, subway, light rail, and bus stops with frequent service. Note: • *Frequent Service* is defined as transit with trips in intervals no greater than 30 minutes during peak times per line per direction and available during hours of typical building operation.
Great:	+1 additional point (total 2 points)	The site is within 400 meters walking distance to an existing or planned commuter rail, light rail, bus rapid transit, or subway with frequent stops. OR The site is within 200 meters walking distance to 1 or more bus stops with frequent service.	
References:	• LEED ND (v4) LT: Access to Quality Transit • Community Wellbeing Framework (2018): Environment Domain, Mobility 3B • Whitby Green Standard v1 (2020): TT.V.3, TT1.6 (Draft Plan of Subdivision); TT.V.3, TT1.7 (Site Plan) • Thinking Green (2018): 26 (Draft Plan of Subdivision); 27 (Site Plan)		

M-10: TRAFFIC CALMING			
Intent:	To encourage active transportation through the provision of safe, walkable streets by reducing car speeds. Walkable streets and traffic calming measures can provide a safer and more comfortable streetscape to cyclists and pedestrians, and help to reduce traffic speeds, volumes, and related emissions.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	1 point	75% of local streets/roads are designed with traffic calming strategies.	In a Transportation Study or Traffic Calming and Speed Management Report: • Highlight the new residential-only streets and new non-residential/mixed-use streets in the proposed development, as applicable. • Identify the percentage (%) of street length (broken out by residential only and non-residential/mixed use) that includes street calming strategies developed in consultation with municipal transportation planning staff. • Provide a drawing identifying the traffic calming strategies that are included in the project. Note: City of Vaughan Traffic Calming and Speed Management Guidelines and Warrants • Neighbourhood Traffic Committee Policy and Procedure • February 2022 TIS Guidelines
Great:	+2 additional points (total 3 points)	100% of local streets/roads are designed with traffic calming strategies.	
Good:	1 point	50% of non-residential and/or mixed-use streets are designed with traffic calming strategies.	

Great:	+2 additional points (total 3 points)	75% of non-residential and/or mixed-use streets are designed with traffic calming strategies.	Review and refer to traffic calming measures as per TAC's Canadian Guide to Traffic Calming to identify appropriate measures to enhance road safety and support a safe environment for all road users Traffic calming and speed management strategies may include but are not limited to: • Signage • Line painting • Lane narrowing • Accessible crossing • At-grade crosswalks • Bump-out curb extensions • Intersection medians
References:	• Whitby Green Standard v1 (2020): TT1.4 (Draft Plan of Subdivision, Site Plan)		

NATURAL ENVIRONMENT & PARKS

NE-1: TREE CONSERVATION			
Intent:	To support the conservation of healthy mature trees and the associated ecological, economic, and healthy benefits. Preserving trees can be a cost-effective method to improve the overall appearance of a community while providing ecological and climate change benefits.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	3 points	Preserve 25% of healthy mature trees in situ on site.	On an Arborist Report: • Identify all trees as per municipal standards. • Label all the healthy mature trees, including hedgerows, on the subject site, the trees that will be protected, moved or, removed as per municipal standards. • Provide the percent (%) of healthy tableland trees that will be protected in-situ Note: This metric applies for healthy, mature trees on the developable portion of the site (e.g. not in the protected natural heritage system). • Healthy mature trees include those evaluated as being fair or above by a certified Arborist and at least 20 cm DBH (diameter at breast height). Vaughan's Tree Protection By-law 052-2018 (Consolidated).pdf (vaughan.ca)
Great:	+2 additional points (total 5 points)	Preserve 50% of healthy, mature trees in situ on site or preserve 100% of healthy hedgerows in situ on site.	
References:	• Town of Whitby Green Standard v1 (2020): LUN1.4 (Draft Plan of Subdivision, Site Plan)		

NE-2: SOIL QUANTITY AND QUALITY FOR NEW TREES			
Intent:	To provide soil quantity and quality that enables new trees to thrive. Higher amounts of good quality soil help ensure the success of vegetation.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	2 points	Provide a minimum of 30 cubic meters (m^3) of soil for each new tree and a minimum of 100 centimeters uncompact soil depth. Where there is a grouping of trees, provide a minimum of 20 cubic meters (m^3) of soil for each new tree, and a minimum of 100 centimeters of uncompact soil depth, or equivalent municipal standard.	On the Landscape Plan: • Identify the tree planting locations, soil volume, soil depth, and soil quality that will be provided for each tree. Note: • If the initial submission of the Draft Plan of Subdivision is too early in the development review process to provide the aforementioned details, provide a Letter of Commitment from a landscape architect and the owner/ developer/ builder confirming that the metric requirement will be achieved and that details will be provided in the Landscape Plan during subsequent submissions.
Great:	+ 2 additional points (total 4 points)	Provide 25% more than the total soil volume required by municipal standards.	
Excellent	+2 points	Provide uncompact topsoil layer of tree pits, trenches, or planting beds with the following properties: • Organic matter content of 10 to 15% by dry weight and a pH of 6.0 to 8.0. • A minimum depth of 100 cm, or in accordance with municipal standards, whichever is higher. • Provide adequate drainage.	
References:	• TRCA (2012) Preserving and Restoring Healthy Soils Best Practice Guide for Urban Construction • Credit Valley Conservation (2017) Healthy Soils Guideline for the Natural Heritage System • Vineland Research (2019) Ontario Landscape Tree Planting Guide • Sustainable Technologies Evaluation Program (STEP) (2017) Compost Amended Planting Soil Specifications • Community Wellbeing Framework (2018): Environment Domain, Natural Systems 2A • Toronto Green Standard v3 Tier I: Ecology (EC1.1, EC1.2) (CF, LR, MHR); Tier II: Ecology (EC1.6) (LR, MHR)		

NE-3: HEALTHY SOILS			
Intent:	To ensure that new development contains healthy soil quality and quantity to help restore the natural functions of soils and vegetation and to help ensure the soil is appropriate for the proposed plantings. Limiting disturbance of healthy soil to protect soil horizons and maintain soil structure, as well as to support biological communities (above-ground and below-ground).		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**

Good:	1 point	A minimum topsoil depth of 200 millimetres is provided across the entire site (excluding paved surfaces).	On a Landscape Plan: • Identify the minimum topsoil depth that is provided across the entire site.
Great:	+1 additional point (total 2 points)	A minimum topsoil depth of 300 millimetres is provided across the entire site (excluding paved surfaces).	
References:	• TRCA Preserving and Restoring Healthy Soils Best Practice Guide for Urban Construction • CVC's Healthy Soil Guidelines for Natural Heritage System • Sustainable Technologies Evaluation Program (STEP) (2017) Compost Amended Planting Soil Specifications • Thinking Green (2018): 5 (Draft Plan of Subdivision, Site Plan)		

NE-4: NATURAL HERITAGE CONNECTIONS			
Intent:	To provide connections to nature and green spaces to benefit human health through proximity or access, and to minimize the amount of the natural heritage that is backlotted by residential development.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	2 points	Provide physical public connections (such as public access blocks, single loaded roads, parks, sidewalks, etc.) to 25% of the length of the natural heritage system that abuts the proposed development (interface between development and natural heritage systems).	On a Landscape Plan or Site Plan: • Identify the natural heritage features within the proposed development. • Identify all roads, sidewalks, pathways, and parks adjacent to any natural heritage features, and include the length of each that directly abuts the natural heritage feature. • Determine the length of natural heritage system (all natural heritage features) within the site. • Determine what percentage (%) of the natural heritage system with potential access to the site has been provided with physical public connections. Note: • Percentage (%) of the natural heritage system (NHS) is determined by the length of the NHS perimeter. • Private yards (e.g. backlotting) and parking lots will not be counted as part of the physical public connection border.
Great:	+2 additional point (total 4 points)	Provide physical public connections (such as public access blocks, single loaded roads, parks, sidewalks, etc.) to 50% or more of the length of the natural heritage system that abuts the proposed development (interface between development and natural heritage systems).	
References:	• Thinking Green Item (2018): 2 (Draft Plan of Subdivision, Site Plan)		

NE-5: NATURAL HERITAGE SYSTEM ENHANCEMENTS			
Intent:	To improve natural heritage system, particularly with respect to wildlife habitat and/or ecological functions.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	1 point	Provide and implement Woodland Management Plan within and/or abutting the subject lands, where not already required by the municipality.	Provide a Woodland Management Plan in accordance with the municipal Terms of Reference. Note: • This metric is not applicable for Block Plans.
Good:	1 point	Provide and implement an Invasive Species Management Plan for a natural heritage feature, where not already required by the municipality.	Provide an Invasive Species Management Plan in accordance with the municipal Terms of Reference. Note: • This metric is not applicable for Block Plans.
Good:	1 point	Provide habitat structure(s) for species at risk, such as bird structures, butterfly boxes, and hibernaculum.	In the Environmental Impact Study: • Outline the design and ecological function of the habitat structure(s). • Provide a figure illustrating the proposed locations of the habitat structure(s). • Provide a design specification of the habitat structure(s). Note: • This metric is not applicable for Block Plans
Great	2 points	Provide a form of natural heritage restoration/enhancement that provides a net ecological gain, above municipal requirements.	In the Environmental Impact Study: • Outline the natural heritage restoration/enhancement, its ecological function, and how it achieves a net ecological gain above municipal requirements. • Provide a figure illustrating the proposed location(s) of the natural heritage restoration/enhancement. • Provide a design specification for the natural heritage restoration/enhancement.
Excellent	5 points	Design and deliver a linear continuous/uninterrupted naturalized corridor, not already identified as a natural heritage feature in the Official Plan or through technical studies, which creates a functional linkage between at least two natural heritage features.	In the Environmental Impact Study: • Outline the design and ecological function (e.g. wildlife corridor, amphibian passage, and meadow-way/grassland) of the linkage. • Provide a plan/figure illustrating the proposed linkage including dimensions, landscape treatment, and the natural heritage features it will be connecting, which will be used to inform detailed design.
References:	• TRCA, Invasive Plant List • Credit Valley Conservation, Native Plants for Pollinators • Toronto Pollinator Protection Strategy, City of Toronto • Community Wellbeing Framework (2018): Environment Domain, Natural Systems 2A • Whitby Green Standard v1 (2020): LUN1.8, LUN1.9, LUN.V.1, LUN.V.2 (Draft Plan of Subdivision); LUN1.10, LUN1.11, LUN.V.2, LUN.V.3, LUN.V.4 (Site Plan) • Thinking Green Item (2018): 1 (Draft Plan of Subdivision, Site Plan)		

NE-6: SUPPORTING POLLINATORS			
Intent:	To provide landscape materials that support and provide habitat for pollinators (e.g. birds, bees, butterflies). Without pollinators, much of the food we eat and the natural habitats we enjoy would not exist. Pollinators are under increasing stress due to habitat loss, invasive species, diseases, pesticides, and climate change.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	1 point	Native plants that support pollinators make up 25% of total quantity of plants proposed on the landscape plan.	On the Landscape Plan: • Identify the species and proposed quantities of native plants (trees, shrubs, perennials, etc.) that support pollinators on the plant list. • Provide a calculation that illustrates the total percentage of native pollinator plants by dividing the number of native pollinator plants by the total quantity of all plants. Pollinator plant species must be selected from the Credit Valley Conservation "Native Plants for Pollinators", Toronto and Region Conservation Authority "Maintaining Your Pollinator Habitat" or alternative list approved by the municipality.
Great:	+1 additional point (total 2 points)	Native plants that support pollinators make up 50% of the total quantity of plants proposed on the landscape plan.	
References:	• Credit Valley Conservation, Native Plants for Pollinators, https://cvc.ca/wp-content/uploads/2017/04/17-uo-nativeplantsforpollinators-booklet-v8-web.pdf • Toronto Pollinator Protection Strategy, City of Toronto, https://www.toronto.ca/wp-content/uploads/2018/05/9676-A1802734_pollinator-protection-strategy-booklet.pdf • TRCA, Maintaining Your Pollinator Habitat, https://trca.ca/app/uploads/2016/04/PollinatorMaintenanceGuide_WEB.pdf • TRCA, Creating Habitat, https://trca.ca/app/uploads/2016/04/2602-Stewardship_Habitat-SinglePg_PRESS.pdf • Community Wellbeing Framework (2018): Environment Domain, Natural Systems 2A • Whitby Green Standard v1 (2020): LUN1.7 (Draft Plan of Subdivision); LUN1.8, LUN1.9 (Site Plan) • Toronto Green Standard v3 Tier I: Ecology (EC3.1) (CF, LR, MHR)		

NE-7: DEDICATED FRUIT/VEGETABLE GARDEN SPACE			
Intent:	To promote locally grown food, improve physical and mental wellbeing, and to encourage social interaction.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	2 points	For multi-unit residential developments: • Provide garden space that is equal to 25 square metres (or 250 square feet) of the rooftop or total landscaped site area. • Provide a shed for gardening equipment storage. • Provide a water source for the garden space. For ground-oriented residential developments: *With yards:* • For each residential lot, provide a raised garden bed that is at least 12 inches tall, 4 inches wide, and 6 inches long. *Without yards:*	On the Landscape Plan: • Determine the total landscaped area of the project. • Specify total area of garden space provided. • Identify supportive garden infrastructure (e.g. shed and water source). Note: • Garden space is defined as land and/or an alternative mechanism with a growing medium that will be used to cultivate plants for food. • Garden beds must provide at least 12 inches of garden soil depth (this garden soil will be provide above the standard topsoil). • Achieving this metric for ICI can be considered for meeting the Innovation metric requirements.

		• For each unit, provide container gardens that can accommodate 15 gallons of soil and are at least 12 inches deep.	
References:	• Living Community Challenge 1.2, Place: Urban Agriculture • LEED ND (v4) NPD: Local Food Production • Town of Whitby Green Standard v1 (2020): LSF1.1 (Draft Plan of Subdivision); LSF1.1, LSF.V.1 (Site Plan)		

NE-8: PARK ACCESS			
Intent:	To promote visual and physical access to public parks and to make it easier for people of all ages and abilities to integrate physical activity and social interaction as part of their daily activity.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	3 points	*For Brampton, Richmond Hill, and Markham:* Provide 2 road frontages for each park (e.g. urban square, parkette, and neighborhood park) and, *For City of Vaughan only:* A minimum of 50% of a park has a public street frontage.	On the Site Plan (Site Plan), Urban Design Brief, Landscape Plan (Draft Plans), or Community Design Guidelines (Block Plan): • Highlight the urban squares, parkettes, neighborhood parks, and community parks included within the application. *For Vaughan only:* • Identify the linear meters of public road frontages for each park type, and percentage of park that has public road frontage.
Great:	+3 additional points (total 6 points)	*For Brampton, Richmond Hill, and Markham:* Provide 3 or more road frontages for all parks. *For City of Vaughan only:* Approximately 50-70% of a park has a public street frontage.	
References:	• Whitby Green Standard v1 (2020): HH1.2 (Draft Plan of Subdivision, Site Plan)		

NE-9: STORMWATER QUANTITY			
Intent:	To support a treatment-train approach to stormwater management, emphasizing source and conveyance controls to promote infiltration, evaporation, and/or re-use of runoff and/or rainwater. Managing stormwater at the early stages of the treatment-train can provide more resilient communities and reduce risks of downstream flooding and erosion.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	**☒ Site Plan**

	Points	Requirement	Documentation
Good:	2 points	Retain runoff volume from the 10 millimeter rainfall event on public and private sites.	In the Functional Servicing Report, Stormwater Management Plan (Block, Plan, Draft Plan and Site Plan), or Master Environmental Servicing Plan (Block Plan): • List and describe the design measures used to retain stormwater runoff on-site. Measures could include (but not limited to) Low Impact Development measures, stormwater management ponds. • Highlight the location of design measures (if any) on the applicable plan. • Confirm that the quantity and flood controls are in accordance with applicable municipal and conservation authority requirements. • Calculations and signoff by a qualified professional (e.g. engineer) quantifying the amount of runoff that will be retained on site. WHAPA-Q
Great:	+2 additional points (total 4 points)	Retain runoff volume from the 15 millimeter rainfall event on public and private sites.	
Excellent:	+3 additional points (total 7 points)	Retain runoff volume from the 25 millimeter rainfall event on public and private sites.	
References:	• Toronto Green Standard v3 Tier II: Water Balance, Quality, and Efficiency (WQ 2.2) (LR, MHR); Tier III: Water Balance, Quality, and Efficiency (WQ 2.3) (LR, MHR), (WQ 2.1) (CF) • TRCA's Stormwater Management Criteria • TRCA and CVC (2012) Low Impact Development Stormwater Management Planning and Design Guide • Whitby Green Standard v1 (2020): SW1.1, SW1.5 (Draft Plan of Subdivision); SW1.1, SW1.6 (Site Plan) • Thinking Green (2018): 8 (Draft Plan of Subdivision); 12 (Site Plan) • LEED ND v4 GIB: Rainwater Management • LEED BD+C v4 SS: Rainwater Management		

NE-10: STORMWATER QUALITY			
Intent:	To protect receiving water bodies from water quality degradation that may result from development and urbanization. Controlling the quality of stormwater can provide for improved quality of receiving water bodies, resulting in fewer algae blooms, longer swimming seasons, and a variety of other ecological benefits.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	**☒ Site Plan**

	Points	Requirement	Documentation
Good:	1 point	Remove over 80% of Total Suspended Solids (TSS) from all runoff leaving the site during a 25 millimeter rainfall event (based on the post-development level of imperviousness).	In the Functional Servicing Report, Stormwater Management Plan (for Block Plan, Draft Plan or Site Plan), or Master Environmental Servicing Plan (for Block, Plan): • A list and description of the filtration measures used to treat the stormwater runoff on-site. • Strategies could include (but are not limited to): stormwater management ponds, oil-grit separators (ETV certified), filters, bioswales. • Highlight the design measures (if any) on a plan. • Quantify the percent (%) of TSS removed from a 25 mm rainfall event.
Great:	+4 additional points (total 5 points)	Remove over 90% of Total Suspended Solids (TSS) from all runoff leaving the site during a 25 millimeter rainfall event (based on the post-development level of imperviousness).	

References:

- Toronto Green Standard Tier I: Water Balance, Quality & Efficiency (WQ 3.1) (CF, LR)
- TRCA Stormwater Management Criteria
- TRCA and CVC Low Impact Development Stormwater Management Planning Design (2012)
- Whitby Green Standard v1 (2020): SW1.1, SW1.3 (Draft Plan of Subdivision); SW1.1, SW1.4 (Site Plan)
- LEED ND v4 GIB: Rainwater Management
- LEED BD+C v4 SS: Rainwater Management
- Thinking Green (2018): 9 (Draft Plan of Subdivision); 11 (Site Plan)

NE-11: POTABLE WATER USE			
Intent:	To facilitate the conservation and efficient use of potable water.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	2 points	Reduce potable water used for irrigation by 50%, compared to a mid-summer baseline case.	Provide a Letter of Commitment from a qualified professional (architect, mechanical engineer, landscape architect) and the owner/developer/builder to confirm: • The project will be designed to reduce potable water requirements for irrigation. • The percent (%) reduction in potable water used to irrigate, relative to a mid-summer baseline case. For information on how to achieve this credit refer to LEED v4 BD+C WE Credit: Outdoor Water Use Reduction Option 2 and use the calculation tool to demonstrate. • The strategies used to reduce potable water demands. Strategies include: • Drought tolerant, native/ or adaptive vegetation that requires little to no water in the local climate. • Use of high-efficiency irrigation, such as drip irrigation. • Use of captured rainwater for irrigation. • If captured rainwater is used, provide a Letter from a Qualified professional (mechanical engineer) confirming the proposed cistern size and the calculations to demonstrate the volume of captured water expected.
Great:	+4 additional points (total 6 points)	No potable water is used for irrigation.	• Provide the documentation as requested for “Good”, unless no irrigation is being installed. • In the case where no irrigation is installed, provide a Letter of Commitment from qualified professionals (property managers, building owners, site owners) confirming that no irrigation will be installed past the establishment period and that sod will be allowed to go dormant and brown in off-season months.
References:	• LEED ND (v4) WE: Indoor Water Use Reduction; WE: Outdoor Water Use Reduction • LEED BD+C (v4.1) WE : Outdoor water use reduction • Toronto Green Standard v3 Tier II: Water Balance, Quality & Efficiency (WQ 4.3) (CF, LR, MHR) • Community Wellbeing Framework (2018): Environment Domain, Natural Systems 2C • Whitby Green Standard v1 (2020): SW1.7 (Site Plan)		

NE-12: MULTI-PURPOSE STORMWATER MANAGEMENT			
Intent:	To enhance the public use value of these facilities.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	1 point	Introduce beautification measures/amenities that beautify stormwater management ponds (e.g. public art, interpretive signage).	In the Functional Servicing Report or Stormwater Management Plan: • Identify beautification measures (public art, interpretative signage, visually pleasing infrastructure, etc.) included within the proposed development that are above and beyond City's landscape specifications and applicable standards. Note: • Any proposed measure will not reduce the performance function of the stormwater management pond. • Fountains are not acceptable beautification measures.
References:	• Appendix E - Stormwater Management Pond Design Guidance of TRCA SWM Criteria document (2012)		

INFRASTRUCTURE & BUILDINGS

IB-1: BUILDINGS DESIGNED/CERTIFIED UNDER ACCREDITED "GREEN" RATING SYSTEM			
Intent:	To recognize leadership and efforts to achieve independent third-party green certification systems that demonstrates high sustainability performance.Sustainability certification systems provide recognizable and verified certifications demonstrating to the public a high degree of sustainability performance is being achieved.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**

	Points	**Requirement**	**Documentation**

Good:	1 to 7 points (1 point per building, total 7 points available)	One or more buildings on site will be enrolled in a third-party green certification system.	• Provide a Letter of Commitment signed by a qualified professional (architect, professional engineer, LEED professional) and the owner/developer/builder that:
			  ○ Identifies the green rating system that will be achieved and certified for the building(s).
			  ○ Confirms registration for the third-party green rating system (e.g. receipt of the registration fees).
			• For Energy Star: A signed Partnership Agreement with EnerQuality acknowledging their roles and responsibilities as a partner and documenting their commitment to meet program requirements.
			
			Note:
			• Acceptable third-party accredited green rating systems include:
			• LEEDv4 or LEEDv4.1 (not including LEED for Commercial Interiors)
			• Certified Passive House Building
			• Living Building Challenge 4.0
			• CaGBC Zero Carbon Building Design Standard Version 2 (March 2020)
			• Energy Star Canada
			• One Planet Living
			• LEED ND v4

Excellent:	1 additional point per building	One or more buildings on site will be enrolled in multiple third-party green certification systems.	
Good:	2 points	The development will achieve LEED ND v4 (or equivalent).	
Excellent:	4 points	The development will achieve One Planning Living rating (or equivalent).	
References:	• Sustainable Design and Construction Policy for Municipal Buildings • Canada Green Building Council Zero Carbon Building Design Standard Version 2, March 2020 • York Region Sustainable Development through LEED Incentive Program • Thinking Green (2018): 12 (Draft Plan of Subdivision); 15 (Site Plan)		

IB-2: ACCESSIBILITY FOR MULTI-UNIT DWELLINGS			
Intent:	To enable a wide spectrum of people to live within and access new buildings, regardless of ability. To provide accessibility to occupants beyond the Ontario Building Code (OBC), which mandates a barrier-free path of travel is included in 15% of Multi-Residential Units as per OBC.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	**☒ Site Plan**

	Points	**Requirement**	**Documentation**
Good:	2 points	For multi unit-residential buildings design a minimum of 25% of the Dwelling Units (DU) to achieve accessibility features required in the Ontario Building Code.	Provide a Letter of Commitment signed by an accredited professional (e.g architect, engineer, accessibility consultant) that identifies how the metric has been achieved. On the Site Plan: • Identify the total number of units, the number of units that achieve the accessibility features required in the Ontario Building Code, and the total percentage of units that achieve the accessibility features required in the Ontario Building Code.
Great:	+1 additional points (total 3 points)	For multi unit-residential buildings, design a minimum of 35% of the Dwelling Units (DU) to achieve basic accessibility features required in the Ontario Building Code.	
References:	• LEED ND (v4) NPD: Visitability and Universal Design • Whitby Green Standard v1 (2020): ELE.V.3 (Site Plan) • Thinking Green (2018): 32 (Site Plan)		

IB-3: BUILDING ACCESSIBILITY (BARRIER FREE ENTRY/EGRESS)			
Intent:	To enable a wide spectrum of people and access new buildings, regardless of age or ability. Inclusive buildings and neighborhoods expand the number of potential users, thereby increasing value. They also enable more diversity in age of occupants and visitors.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	**☒ Site Plan**

	Points	**Requirement**	**Documentation**
Good:	1 point	50% of emergency exits above the Ontario Building Code (OBC) requirements are designed to be barrier free.	On a Site Plan drawing: • Identify all building entrances and exits. • Identify and quantify as a percentage (%) all building entrances and exits that will be barrier free as per the OBC.
Great:	+1 additional points (total 2 points)	100% of all entries and exits above the Ontario Building Code (OBC) requirements are designed to be barrier free.	
References:			

IB-4: EMBODIED CARBON OF BUILDING MATERIALS: SUPPLEMENTARY CEMENTITIOUS MATERIALS			
Intent:	To increase the growing awareness of the importance of addressing the embodied carbon and other GHG emissions associated with building materials. Materials can account for significant impact from their production, and reductions are available through selection and design. Often, lower impact materials are also more cost-effective.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	1 point	All concrete on site must have a minimum of 20% Supplementary Cementitious Materials (SCMs).	A Letter of Commitment from a qualified professional (professional engineer or architect) declaring that confirms concrete will have an SCM content of 20% or more (Good)/ 40% or more (Great) Note: • Supplementary cementing materials (SCMs) contribute to the properties of hardened concrete through hydraulic or pozzolanic activity. Examples include fly ashes, slag cement (ground, granulated blast-furnace slag) and silica fume. They can be used individually with Portland or blended cement or in different combinations. SCMs are often added to concrete to make concrete mixtures more economical, reduce permeability, increase strength, or influence other concrete properties.
Good:	+1 additional point (total 2 points)	40% of concrete on site must have a minimum of 40% Supplementary Cementitious Materials (SCMs).	
References:			

IB-5: EMBODIED CARBON OF BUILDING MATERIALS: LIFE CYCLE ASSESSMENT			
Intent:	To increase the growing awareness of the importance of addressing the embodied carbon and other GHG emissions associated with building materials. Materials can account for significant impact from their production, and reductions are available through selection and design. Often, lower impact materials are also more cost-effective.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Great:	1 points	Report embodied carbon emissions for the structural and envelope materials for every Part 3 buildings on site. To develop the report, use lifecycle assessment software such as Athena Impact Estimator for Buildings Life Cycle Assessment (LCA) software (or equivalent). Consider three methods to reduce the embodied carbon content of each building reviewed. Note: Part 3 residential buildings are large and complex buildings, four storeys and taller, and greater than 600 square metres in building area.	On a Site Plan Drawing: • Identify the building(s) that is being assessed, its use (residential, commercial, institutional), the estimated gross floor area, the number of storeys, and the number of dwelling units (If residential). • Confirm the number of Part 3 buildings on site that are being assessed (whichever is greater). • Provide a LCA report declaring the materials that are anticipated to be used and the estimated total embodied carbon emissions of these materials used for the structure and envelope. Athena Impact Estimator for Buildings:

			https://calculatelca.com/software/impact-estimator/ Refer to the Zero Carbon Building Standard for further guidelines on LCA assessments: https://www.cagbc.org/cagbcdocs/zerocarbon/CaGBC_Zero_Carbon_Building_Standard_EN.pdf
Excellent:	+4 additional points (total 5 points)	Commit to employing one or more carbon reduction strategies that would result in a 10% reduction in embodied carbon of the design.	In addition to the documentation requirements above, provide a Letter of Commitment from a qualified professional (professional engineer or architect) stating the intent to use one or more of low carbon design strategies to reduce the embodied carbon.
References:	• Canada Green Building Council, Net Zero Carbon Building Standard Version 2. March, 2020 • Athena Sustainable Materials Institute (September 2019) http://www.athenasmi.org/wp-content/uploads/2019/09/About_WBLCA.pdf		

IB-6: EMBODIED CARBON OF BUILDING MATERIALS: MATERIAL EFFICIENT FRAMING			
Intent:	To increase the growing awareness of the importance of addressing the embodied carbon and other GHG emissions associated with building materials.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Great:	3 points	For all low rise wood-framed construction, utilize at least 3 of the following advanced framing measures: • Pre-cut framing packages, • Engineered Floor Joist • Single Top-Plates • Two Stud Corners • Stud spacing greater than 406 mm (16”) on any storey, • Ceiling joist spacing greater than 406 mm (16”) on any storey, • Floor joist spacing greater than 406 mm (16”) on any storey. All corners have no more than 2 studs.	Provide a Letter of Commitment from the owner/developer/builder committing to practice material efficient framing and listing the measures that will be employed from the provided eligible measures. Note: • Embodied carbon can be defined as the lifetime greenhouse gas (GHG) emissions associated with material. It is life cycle thinking applied to a product, and includes GHG’s associated with the manufacture, transportation and installation of a product, any GHG’s related to product maintenance and renewal, and GHG’s associated with the end of life of the product. • Modular construction approach can assist in confirming these requirements.
References:	• Athena Sustainable Materials Institute (September 2019) http://www.athenasmi.org/wp-content/uploads/2019/09/About_WBLCA.pdf		

IB-7: HEAT ISLAND REDUCTION: NON-ROOF			
Intent:	To reduce ambient surface temperatures and reduce the urban heat island effect.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	2 points	For both Residential and Non-Residential Development: Use one or more of the following strategies to treat 50% of the site's non-roof hardscaping: • High albedo paving materials with an initial solar reflectance of at least 0.33 or SRI of 29. • Open grid paving with at least 50% perviousness. • Shade from existing or new tree canopy within 10 years of landscape installation. • Shade from architectural structures that are vegetated or have an initial solar reflectance of at least 0.33 at installation or an SRI of 29. • Shade from structures with energy generation. OR *For non-residential development only:* • Have a minimum of 75% of at-grade parking spaces under a cover.	On the Landscape Plan identify: • The area of the total hardscape on the site (excluding building footprint) • The strategies, locations, and size used to reduce heat island from the hardscape area (e.g. underground/covered parking, hardscape shading, hardscape materials with an SRI greater than 29, and open grid pavers with pervious greater than 50%). The following products have an SRI greater than 29: • White-coated gravel on the built-up roof (SRI 79), • White coating on a metal roof (SRI 82), • White cement tile (SRI 90), • New gray concrete (SRI 35). • For unit pavers and open grid/ pervious paving, provide examples of the products that are intended for the design and provide manufacturer's documentation with the SRI or solar reflectance value to confirm. Determine the percent (%) of the hardscape area that has employed heat island reduction strategies, relative to the total hardscape area. Note: • Hardscaping includes driveways, walkways, courtyards, surface parking areas, artificial turf, and other on-site hard surfaces.
Great:	+1 additional point (total 3 points)	Use one or more of the strategies presented in "Good" to treat 75% of the site's non-roof hardscaping.	
References:	• Toronto Green Standard v3 Tier I: Air Quality (AQ 2.1) (LR), (AQ4.1)(MHR) ; Tier II: Air Quality (AQ4.3) (MHR); (AQ 2.3) (LR), (AQ 4.1) (CF) • LEED ND (v4) GIB: Heat Island Reduction • LEED BD+C (v4) SS: Heat Island Reduction • Thinking Green (2018): 8 (Site Plan)		

IB-8: HEAT ISLAND REDUCTION: ROOF			
Intent:	To reduce ambient surface temperatures and reduce the urban heat island effect.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Great:	2 points	Cool roof installed for 100% of the available roof space	On a Landscape Plan, Elevation drawings, or Roof Plan: • Determine the area of Available Roof Space • For Cool Roof products provide examples of the products that are intended for the design and provide manufacturer's documentation with the SRI or solar reflectance value to confirm. • Determine the percent (%) area of roofing surfaces treated with a cool roof, green roof and/or solar PV as a percent (%) of the total available roof space. Note: • Available roof space for cool roof areas consists of the total roof area of the building or building addition excluding private terraces no greater in area than the floor of the abutting residential unit at the roof level. • Available Roof Space is defined as the total roof area minus the areas designated for renewable energy, residential private terraces, residential outdoor amenity spaces (to a maximum of 2m2/unit, and a tower roof on a building with a floor plate less than 750m2. The definition is from the City of Toronto Green Roof Bylaw. • Cool roofing materials have a minimum initial reflectance of 0.65 and minimum emittance of 0.90 or a three-year aged SRI value of 64 for a low-sloped roof and a three-year aged SRI of 15 for a steep-sloped roof. Low sloped roofs have a surface slope of less than 1:6 (9.5 degrees) and steeply sloped roofs have a surface slope greater than 1:6 (9.5 degrees).
Great:	4 points	Green roof installed for 50% of the available roof space	
Excellent	+2 additional points (total 6 points)	Green roof installed for 75% of the available roof space	
References:	• LEED ND (v4) GIB: Heat Island Reduction • LEED BD+C (v4) SS: Heat Island Reduction • Toronto Green Standard v3, Tier I: Air Quality (AQ4.2) (CF, MHR); (AQ 2.2) (LR) • Whitby Green Standard v1 (2020): LUN1.5, LUN1.8 (Site Plan) • Thinking Green Item (2018): 9 (Site Plan)		

IB-9: SOLAR GAIN CONTROL			
Intent:	To control solar heat gains through east and west facing windows.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	1 point	For a low-rise development: Provide exterior shading by planting at least one deciduous tree (50 to 70 DBH) per lot on the west side of each low density residential dwelling.	On the Landscape Plan, identify the new trees to be placed on the west side of each residential dwelling.
Great:	2 points	Provide exterior shading for all east and west facing windows.	On Elevation Drawings, identify the exterior shading method that will be used on all east and west facing windows. Note: • Acceptable exterior shading includes operable shutters, overhangs, brise soleil canopy, awnings, solar blinds, screens, horizontal louvers and jalousies.
References:	• Durham Region Climate Resilient Standard for New Houses (Draft 2018), Extreme Heat Protection Measures; Shading, Glazing, and Window Operability #2.		

IB-10: SOLAR READINESS			
Intent:	To encourage the use of renewable energy and reduce reliance on fossil fuel-based energy. Solar energy can provide cost-effective methods to reduce energy use and will have strong climate change benefits.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Great:	3 points	All buildings in the project are designed for solar readiness.	Provide a Letter of Commitment from a qualified professional (architect, energy, structural, electrical or mechanical engineer) and the owner/developer/builder that confirms all new buildings will be designed for solar readiness. Note: Designing for solar readiness may include: • Designate an area of the roof for future solar PV and/or solar thermal. • Design and build an adequate structural capacity of the roof structure. • 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). • Designate a 2m by 2m 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. • For more guidance on solar readiness, or to access a Solar Readiness Checklist, consult with NRCan Solar Ready Guidelines. Applicants are also encouraged to consult the National Renewable Energy Laboratory's Solar Ready Buildings Planning Guide for additional considerations for PV-ready provisions.
Great:	2 points	In the project, 1% of the total energy is generated on-site by renewable energy sources.	Provide a Letter of Commitment from a qualified professional (e.g. architect, electrical engineer, mechanical engineer, energy modeller) and the owner/developer/builder to confirm that the percent (%) of renewable energy will be included on-site. The percent (%) of renewable energy generated can be quantified by the following steps: • List the types of buildings (office, commercial, retail, residential multi-unit and/or single-unit). • Determine the total GFA for each building type and list the expected/approximate energy use intensities (EUIs) for each building type. • 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. Note: • Allowable forms of renewable energy systems include the following: • Solar photovoltaics (PV) technologies (e.g. solar panel, solar shingles),
Excellent	+1 additional point per percent (%)	In the project, more than 1% of the total energy is generated on-site by renewable energy sources, up to 5%.	

	increase up to 5 points (total 7 points)		• Solar thermal, • Biogas and biofuel, • Wind-based systems. • For greater clarity, it should be noted that geo-exchange systems (e.g. ground-source heat pumps) are considered a building energy efficiency measure, as opposed to a form of renewable energy generation. As such, these systems cannot be used for the on-site renewable energy requirement, but can instead be utilized to meet the energy efficiency targets. • The renewable energy calculations can be conducted either within the whole-building energy modelling software or through recognized third-party energy modelling tools such as RETScreen Expert or PVSyst. • Off-site solutions such as renewable energy certificates (RECs), carbon offsets, or power purchasing agreements (PPA) with renewable energy generators are not permitted to satisfy this measure unless otherwise approved by the City.
Good Target (Draft Plan Only)	3 points	For greenfield sites that provide ground-oriented development, 100% of dwellings in the project are designed for solar readiness.	Provide a Letter of Commitment from a qualified professional (architect, energy, structural, electrical or mechanical engineer) and the owner/developer/builder confirming that: • All dwellings in the project will be designed for solar readiness.
References:	• NRCAN Solar Ready Guidelines • Toronto Green Standard v3 Tier II: Energy Efficiency, GHG & Resilience (GHG 2.1) (CF, MHR), (GHG 2.2) (LR) • Whitby Green Standard v1 (2020): ECC1.2, ECC.V.1 (Draft Plan of Subdivision); ECC1.2, ECC.V.1, ECC.V.2, ECC.V.3 (Site Plan) • Thinking Green Item (2018): 13 (Draft Plan of Subdivision); 16 (Site Plan)		

IB-11: ENERGY STRATEGY			
Intent:	To encourage the early consideration and incorporation of sustainable design features in the planning process relating to improved building energy efficiency, carbon reduction, and resilience, as well as to take advantage of district-scale opportunities in the case of multi-building developments.		
Applicable to:	**☒ Block Plan**	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Great:	3 points	Develop an Energy Strategy for the proposed development that includes the following, as applicable: • High-level energy analysis using archetype modelling or benchmarking data to estimate the overall energy consumption and GHG emissions associated with the development. • Identify and evaluate opportunities to reduce energy use intensity (EUI) and greenhouse gas emissions (GHG) intensity down to a net-zero ready level of performance through various measures, such as more efficient building form and massing, orientation, improved building envelope	An Energy Strategy Report that meets the terms of reference provided by the City, and at a minimum, includes the following information: • Executive Summary, • Energy calculations, including data and assumptions, • Graphs of expected energy performance, • Conclusions / Recommendations, • Appendices: supporting documentation, references, etc.

		performance, highly efficient HVAC systems, heat recovery, and lighting solutions. • Analysis of low-carbon energy solutions and on-site renewable energy generation potential that can be incorporated into the development, such as rooftop photovoltaic (PV), geo-exchange systems, high-efficiency combined heat and power (CHP), thermal energy stores, and sewer water heat recovery. • Identify and evaluate opportunities for backing power systems and passive design features that will improve the resilience of buildings to area-wide power outages. For multi-unit development, also conduct the following: • In the case of multi-building development proposals or in intensification areas identified by the municipality, 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.	
Excellent:	+6 additional points (total 9 points)	In addition to developing an Energy Strategy, commit to meeting an energy use intensity (EUI) and greenhouse gas emissions intensity (GHGI) target for the site that strives towards a near-net zero emissions level of performance as agreed upon with the City. Develop a zero-carbon transition plan that lays out the pathway towards achieving carbon neutrality in the future through a variety of design measures, such as providing the necessary infrastructure for full building electrification and avoidance of on-site combustion of fossil fuels.	Provide an Energy Strategy report, as well as Letter of Commitment signed by the owners/developers/builders indicating commitment to meet a development-wide energy use intensity and greenhouse gas emissions intensity targets, as well as a zero-carbon transition plan that lays out specific design measures that will be incorporated to facilitate achievement of carbon neutrality in the future (for example, providing electrical infrastructure provisions to allow for full building electrification).
References:	• City of Toronto Energy Strategy Report - Terms of Reference		

IB-12: BUILDING ENERGY EFFICIENCY, GREENHOUSE GAS REDUCTION, AND RESILIENCE			
Intent:	To promote buildings that are designed to be energy-efficient with reduced operating costs and greenhouse gas emissions associated with building operations, while improving the thermal comfort of occupants and enhancing building resilience. Well-designed buildings that are energy-efficient can improve indoor and outdoor air quality and reduce greenhouse gas emissions.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**

	Points	Requirement	Documentation
Good:	3 points	**Part 9 Residential Buildings (3 storeys or less and less than 600 m² in gross floor area).** Design the building(s) to achieve ENERGY STAR® for New Homes version 17.1, R-2000® requirements, or equivalent. **Part 3 Buildings – Multi-Unit Residential, Office and Retail (more than 3 storeys or more than 600 m² in gross floor area).** Develop a whole-building energy model, and design and construct the building to achieve the following whole-building performance metrics: • Total Energy Use Intensity (TEUI): 170 kWh/m2/yr • Thermal Energy Demand Intensity (TEDI): 70 kWh/m2/yr • Greenhouse Gas Emissions Intensity (GHGI): 20 kgCO2/m2/yr. **All Other Part 3 Buildings** Develop a whole-building energy model, and design and construct the building to achieve at least a 15% improvement in energy efficiency over the Ontario Building Code (OBC) SB-10, Division 3 (2017) reference building.	• Provide a Letter of Commitment signed by an accredited professional and the owner/developer/builder that includes confirmation that requirements of this metric will be met. • Upon completion of construction, provide a Letter of Certification signed by an accredited professional that the metric requirements have been implemented and verified. Site Plan Approval (SPA) Energy Model Documentation Requirements: • Energy Model Report summarizing key modelling inputs, outputs, and assumptions, signed by a licensed professional. • Working Energy Model Simulation Files. • Mechanical and Electrical Design Brief. • Related supporting drawings and calculations done externally from the energy modelling software (for example, thermal bridging calculations). As-Built Energy Model Documentation Requirements: • Updated Energy Model Report. • Working Energy Model Simulation Files. • Mechanical and Electrical Design Brief. • Modelling Note: General, Building Level, Plant Level, System Level, Occupancy and Minimum Outdoor Air Rates, Warnings and Errors. • Take-off Calculations (Modeller's external calculations to support the model inputs). If applicable, the calculation for model workarounds, exceptions, process energy savings, renewable energy systems, district energy systems, or other required calculations. • Zoning Diagrams. • Outdoor Air Calculation Spreadsheets. • Architectural Drawings and Specifications (issued for construction/as-built). • Mechanical Drawings and Specifications (issued for construction/as-built). • Electrical Drawings and Specifications (issued for construction/as-built). Note: For TEUI and TEDI Energy Modelling Guidelines and calculating GHGI, please refer to the Energy Efficiency Report Submission & Modelling Guidelines For the Toronto
Great:	+4 additional points (total 7 points)	**Part 9 Residential Buildings (3 storeys or less and less than 600 m² in gross floor area).** Design, construct, and label the building(s) to achieve ENERGY STAR® for New Homes version 17.1, R-2000® requirements, or equivalent.	

		Part 3 Buildings – Multi-Unit Residential, Office and Retail (more than 3 storeys or more than 600 m² in gross floor area). Develop a whole-building energy model, and design and construct the building to achieve the following whole-building performance metrics: • Total Energy Use Intensity (TEUI): 135 kWh/m2/yr • Thermal Energy Demand Intensity (TEDI): 50 kWh/m2/yr • Greenhouse Gas Emissions Intensity (GHGI): 15 kgCO2/m2/yr **All Other Part 3 Buildings** Develop a whole-building energy model, and design and construct the building to achieve at least a 25% improvement in energy efficiency over the Ontario Building Code (OBC) SB-10, Division 3 (2017) reference building.	Green Standard (TGS) Version 3: Energy Efficiency Report Submission & Modelling Guidelines (toronto.ca)
Excellent:	+6 additional Points (total 13 points)	**Part 9 Residential Buildings (3 storeys or less and less than 600 m² in gross floor area).** Design and construct the building(s) to be Net Zero ready in accordance with the CHBA Net Zero Home Labelling Program, or equivalent. **Part 3 Buildings – Multi-Unit Residential, Office and Retail (more than 3 storeys or more than 600 m² in gross floor area).** Develop a whole-building energy model and design the building to achieve the following whole-building performance metrics associated with a near-net zero emissions level of performance: • Total Energy Unit Intensity (TEUI): 100 kWh/m2/yr • Thermal Energy Demand Intensity (TEDI): 30 kWh/m2/yr • Greenhouse Gas Emissions Intensity (GHGI): 10 kgCO2/m2/yr **All Other Part 3 Buildings** Develop a whole-building energy model and design the building to achieve at least a 37% improvement in energy efficiency over the Ontario Building Code (OBC) SB-10, Division 3 (2017) reference building.	

Exceptional	+8 additional points (total 21 points)	**Part 9 Residential Buildings (3 storeys or less and less than 600 m^2 in gross floor area).** Design and construct the building(s) in accordance with the CHBA Net Zero Homes Labelling Program, or Passive House standards, or equivalent. **Part 3 Buildings – Multi-Unit Residential, Office and Retail (more than 3 storeys or more than 600 m^2 in gross floor area).** Develop a whole-building energy model and design the building to achieve the following whole-building performance metrics associated with a near-net zero emissions level of performance: • Total Energy Unit Intensity (TEUI): 75 kWh/ m2 yr • Thermal Energy Demand Intensity (TEDI): 15 kWh/m2/yr • Greenhouse Gas Emissions Intensity (GHGI): 5 kgCO2/m2/yr **All Other Part 3 Buildings** Develop a whole-building energy model and design the building to achieve at least a 50% improvement in energy efficiency over the Ontario Building Code (OBC) SB-10, Division 3 (2017) reference building.	
Good:	3 points	**Metering** Install electricity and/or thermal sub-meters for all energy end-uses that represent more than 10% of the building's total energy consumption, following the requirements laid out in LEED v4 Reference Guide Advanced Energy Metering credit. For buildings with multiple tenants, provide energy sub-metering for each commercial/institutional tenant, and per residential suite.	Provide 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.

Great:	3 points	Conduct best practice commissioning, per the requirements referenced in LEED BD+C v4 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.)	Provide a Letter of Commitment signed by the owner/developer/builder confirming that building commissioning will be carried out per the requirements of LEED v4 BD+C Fundamental Commissioning and Verification pre-requisite.
Excellent:	4 points	**Airtightness Testing** Conduct a whole-building air leakage test to improve the quality and airtightness of the building envelope.	Provide Letter of Commitment signed by the owner/developer/builder that an airtightness testing provider will be retained to conduct a whole-building air leakage test. • It is recommended that applicants follow ASTM WK35913 Standard Test Method for Determining the Air Leakage Rate of Large or Multi-zone Buildings or US Army Corps of Engineers (USACE) Air Leakage Test Protocol. • Projects will conduct an operational envelope airtightness test under negative pressure producing a multi-point regression. However, projects are permitted to pursue negative and positive pressure testing and produce a building envelope test where HVAC-related openings are excluded as in the Passive House standard. • Projects will target a test pressure of 75Pa. Projects unable to achieve 75Pa must follow either ASTM W35913 alternative test methods; Repeated Single-Point Test or a Repeated Two-Point test and demonstrate compliance using projected curves for airtightness at 75Pa. • If the whole building cannot be tested as one zone, it is acceptable to test a zone that can be partitioned temporarily with adjacent zones “Guarded” as buffer zones using blower door equipment. Note that the air leakage rate should be normalized to the exterior surface area and not include the guarded surface areas. • All materials, assemblies, and systems that form the continuous air barriers systems must be installed including any HVAC equipment, ducts, and fittings included in the test boundary. • Upon completion, the applicant shall provide a completed airtightness testing report to City officials. • For low-rise developments, conduct airtightness testing for 15 percent of the dwelling.
References:	• Toronto Green Standard v3: Energy Efficiency, GHG & Resilience (CF, LR, MHR) • Whitby Green Standard v1 (2020): ECC1.4, ECC1.5, ECC1.6, ECC1.7, ECC.V.4, ECC.V.6 • Thinking Green Item (2018): 13 (Site Plan)		

IB-13: RAINWATER AND GREYWATER USE			
Intent:	To reduce potable water use for interior building functions.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	1 point	Rainwater or greywater is captured on-site and used for exterior uses (e.g. landscape irrigation). Buildings designed for rainwater and/or greywater use readiness (e.g. plumbing infrastructure rough-ins or dedicated cistern space for rainwater or greywater use or greywater irrigation that may be connected in the future are included in the building).	Rainwater Use for Exterior Functions • On the Landscape Plan identify the type and location of rainwater capture/use infrastructure. Greywater Use for Exterior Functions • On the Landscape Plan identify the type and location of greywater capture/use infrastructure.
Great:	+3 additional points (total 4 points)	*Greywater Use for Interior Functions* Greywater is captured on site, treated, and used for toilet and urinal flushing, as well as priming flood drains within a home. OR *Rainwater Use for Interior Functions* Rainwater is captured on site and used for toilet and urinal flushing.	Greywater and/or Rainwater Use for Interior • A Letter of Commitment signed by a qualified professional (e.g. architect, engineer) and the owner/developer/builder committing that the project will either be designed to provide greywater and/or rainwater use for internal functions, specifying which internal functions and the potential technology/infrastructure that will be used. Note: • *Greywater* is wastewater generated from dish washing, hand washing, laundry, bathing and showering. • All Greywater and Rainwater use must comply with Ontario Building Code.
References	• Thinking Green (2018): 19 (Site Plan)		

IB-14: BACK-UP POWER			
Intent:	To encourage the provision of back-up power that enables the functioning of key utilities/building functions during power failures resulting from extreme weather events.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	1 point	Provide rough-ins to allow for the installation of external generators/auxiliary power supply at a later date.	Provide a Letter of Commitment stating that all residential dwellings will be provided rough-ins to allow for the installation of external generators/auxiliary power supply at a later date. Note: • Applies to all residential building types.
Good	1 point	For mid-rise and high-rise buildings, provide a refuge area with heating, cooling, lighting, potable water, and power available for 72 hours.	On the Floor Plans, identify the common refuge area. Provide a Letter of Commitment stating that the refuge area will be provided and supplied with heating, cooling, lighting, potable water, and power available for 72 hours. Note: • Applies to residential buildings that contain central amenity/lobby space. A refuge area should be a minimum size of 93m2 (1000 square feet), and/or 0.5m2/occupant and may act as building amenity space during normal operations. • 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.
Great	3 points	Provide 72 hours of back-up power to essential building systems.	Provide a Letter of Commitment stating that at least 72 hours of back-up power to essential building systems will be provided. Note: • Provide a 72 hour minimum back-up power system, preferably using a non-fossil fuel source, to 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. • Applies to multi-unit residential buildings only.
References:	• Durham Region Climate Resilient Standard for New Houses (Draft 2018), Basement Flood Protection Measures; Enhanced Protection #18 • Toronto Green Standard v3 Tier II: Energy Efficiency, GHG & Resilience (GHG 5.2) (CF, MHR) • City of Toronto. Minimum Backup Power Guidelines for MURBs, Voluntary Performance Standards for Existing and New Buildings (2016). • City of Brampton. Emergency Preparedness Guide. • Whitby Green Standard v1 (2020): ECC.V.7 (Site Plan)		

IB-15: EXTREME WIND PROTECTION FOR GROUND-ORIENTED DEVELOPMENT			
Metric Intent:	• To increase the resistance of homes to the impacts of high wind events, and make them more resilience to the impacts of climate change.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	2 point	Roof to Wall Connections: • Tie roof rafters, roof trusses or roof joists to load-bearing wall framing in a manner that will resist a factored uplift load of 3 kN. This measure requires adequate connection of the top plate to the supporting wall studs, combined with adequate continuous vertical load path. If continuous structural wall sheathing (see Measure A.2.3) is not applied, then a top-to-bottom inspection to address all potential weak links in the continuous vertical load path using additional tires, straps or related measures should be applied. **AND** • When engineered connectors are used, builders should request that truss manufacturers supply appropriate roof-to-wall connections along with trusses. Stud to Sill Plate Connection • Installation of metal straps or connectors to connect lower storey wall studs to the sill plate.	Provide a Letter of Commitment stating that roof to wall, and stud to sill plate connections will be provided as specified in this metric. Note: • Builders should request that truss manufacturers supply appropriate roof-to-wall connectors along with trusses.
References:	• Institute for Catastrophic Loss Reduction, Increasing High Wind Safety for Canadian Homes: A Foundational Document for Low-Rise Residential and Small Buildings (2019) • Sandink, D., et al. Increasing High Wind Safety for Canadian Homes: A Foundational Document for Low-Rise Residential and Small Buildings. (April 2019) • Whitby Green Standard v1 (2020): ECC1.8 (Site Plan)		

IB-16: SUB-METERING OF THERMAL ENERGY AND WATER			
Metric Intent:	To include sub-metering that allows measurement of individual unit consumption, which helps residents understand how their behaviour drives energy costs, and motivates change in behaviour, often resulting in reductions in energy consumption.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	2 points	Buildings are designed to include thermal energy meters for each tenant in multi-tenant residential, commercial/retail buildings.	A Letter of Commitment signed by an accredited professional (e.g. architect, engineer) and the owner/developer to confirm that all buildings will be designed and constructed to include thermal energy and/or water meters for each unit.
Good	2 points	Buildings are designed to include water meters for each tenant in multi-tenant residential, commercial/retail buildings.	
References:	• Toronto Green Standards v3 Tier II: Energy Efficiency, GHG & Resilience (GHG 4.4) (CF, MHR) • Whitby Green Standard v1 (2020): SW.V.1, ECC.V.4 (Site Plan) • LEED BD+C (v4) WE: Water Metering, EA: Advanced Energy Metering • Thinking Green 2018): 20 (Site Plan)		

IB-17: LIGHT POLLUTION REDUCTION			
Intent:	To reduce nighttime glare and light trespass from the building and the site. Light pollution can be perceived as an inefficient use of energy in addition to its negative impacts on neighbors and night time animals.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	1 point	All exterior fixtures are Dark Sky Compliant	A Letter of Commitment from a qualified professional (architect, energy, structural, electrical or mechanical engineer), and the owner/developer/builder confirming that: • All fixtures intended for exterior lighting will be Dark Sky Compliant. Note: • In alignment to the TGS v3 EC5.1 credit, the following guidance is provided for Dark Sky Compliant fixtures on the City's TGS website and can be used for this metric: • Dark Sky Compliant fixture must have the *Dark Sky Fixture Seal of Approval* which provides objective, third-party certification for lighting that minimizes glare, reduces light trespass and doesn't pollute the night sky. • If a Dark Sky Fixture Seal of Approval is not available fixtures must be full-cutoff and with a colour temperature rating of 3000K or less. • All exterior light fixtures should be efficient while providing minimum illumination levels sufficient for personal safety and security. • Efficient exterior lighting is defined as 60 Lumens/Watt minimum system efficiency.

			• Safety and security lighting should minimize glare and/or light trespass. For more information see the *Best Practices for Effective Lighting.*
References:	• LEED ND (v4) GIB: Light Pollution Reduction • LEED BD+C (v4.1) SS: Light Pollution Reduction • Toronto Green Standard v3 Tier I: Ecology (EC5.1) (CF, LR, MHR) • City of Vaughan Urban Design Guidelines • City of Markham Bird Friendly Guidelines		

IB-18: BIRD-FRIENDLY DESIGN (i.e. BIRD SAFE DESIGN)			
Intent:	To reduce the incidents of bird collisions and provide an urban environment where birds can thrive. The built environment can have strong negative impacts on birds. Design and system selection can result in fewer bird collisions and deaths.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	2 points	A combination of Bird-Friendly Design strategies on at least 85% of contiguous glass area greater than 2 square meters (m^2) within the first 16 meters of the building above-grade (including interior courtyards) and above green roofs is applied. **AND** The remaining 15% of glazed windows do not need to be treated unless the glazing is larger than 2 square meters (m^2) or in close proximity to open spaces, a green roof or a natural heritage feature. Bird-Friendly Design Strategies may include: • Visual patterns on glass, • Window films, • Fenestration patterns, • Angled glass downwards, • Reducing night sky lighting. • Visual markers provided on the glass of proposed buildings with spacing no greater than 5 centimeter x 5 centimeter.	On the building Elevation drawings: • Highlight and declare the total area of contiguous glass, below 16m above grade that is greater than 2 m^2. • Indicate the areas treated bird friendly design strategy, noting which strategy has been used. • Quantify the total area of continuous glass that has been treated by bird-friendly design strategies and confirm that it is at least 85%. Confirm that the visual markers on the glass have spacing no greater than 5cm x 5cm.
Good:	2 points	Apply Bird-Friendly Design strategies for ground-oriented residential development that is adjacent to natural heritage systems and open spaces.	Provide a Letter of Commitment signed by an accredited professional (architect or professional engineer) and the owner/developer that confirms Bird Friendly Design strategies are incorporated for developments adjacent to natural heritage systems and open spaces, listing which acceptable Bird Friendly Design strategies are to be included.
References:	• City of Vaughan: Urban Design Guidelines. • City of Markham Bird Friendly Guidelines • Whitby Green Standard v1 (2020): LUN1.7 (Site Plan)		

	• Toronto Green Standard v3 Tier I: Ecology (EC4.1) (CF, LR, MHR); Tier II: Ecology (EC4.3) (LR), (EC4.4) (MHR) • Thinking Green Item (2018): 10 (Site Plan)

IB-19: SOLID WASTE			
Intent:	To promote waste reduction and diversion of materials from landfills. A reduction in waste can be a very cost-effective method for material savings and results in fewer contributions to landfills and lower carbon emissions due to savings in materials.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	**☒ Site Plan**

	Points	Requirement	Documentation
Good:	1 point	A waste system for garbage, recycling, and organics is provided using one or more of the following options: • Three separate chutes for garbage, recycling, and organics collection on all floors.	On the Site Plan and/ or Floor Plans: • Identify the waste systems for garbage, recycling, and organic waste. Note: • The requirements apply to residential developments with 31 units or more and building heights greater than 5 storeys.
Good:	1 point	*Residential:* Accessible waste storage room with minimum 25 square meters (m^2) floor space for the first 50 units, plus an additional 13 square meters (m^2) for each additional 50 Units to accommodate containers and compactor units is provided. (*) *Non-residential:* Provide a fully enclosed waste storage space to accommodate garbage and materials diversion of recycling and organics. (*)	On the Site Plan and/ or Floor Plans: • Identify waste storage areas. Determine the floor area provided for the waste storage space and identify the separate garbage storage, recycling storage, and organics storage, • (Residential only): Determine the waste storage area required based on the number of dwelling units and declare on Floor Plans/ Site Plan drawing. • (*) Indicator is not applicable in Richmond Hill because this is already a municipal requirement (see Waste by-law 18-19 for more details).
Good:	1 point	A minimum of 10 square meters (m^2) for bulky items and items eligible for special collection services is provided. (*)	On a Site Plan and/ or Floor Plans: • Identify the storage for bulky items and declare the area. The 10m2 may not be shared with other purposes and be solely dedicated to bulky waste to meet this Excellent target, although it may be in the same room as other waste storage. • (*) Indicator is not applicable in Richmond Hill because this is already a municipal requirement (see Waste by-law 18-19 for more details). Note: • Bulky items are household items greater than 1.2m in any one dimension or weigh more than 20 kg (including furniture).
Great:	1 point	*Residential only:* Provide a dedicated collection area or room for the collection of household hazardous waste and/or electronic waste. (*)	On a Site Plan and/ or Floor Plans, • Identify the dedicated collection area or room for the collection of household hazardous waste and/or electronic waste. • (*) Indicator is not applicable in Richmond Hill because this is already a municipal requirement (see Waste by-law 18-19 for more details). Note:

			Household Hazardous Waste (HHW) includes car products, motor oil, windshield fluid; household cleaning products; paint, glue, primers, stains; pesticides and garden products; cooking oil; batteries; propane tanks; CFLs, syringes, medical sharps; medication; air fresheners, swimming pool chemicals.
References:	• Toronto Green Standard v3 Tier I: Solid Waste (SW1.1, SW1.2, SW1.3) (MHR); Tier II: Solid Waste (SW1.6) (MHR), (SW 1.2) (LR) • Whitby Green Standard v1 (2020): ZW1.1, ZW1.2 (Site Plan) • Thinking Green (2018): 34 (Site Plan)		

INNOVATION

I-1: INNOVATION			
Intent:	To encourage applicants to achieve innovative performance. Innovation strategies must demonstrate a comprehensive approach, have significant, measurable environmental benefits, and be better than standard practice.		
Applicable to:	☒ **Block Plan**	☒ **Draft Plan of Subdivision**	☒ **Site Plan**
	Points	**Requirement & Documentation**	
Exceptional:	Up to a total of 10 points based on the measurable sustainability benefit provided (additional points be awarded at the discretion of the municipality)	The proposed innovation metric must demonstrate a quantitative improvement in sustainable performance by identifying or establishing a baseline of standard performance and comparing that benchmark with the final design performance. Should this Innovation Metric be pursued by an applicant, as part of first submission, the applicant must provide a high-level concept of the proposed Innovation metric for review by the municipality. This concept should include a description of the sustainability benefit being pursued and the proposed point allocation. Applicant's may choose to explore innovative measures listed in the Innovation Library as detailed below and must indicate this as part of their submission. As part of the application review process of the first submission, the municipality will then provide a response as to whether the applicant's proposal will be considered further. Should the applicant's proposal be considered acceptable by the municipality to pursue further, applicants shall be required to demonstrate the following to the satisfaction of the municipality as part of the second submission. The applicant must explain in detail the benefit of the proposed innovation metric and submit: • The intent of the proposed innovation metric, • The proposed requirements for compliance, • The proposed submittals to demonstrate compliance, • The design approach to strategies used to meet the requirements. Innovation points will only be considered for strategies not already identified in the menu of metric options. Innovation points are not awarded for the use of a particular product or design strategy if the technology aids in the achievement of an existing metric, even if the project is not attempting to earn that metric. Corporate strategies are not considered innovative. *The Innovation Library* Idea #1 - Include on the site, a Tall Wood Building, an exemplary performance of in the intent behind Embodied Carbon metric and a demonstration of leadership in tall wood construction. A tall wood building is defined as a building over 6 storeys that uses wood for its structural system and is built using mass timber construction. Tall wood building projects with mass timber requires Alternative Solutions for approval under Ontario Building Code (OBC). Ontario's Tall Wood Building Reference (2017) is a technical resource to help applicants with how tall wood buildings can be designed as alternative solutions in a way that achieves the level of performance required by the Ontario Building Code. Idea #2 – Plan, design, and construct low-density residential areas such that they do not require retail natural gas service. Low-density residential dwellings will not rely on natural gas or other fossil fuel as any energy and heating source. Note: Development proponent can also request to meet with the municipality to discuss a potential innovation metric prior to the Pre-Consultation submission.	
References:	• LEED ND (v4) IN: Innovation • LEED BD+C (v4) IN: Innovation • Whitby Green Standard v1 (2020): Tier II: Innovation (Draft Plan of Subdivision, Site Plan)		

Photos by City of Brampton, City of Richmond Hill, City of Vaughan and City of Markham (top let to bottom right)

Updating the Sustainability Score Thresholds

For the Sustainable New Communities Program

(also referred to as the Sustainability Metrics Program)

February 2022

SSG

Disclaimer

SSG was retained by the City of Brampton to conduct the Sustainability Score Thresholds analysis presented in this report. Consequently, the values shown in this report are based on Brampton's suite of Sustainability Metrics, and they may differ for the other partner municipalities depending on any differences of Metrics between the partner municipalities.

Reasonable skill, care, and diligence has been exercised to assess the information acquired during the preparation of this analysis, but no guarantees or warranties are made regarding the accuracy or completeness of this information. This document, the information it contains, the information and basis on which it relies, and associated factors are subject to changes beyond the author's control. The information provided by others is believed to be accurate but has not necessarily been verified.

Land Acknowledgement

The City of Brampton recognizes and acknowledges that our work takes place on the Treaty Territory of the Mississauga's of the Credit First Nation, and before them, the traditional territory of the Haudenosaunee, Huron and Wendat. We also acknowledge the many First Nations, Metis, Inuit and other global Indigenous people that now call Brampton home. We are honoured to live in, work on, and enjoy this land.

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Clean Air Partnership

The Atmospheric Fund (TAF)

Region of Peel

York Region

Glossary

Benchmark Performance methodology	A methodology for establishing Sustainability Score Thresholds that uses the average performance of all development applications in each municipality to determine Bronze, Silver, and Gold thresholds.
Climate Performance	An approach to deepen the integration and reporting of climate change actions as part of the Sustainable New Communities Program.
Diffusion Innovation Theory	A social science theory developed by E.M. Rogers in 1962 that explains how, over time, new technology or ideas gain momentum and diffuse throughout society. The rate of uptake is described in five stages: innovators, early adopters, early majority, late majority, and laggards.
Greenhouse Gas Emissions (GHG)	Gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of terrestrial radiation emitted by the Earth's surface, the atmosphere itself and by clouds. This process causes the greenhouse effect. Also referred to as 'Emissions' throughout this report.
Multi-Criteria Analysis (MCA)	A method to support decision-making according to predetermined criteria and objects. MCAs combine quantitative and qualitative data to evaluate various criteria, are transparent, and allow for expert and local judgement to be incorporated.
Percentage Improvement methodology	A methodology for establishing Sustainability Score Thresholds that uses the median performance of all development applications in each municipality, and applies a percent increase to set its Bronze, Silver and Gold Score Thresholds.
Qualifier Metrics	Sustainability Metrics that have associated qualifying questions that determine if a Metric is applicable. This is dependent on development type and/or involvement of site features (e.g. does the site contain a cultural heritage resource?).
Universal methodology	A methodology for establishing Sustainability Score Thresholds that is based on the total points at the "Good" level. It uses the Diffusion Innovation Theory to determine the Thresholds.
Sustainability	Pertains to "meeting the needs of the present without compromising the ability of future generations to meet their needs" through the three pillars — economic, environmental, and social.
Sustainability Assessment Tool (SAT)	An online/digital platform developed as part of the Sustainable New Communities Program to allow applicants to calculate the Sustainability Score of an application. Each Sustainability Metric is

	assigned a point value, and the combination of Metrics selected by the development proponent results in an overall Sustainability Score.
Sustainability Indicator (Indicator)	A criterion/theme to measure sustainability performance of a development proposal. Sustainability Indicators are organized into five categories – Built Environment, Mobility, Natural Environment and Open Space, Infrastructure and Buildings, and Innovation, and have associated Metrics.
Sustainability Metric (Metric)	The specific measure/action that must be undertaken to improve sustainability performance. Each Metric is assigned a point value, and the combination of Metrics selected by the development proponent results in a Sustainability Score.
Sustainable New Communities Program	A program originally developed by the Cities of Brampton, Richmond Hill, and Vaughan, to encourage and evaluate the sustainability performance of development proposals. Also referred to as the Sustainability Metrics Program.
Sustainability Score	The total number of points based on the Sustainability Metrics achieved by a development proposal. The score will fall within one of three Thresholds - Bronze, Silver and Gold.
Sustainability Score Threshold	Performance levels achieved by the Sustainability Score of a development proposal, and categorized as Bronze, Silver, or Gold.

Contents

Executive Summary

The Sustainable New Communities Program (also referred to as the Sustainability Metrics Program) aims to advance the environmental sustainability performance of new construction in the City of Brampton, the City of Richmond Hill, the City of Vaughan, and most recently the City of Markham.

These partner municipalities commenced a two phase refresh of the Sustainable New Communities Program in 2018 to incorporate the updates in policies, plans, and best practices that have developed since the Program was originally created between 2013 and 2015. This report is the second phase of the update which recommends methods for establishing new Sustainability Score Thresholds. It also identifies approaches to better integrate climate action into the Program.

The methodology recommended to establish new Thresholds is referred to as the Universal (Pathway 1 and 2) methodology. This methodology establishes a baseline using points associated with all “Good” level Metrics which all applicants have the ability to achieve regardless of the location or context of their development site. The Universal methodology offers two options – Pathway 1, which removes OBC-interior related Metrics from the baseline, and Pathway 2, which includes them.

This report recommends that the municipalities adopt the Universal – Pathway 1 methodology for the Thresholds in 2022, and that they increase the Thresholds by adopting the Universal – Pathway 2 in 2026. This phased approach would:

- Create consistent Thresholds across multiple municipalities;
- Improve sustainability performance over time;
- Enable industry to adjust to the updated Program requirements while preparing to adopt Pathway 2 (OBC-interior metrics), which will enhance the sustainability performance of future sites;
- Allow municipalities to perform an ongoing review and analysis of the updated Sustainable New Communities Program, and to adapt to the Program as necessary; and
- Recognize leaders in sustainable design and development by creating Score Thresholds that are better representative of the total points available.

This report also recommends that municipalities implement a minimum energy and GHG performance standard for buildings. This requirement would align the energy efficiency performance of new construction with municipal climate action and community energy plans, thereby reducing the amount of building stock that would need to be retrofitted in the future to meet efficiency standards.

1. Introduction

The Sustainable New Communities Program[1], co-launched in 2013 by the City of Brampton, the City of Richmond Hill, and the City of Vaughan, is a planning tool that aims to advance municipal sustainable community development objectives through planning and development approvals. The Program allows for development applicants to choose from a menu of metrics that result in a Sustainability Score. The Program offers flexible approaches to facilitate sustainable community design. Applicants must submit their Sustainability Score and supporting documentation for Site Plan, Draft Plan of Subdivision, and Block Plan development applications.

In 2021, the partnership expanded to include the City of Markham and finalized updates to the Sustainability Metrics. The updates reflected new sustainable approaches and practices in the planning, design, and construction of buildings and neighhourboods, amendments to the Planning Act, other changes to provincial legislation and plans, updates to the Ontario Building Code (OBC), and revisions to municipal plans, policies and guidelines that have been enacted since the Program was first developed.

Currently, Richmond Hill and Brampton require applicants to achieve a Sustainability Score that at a minimum achieves the Bronze Score Threshold. As part of the Sustainable New Communities Program update, Vaughan and Markham will also be considering requiring a minimum Bronze Score Threshold for development applications.

As part of an earlier and separate phase of the Sustainable New Communities Program update, the partner municipalities revised the suite of Metrics to reflect revised environmental sustainability and climate change goals and objectives. The Sustainability Score Thresholds analysis presented in this report is part of the second stage of the update, which:

a) Recommends a methodology to create new Sustainability Score Thresholds that supports and reflects the updated Sustainability Metrics;

b) Provides elevated sustainability performance requirements for areas identified as urban or town centres and intensification corridors; and

c) Identifies approaches to better integrate and report climate action through the Thresholds and Sustainable New Communities Program.

[1]In 2022, the City of Brampton renamed the Sustainability Metrics Program to the Sustainable New Communities Program; however, the partner municipalities may choose to continue to use the Sustainability Metrics Program.

Table 1: Update of the Sustainable New Communities Program.

Phase	Description	Status
1	Review and update of the Metrics	Complete
2	Update the Thresholds	Addressed by this project
3	Update outreach and education materials, and develop new training videos to improve knowledge and compliance.	Underway
4	Investigate incentives.	To be completed

1.1 The Sustainability Performance Metrics

The Sustainable New Communities Program consists of 52 Sustainability Indicators ("Indicator") organized into five categories – Built Environment, Mobility, Natural Environment and Open Space, Infrastructure and Buildings, and Innovation (Table 2).

Table 2: Sustainability Indicators within the five categories of the Sustainable New Communities Program.

Built Environment (BE)	Mobility (M)	Natural Environment and Open Space (NE)
• BE-1: Proximity to Amenities • BE-2: Mixed-Use Development • BE-3: Housing Diversity • BE-4: Community and Neighbourhood Scale • BE-5: Cultural Heritage Conservation • BE-6: Urban Tree Canopy and Shaded Walkways/Sidewalks • BE-7: Salt Management • BE-8: Carshare and Carpool Parking • BE-9: Surface Parking Footprint • BE-10: Electric Vehicle Charging Stations	• M-1: Block Length • M-2: School Proximity to Transit and Cycling Networks • M-3: Intersection Density • M-4: Walkable Streets • M-5: Pedestrian Amenities • M-6: Bicycle Parking • M-7: Trails and Cycling Infrastructure • M-8: Active Transportation Network • M-9: Distance to Public Transit • M-10: Traffic Calming	• NE-1: Tree Conservation • NE-2: Soil Quantity and Quality for New Trees • NE-3: Healthy Soils • NE-4: Natural Heritage Connections • NE-5: Natural Heritage System Enhancements • NE-6: Supporting Pollinators • NE-7: Dedicated Fruit/Vegetable Garden Space • NE-8: Park Access • NE-9: Stormwater Quantity • NE-10: Stormwater Quality • NE-11: Potable Water Use • NE-12: Multi-purpose Stormwater Management
Infrastructure and Buildings (IB)		**Innovation (I)**
• IB-1: Buildings Designed/Certified Under "Green" Rating System • IB-2: Accessibility for Multi-Unit Dwellings • IB-3: Building Accessibility (Barrier Free Entry/Egress) • IB-4: Embodied Carbon of Building Materials: Supplementary Cementitious Materials • IB-5: Embodied Carbon of Building Materials: Life Cycle Assessment		• I-1: Innovation

• IB-6: Embodied Carbon of Building Materials: Material Efficient Framing • IB-7: Heat Island Reduction: Non-Roof • IB-8: Heat Island Reduction: Roof • IB-9: Solar Gain Control • IB-10: Solar Readiness • IB-11: Energy Strategy • IB-12: Building Energy Efficiency, GHG Reduction, and Resilience • IB-13: Rainwater and Greywater Use • IB-14: Back-up Power • IB-15: Extreme Wind Protection for Ground-Oriented Development • IB-16: Sub-Metering of Thermal Energy and Water • IB-17: Light Pollution Reduction • IB-18: Bird-Friendly Design • IB-19: Solid Waste	

Each Indicator has associated Sustainability Metrics ("Metric(s)") that are used to grade elements of proposed projects. The Metric Levels are "Good", "Great", "Excellent," and "Exceptional[2]", with "Good" denoting the baseline sustainability performance for each Indicator, "Great" indicating enhanced performance, and "Excellent" and "Exceptional" identifying the best-in-class performance.

Each Metric has an assigned point value (Figure 1). Applicants can choose a combination of Metrics to implement in their development proposal, which results in an overall Sustainability Score. The Sustainability Score identifies whether a development proposal achieves a Sustainability Score Threshold ("Score Threshold") of Bronze, Silver, or Gold.

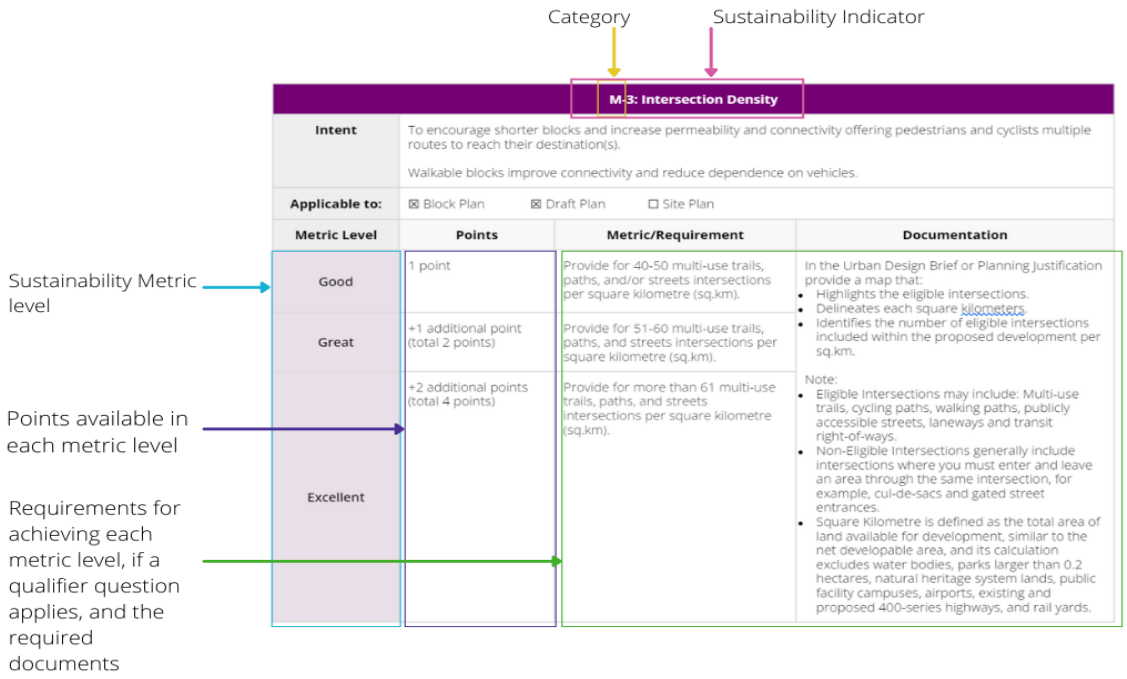

Figure 1. Sample Sustainability Indicator showing indicator's intent, development application applicability, metric levels and requirements, and necessary supporting documentation.

[2] The "Exceptional" level only applies to two Metrics: IB-12: Building Energy Efficiency, GHG Reduction, and Resilience, and I-1: Innovation.

The performance of past development applications[3] submitted to the four partner municipalities were assessed using the updated Sustainability Metrics. The Sustainability Score for each application was then compared to the Score achieved under the original Program (Appendix A). This process informed the development and analysis of the methodologies used to establish new Thresholds.

However, it is important to note that while this analysis offers insight into revised performance standards and the updated Metrics, it is also limited because the examined applications predated the new Metrics and Thresholds. Existing applications were developed to meet the standards of older policies, guidelines, industry best practices, and the previous suite of Metrics. As a result, these applications do not reflect what is undertaken by developers and builders today, or what they would pursue and achieve under an updated Program.

2. Thresholds Update Methodology

2.1 Project Approach

Table 3. Approach for establishing the recommended Thresholds.

Step	Description	Outcome
1. Assess original and updated Sustainability Metrics	Apply original and updated Sustainability Metrics to calculate scores for Block Plans, Plans of Subdivision, and Site Plans approved within the last 5 years.	Understanding of the impact of updated Metrics on the Thresholds.
2. Develop Threshold methodologies	Consult with the municipalities and review best practices to identify different methodologies for establishing Thresholds.	Identification of Threshold methodologies.
3. Recommended Methodology	Assess the strengths and weaknesses of each Threshold methodology, apply Multi-Criteria Analysis (MCA), and conduct stakeholder consultation.	Evaluate the performance of each methodology with respect to community/city objectives.
4. Recommended Thresholds	Refine Threshold methodologies based on stakeholder input; evaluate the impact of the Thresholds for each methodology, and conduct final evaluation using a Multi-Criteria Analysis.	Recommend final Thresholds based on recommended methodology.

[3] 60 Site Plans, 39 Draft Plans and 4 Block Plans approved within approximately the last five years. They included a variety of development typologies ranging from residential, mixed, and industrial uses, and low, medium density, and high density development.

2.2 Engagement Approach

The project involved soliciting input and feedback from the Technical Advisory Team (TAT), composed of staff from the partner municipalities, and two rounds of external stakeholder workshops with the York and Peel Chapters of the Building Industry and Land Development Association (BILD). The TAT hosted an additional meeting with BILD representatives in January 2022. SSG did not facilitate this meeting but was available as a resource to present information and answer questions.

An engagement strategy was designed (Appendix C) that set the following objectives:

1. Develop understanding of the Threshold method;
2. Facilitate inclusive conversations among interested and affected parties to document stakeholder concerns and aspirations; and
3. Incorporate stakeholder feedback from interested and affected parties to address the challenges and opportunities in the application and outcomes of the Sustainable New Communities Program.

Table 4. Overview of the engagement process.

Meeting	Description	IAP2 Level of engagement	Outcome
Technical Advisory Team Meeting 1: Start-up and Success Criteria	Define criteria to evaluate the Thresholds.	Collaborate	Agreement on the criteria.
Technical Advisory Team Meeting 2: Approaches to Sustainability Score Thresholds	Review methodologies for identifying Thresholds.	Collaborate	Feedback on potential methodologies.
Technical Advisory Team Meeting 3: Recommended Approach	Review recommended methodology and resulting Thresholds.	Involve	Feedback on recommended approach.
Stakeholder Meeting 1	Review methodologies for identifying Thresholds and criteria used for Multi-Criteria Analysis.	Involve	Feedback on potential methodologies.
Stakeholder Meeting 2	Review recommended methodology and resulting Thresholds.	Involve	Stakeholders understand new Thresholds.

The results of the engagement process are summarized in Appendix D.

2.3 Threshold Methodologies

After assessing the previous Thresholds set by the partner cities and how the updated Sustainability Metrics would affect the Sustainability Scores of past development applications,[4] four methodologies were developed — Universal, Percentage Improvement, Benchmarking, and External Standard.

2.3.1 Universal[5]

This methodology specifies "Good" level Metrics as the baseline sustainability performance for each Indicator, while also considering the context-specific nature of development applications. Two options were identified for the Universal methodology – Pathway 1 and Pathway 2.

Setting the Thresholds

The three Sustainability Score Thresholds — Bronze, Silver, and Gold — are calculated using increments derived from the Diffusion of Innovation Model.[6] This model represents a common approach for determining the way in which new technologies and advancements are societally adopted (Figure 2).

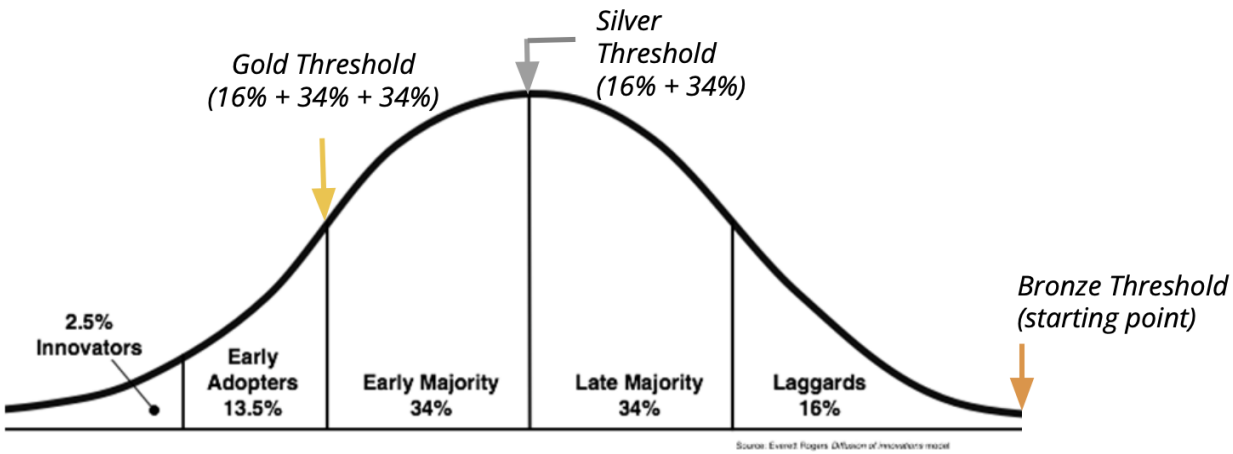

Figure 2. Diffusion of Innovation model highlighting the Bronze, Silver and Gold threshold levels.[7]

In the context of this project, the Threshold levels are defined as:

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[4] 60 Site Plans, 39 Draft Plans and 4 Block Plans approved within approximately the last five years. They included a variety of development typologies ranging from residential, mixed, and industrial uses, and low, medium density, and high density development.

[5] During the engagement process the Universal methodology was referred to as Relativism, the City of Brampton updated the methodology name in February 2022

[6] Rogers, E. M. (2010). Diffusion of Innovations. Simon and Schuster.

[7] *Ibid.*

- **Bronze Score Threshold** = model's **starting point and late majority group**. Applications are meeting the baseline performance and up to a 49% increase in points.
    - The Threshold level is calculated using the equations identified in Universal – Pathway 1 and Universal – Pathway 2
- **Silver Score Threshold** = model's **early majority group**. Applications have adopted mainstream innovation techniques and have an enhanced sustainability performance.
    - The Threshold level is calculated as: Bronze Threshold + 50% increase.
- **Gold Score Threshold** = model's **early adopters and innovators groups**. Applications have adopted new ideas and technologies to enhance sustainability and GHG emission reduction performance.
    - The Threshold is calculated as: Bronze Threshold + 84% increase.

Universal – Pathway 1

Universal – Pathway 1 calculates the baseline of the Bronze Score Threshold by adding together all points associated with the "Good" level metrics, and subtracting the points of the "Good" level metrics that have qualifier questions, as well as the points of the "Good" level metrics that are Ontario Building Code (OBC) interior-related matters.

Pathway 1 Bronze Score Threshold

= points available based on all "Good" level metrics - points available in "Good" level metrics that have qualifier questions - "Good" level metrics that are OBC-related interior matters

Since the Metrics with qualifier questions are typically site-specific, the removal of these points ensures that the baseline score does not include points associated with a very particular feature of the development site/project (e.g. BE-5 Cultural Heritage Conservation) that may not benefit all applicants. OBC-interior related Metrics were initially removed from the baseline and then reincorporated in a subsequent phase to allow time for the industry to adapt to the updated Metrics.

Table 5. Universal - Pathway 1: Bronze Threshold baseline calculation.

	Site Plans	Draft Plans	Block Plans
Total points available	241	194	76
Total points for Metrics under the "Good" level	83	62	29
Total points for Metrics under the "Good" level that have qualifier questions and are not OBC interior related	18	17	10
Total points for Metrics under the "Good" level that are related to interior OBC	24	18	0
Calculation for Bronze Score Threshold baseline	86-18-27	62-17-18	29-10
Total: Updated Bronze Score Threshold	41	27	14
% of total points available represented	17%	11%	18%

For a list of the “Good” level metrics that are OBC interior-related, and their associated points, please refer to Appendix B.

Table 6 and Figure 4 identifies the points for each Threshold level. Threshold levels for Silver and Gold levels were calculated using the same Diffusion of Innovation model outlined above.

Table 6. Sustainability Score Thresholds resulting from the UNiversal - Pathway 1 methodology.

	Total points available	Bronze	Silver	Gold
Site Plan	241	41 - 61	62 - 75	76 - 241
Draft Plan	194	27 - 40	41 - 49	50 - 194
Block Plan	76	14 - 20	21 - 25	26 - 76

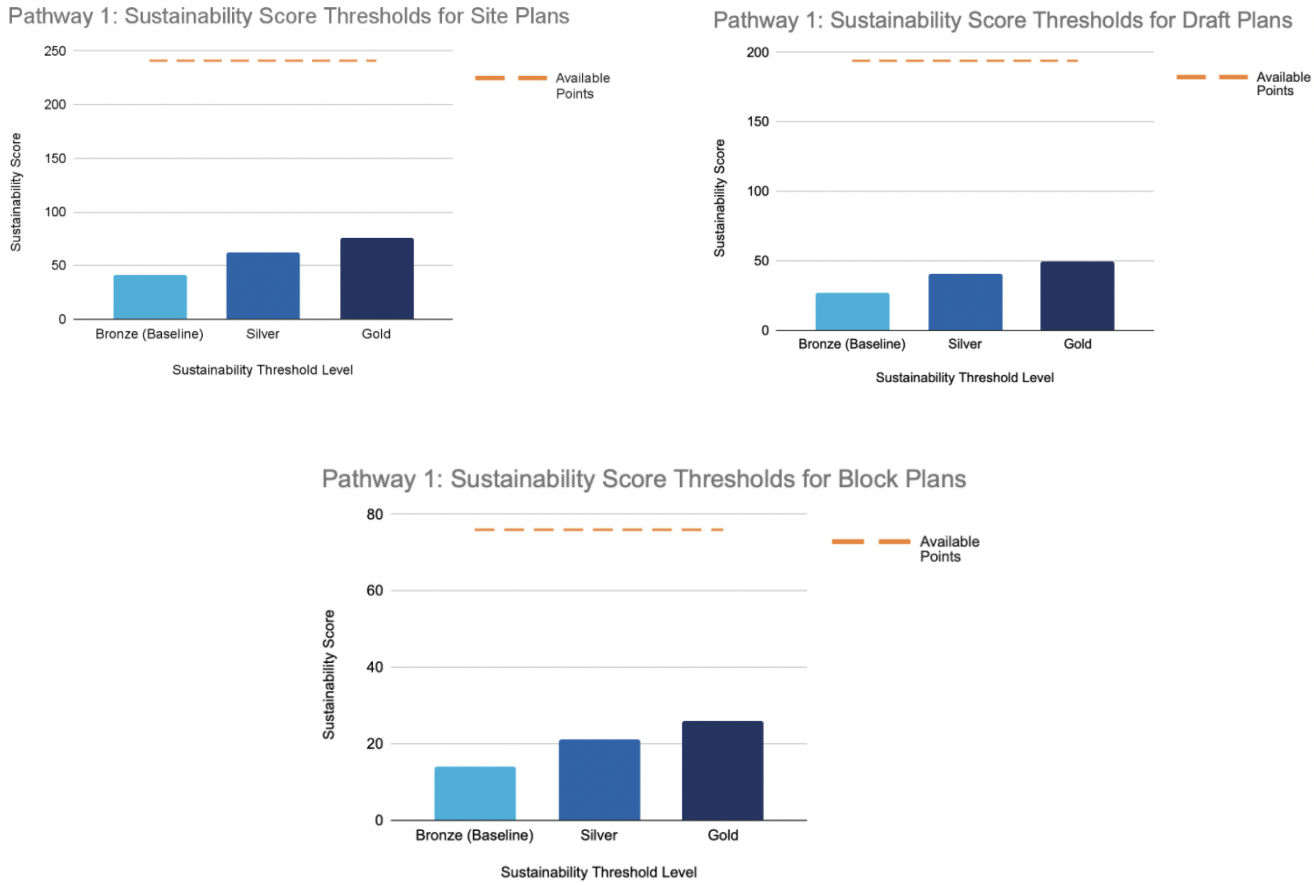

Figure 3. Universal - Pathway 1: minimum points for each Threshold (Bronze, Silver, and Gold) according to application type. The orange dotted line represents the total points available for the application type.

Universal – Pathway 2

Universal – Pathway 2 takes a similar approach to Pathway 1 but does not remove points associated with the “Good” level OBC interior-related Metrics from the baseline. Rather, it calculates the baseline of the Bronze Score Threshold by adding together all points associated with the “Good” level metrics, and subtracting only the points of the “Good” level metrics that have qualifier

questions. The inclusion of OBC-interior Metrics in the baseline score would further increase the sustainability performance of applicants, while still allowing flexibility for how applicants achieve the baseline.

Pathway 2 Bronze Score Threshold
= points available based on all "Good" level metrics – points available in "Good" level metrics that have qualifier questions

For a list of the "Good" level metrics that have qualifier questions, and their associated points, please refer to Appendix B.

Table 7. Universal - Pathway 2 setting the baseline for the Bronze Threshold.

	Site Plans	Draft Plans	Block Plans
Total points available	241	194	76
Total points for all metrics under the "Good" level	83	62	24
Total points for all metrics under the "Good" level with qualifier questions	28	18	10
Calculation for Bronze Threshold (baseline)	83-28	62-18	24-10
Total: Bronze Threshold	55	44	14
% of total points available	23%	18%	18%

The Bronze, Silver and Gold Thresholds are calculated based on the Diffusion of Innovation model (Figure 2) described earlier.

*Silver Score Threshold = Bronze Score Threshold * 1.5*
*Gold Score Threshold= Bronze Score Threshold * 1.84*

Table 8 and Figure 5 identifies the Sustainability Score Thresholds for each application type.

Table 8. Sustainability Score Thresholds resulting from the Universal - Pathway 2 methodology.

	Total points available	Bronze	Silver	Gold
Site Plan	241	55 - 81	82 - 101	102 - 241
Draft Plan	194	44 - 65	66 - 80	81 - 194
Block Plan	76	14 - 20	21 - 25	26 - 76

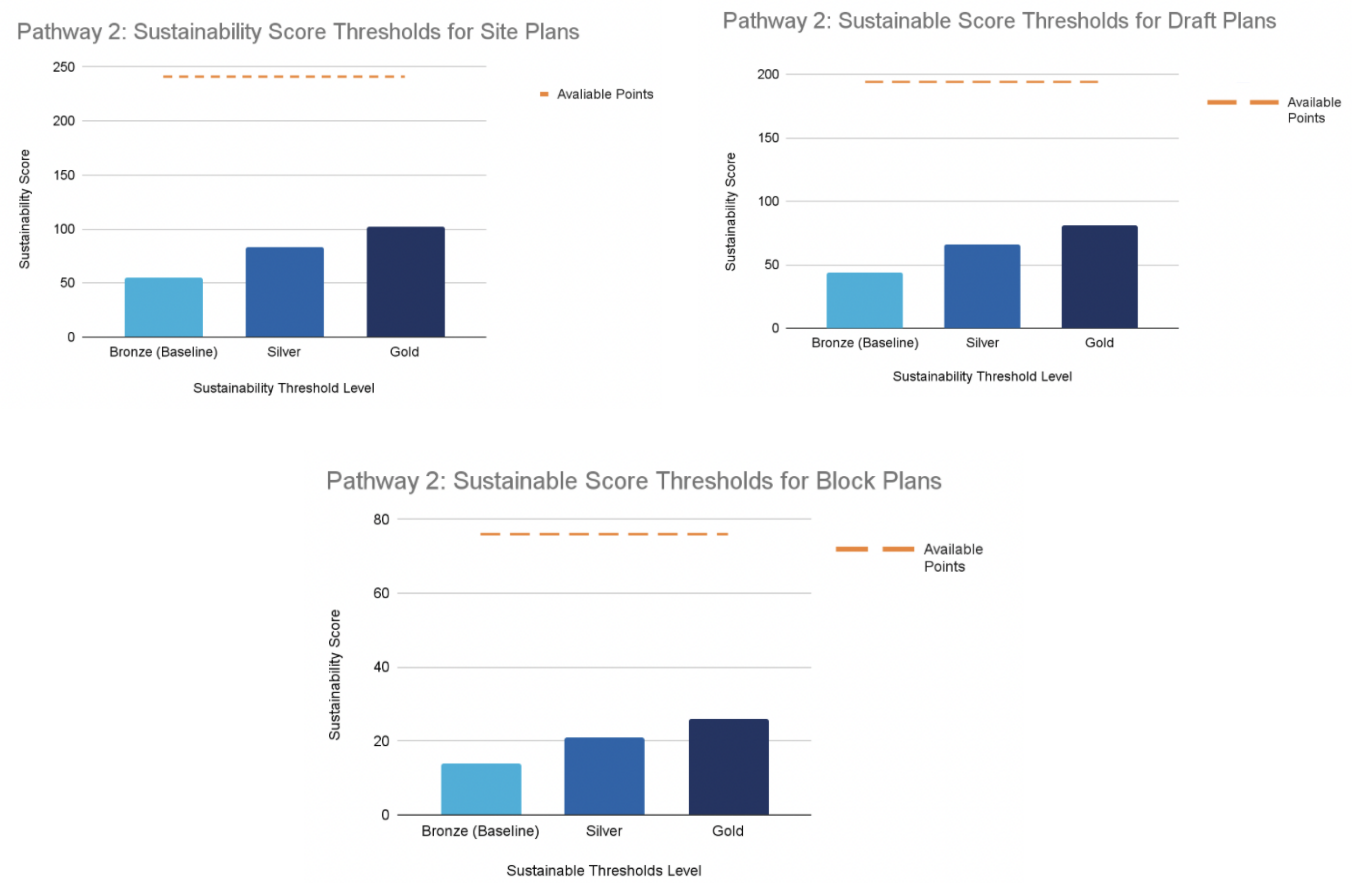

Figure 4. Universal - Pathway 2: minimum points for each Threshold (Bronze, Silver, and Gold) according to application type. The orange dotted line represents the total points available for the application type.

2.3.2 Percentage Improvement

The Percentage Improvement methodology uses the median Sustainability Score (based on the updated Metrics) of all sample development applications from each municipality to calculate a baseline, and applies the Diffusion of Innovation model to determine the subsequent Thresholds.

- Baseline = median sustainability performance of past applications
- Bronze = median sustainability performance + 20%
- Silver = median sustainability performance + 50%
- Gold = median sustainability performance + 84%

The baseline was calculated using a sample of the previously approved development applications that did not take into account the updated Sustainability Metrics. Consequently, the average performance of these development applications using updated Metrics were very low, which resulted in a low baseline and Thresholds (refer to Table 9 and FIgure 5). For example, the Gold

Threshold for Site Plans and Draft Plans requires only 12% and 15% of the total points available, respectively.

Table 9. Sustainability Score Thresholds resulting from the Percentage Improvement methodology.

	Total points available	Baseline	Bronze	Silver	Gold
Site Plan	241	15	18-22	23-27	28-241
Draft Plan	194	16	19-23	24-28	29-194
Block Plan	76	21	25-31	32-38	39-76

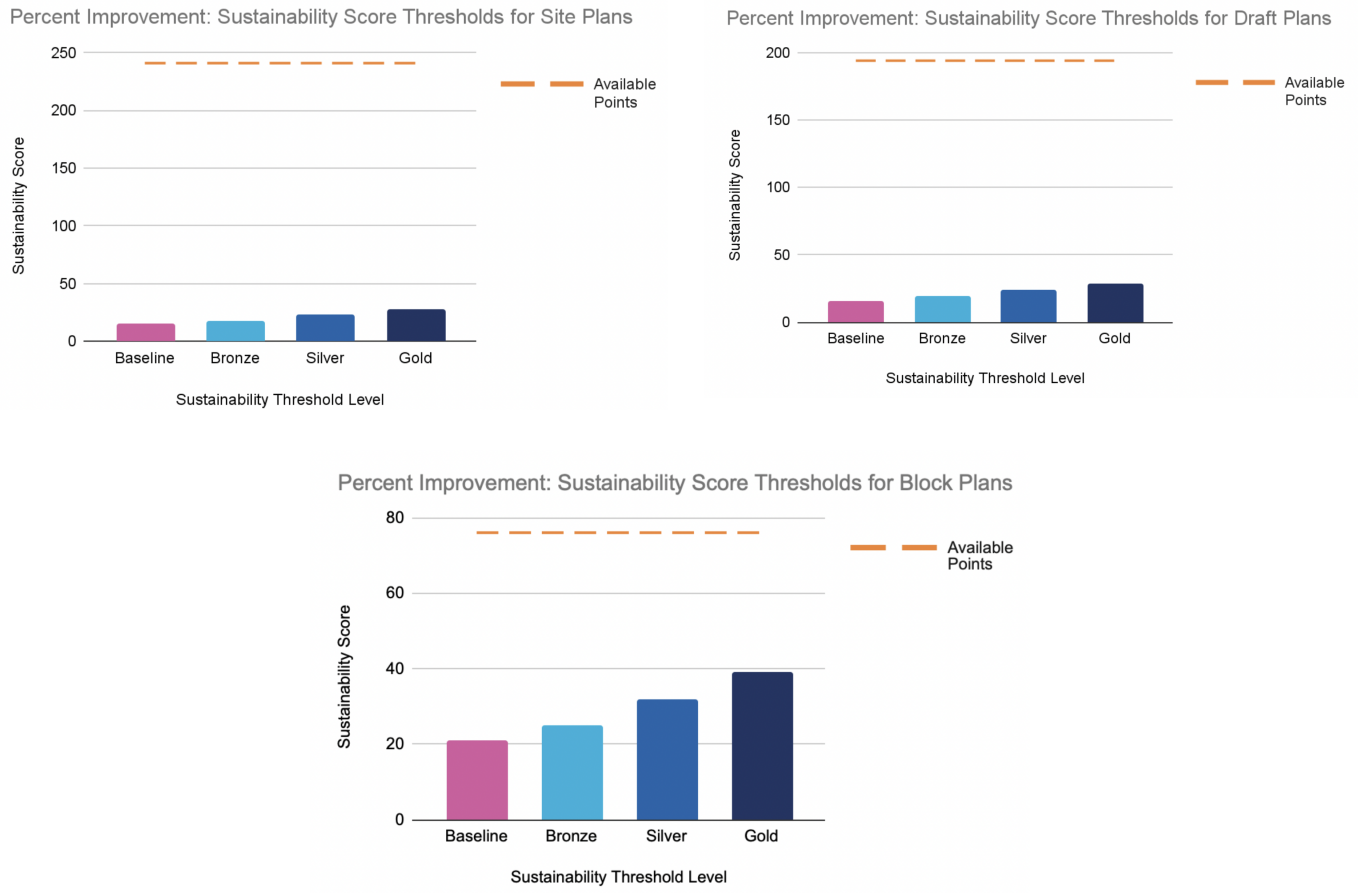

Figure 5. Percentage Improvement: Baseline and minimum points for each Threshold (Bronze, Silver, and Gold) for each development type. The orange dotted line represents the total points available for the application type.

2.3.3 Benchmarking

The Benchmark Performance methodology uses the average score of sample development applications from each municipality to calculate the baseline. Similar to the Percentage Improvement approach, previously submitted development applications were examined against the updated Metrics to calculate the average performance. The Bronze, Silver, and Gold thresholds were determined as follows:

- Baseline = average score of applications by municipality
- Bronze = average score of top 50% of applications by municipality
- Silver = average of score of top 25% of applications
- Gold = average of score of top 10% of applications

The Benchmarking methodology is impacted by the same challenge as the Percentage Improvement methodology: the baseline is calculated using previously submitted development applications which could not have taken updated Sustainability Metrics into account at the time of application submission.

As seen in Figure 6, the Benchmark Performance methodology sets Thresholds that are low when compared to the total points available for each application type (see Appendix B for Benchmark Performance for each municipality). The Gold Threshold for Brampton's Site Plan and Draft Plan equate to achieving only 9% and 15% of the total points available.

Table 10. Benchmarking performance threshold point ranges.

	Total points available	Baseline	Bronze	Silver	Gold
Brampton					
Site Plan	241	18	17-19	20-21	22-241
Draft Plan	194	17	17-21	22-26	28-194
Markham					
Site Plan	241	18	18-19	20-26	27-241
Draft Plan	194	23	25-28	29	30-194
Richmond Hill					
Site Plan	241	14	15-17	18-21	22-241
Draft Plan	194	14	15-17	18-19	20-194
Vaughan					
Site Plan	241	12	12-13	14-16	17-241
Draft Plan	194	15	16-18	19	20-194

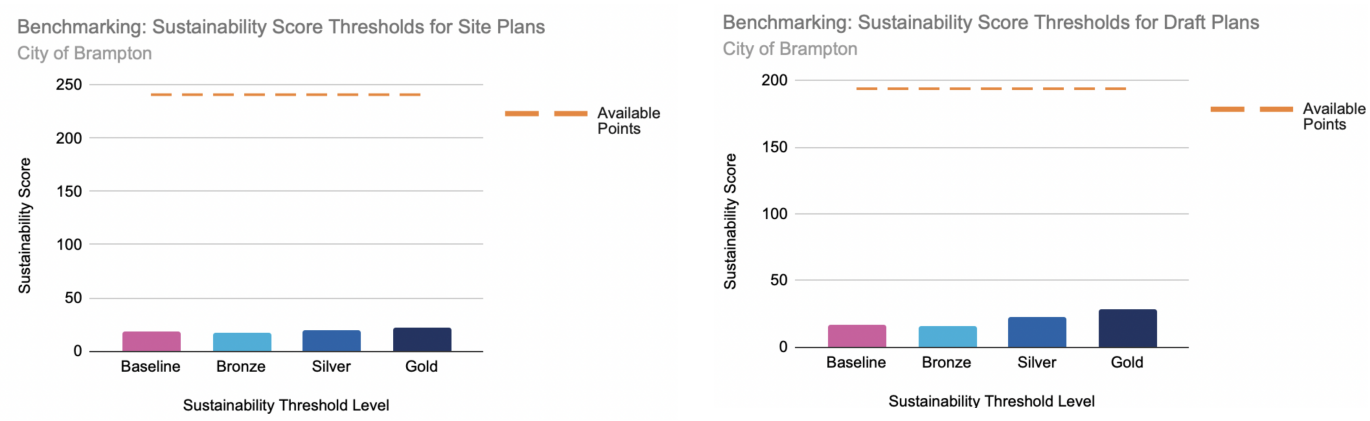

Figure 6. Benchmark Performance baseline and minimum points for each Threshold (Bronze, Silver, and Gold) for the City of Brampton for Site Plan and Draft Plan applications. The orange dotted line represents the total points available for the application type.

2.3.4 External Standard

This methodology aims to establish Thresholds in alignment with a third party green standard, such as Leadership in Energy and Environmental Design (LEED), but was not explored further based on feedback received through the engagement process.

BILD and TAT identified the following challenges posed by this methodology:

- It did not provide a site specific context;
- It was inflexible and restrictive, and the baseline would have to be updated frequently to stay in alignment with revisions to external programs; and
- Determining the third party green standard that is most appropriate and achieving a direct alignment/comparison between the updated Sustainability Metrics and the metrics of the selected third party standard would be difficult.

As a result of this feedback, External Standard methodology was not evaluated.

3. Integrating Climate Change

Climate change is the greatest long-term global challenge that society is facing. Human-induced climate change poses risks to public health, economic growth, public safety, infrastructure, livelihoods, and the world's biodiversity and ecosystems. It is critical that society avoid long-term investments that increase GHG emissions at a time when emissions need to be reduced as quickly as possible.

There is a growing understanding of the cost that climate change imposes on households, businesses, and governments. These costs take two forms - the cost of the energy transition away

from the use of fossil fuels to address climate change,[8] and the cost of adapting or mitigating the impacts of climate change.[9] Buildings cause a significant portion of annual GHG emissions globally, as well as a significant portion of each municipal partner's annual emissions (e.g. Markham- 49%; Richmond Hill- 42%; Brampton-37%; Vaughan-50%[10]). To effectively reduce emissions, every building that is not constructed to net zero standards today will need to be retrofitted to be more energy efficient, imposing a financial and logistical burden on both the owners or occupants of those buildings and society at large.

As the Canadian Institute for Climate Choices writes in a recent report on infrastructure and climate change, "public and private infrastructure owners have been more concerned with short-term budgets and balance sheets than long-term planning, leaving long-term risks like climate change unaddressed."[11] This paradigm is shifting, however, and many governments and businesses are developing business models that specifically address the causes and impacts of climate change.[12]

The partner municipalities in the Sustainable New Communities Program have developed and approved, or are in the process of creating, strategic long-term climate action and community energy plans, including:

- City of Markham's *Municipal Energy Plan: Getting to Zero* (2017);
- City of Brampton's *Our Energy Transition: Community Energy and Emissions Reduction Plan* (2020);
- City of Richmond Hill's *Path to a Low Carbon Future: Community Energy and Emissions Plan* (2021); and
- City of Vaughan's *Municipal Energy Plan* (2016; currently under review).

Reducing GHG emissions from new buildings is a common action identified in each of these plans, and the Sustainability New Communities Program is a key tool for realizing the goals and targets of improved energy and GHG performance in new developments and communities.

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[8] In this case, transition costs are the costs of decarbonizing buildings. In the near future, municipalities and other levels of government are likely to impose carbon limits on homes, which will require investments by households and other actors. The City of Vancouver, which pioneers policy approaches on climate change, is currently developing emissions limits for single family homes and buildings. For more information, visit https://vancouver.ca/green-vancouver/how-we-build-and-renovate.aspx.

[9] For an example of one aspect of the costs, refer to the Canadian Institute for Climate Choices. (2021). Underwater: The Costs of Climate for Canada's Infrastructure. Retrieved from: https://climatechoices.ca/wp-content/uploads/2021/09/Infrastructure-English-FINAL-Sep29.pdf

[10] Municipal Energy and Emissions Database. Retrieved from: https://meed.info/en/ca/

[11] Opp. Cit. p. vi

[12] For example, as of January 2021 the Race to Zero includes more than 5,000 companies, 67 sub-national regions, over 1000 cities (including the City of Brampton), 441 banks and investment companies, and others. For more details, see: https://racetozero.unfccc.int/

Four approaches to further integrate climate performance into the Sustainability New Communities Program were identified.

Table 11. Approaches to increase integration and reporting of climate action into the Sustainable New Communities Program.

	Minimum Performance (Option A)	Minimum Performance (Option B)	Climate Score	Project GHG Emissions	Climate Ranking
Description	Requires applications to achieve a minimum number of points across a range of climate-related Indicators.	Requires applications to achieve specific metrics level under IB-12: Energy Efficiency and GHG Reductions.	Assigns a score based on the points achieved across a range of climate-related Indicators.	Indicates the GHG reduction compared to current practices through achieving specific metrics across climate-related Indicators.	Highlights top-ranking performance on climate-related indicators.

3.1 Minimum Performance

Option A

In this approach, planning applications are required to achieve a minimum number of points under specific climate-related Indicators, resulting in the enhanced climate performance of that development. Under this option, applicants would select a combination of Metrics for each Indicator to achieve the minimum number of points required under the themes of Building, Transportation, Active Transportation, and Embodied Carbon, as outlined in Table 12. The minimum number of points escalates over time.

Fourteen Metrics in the Mobility (M), Built Environment (BE), and Infrastructure & Buildings (IB) categories were identified as directly advancing climate action objectives in the transportation, building, and energy sectors. The total points available in each of the categories were calculated and phased the scores over time to maximize performance ("climate-optimized") by 2030.

Table 12. Minimum Performance Option A.

	Building	Transportation	Active Transportation	Embodied Carbon
Metrics	IB-12: Building Energy Efficiency & GHG Reduction	BE-1: Proximity to Amenities BE-10: EV Charging	M-4: Walkable Streets M-5: Pedestrian Amenities M-6: Bicycle Parking M-7: Trails and Cycling Infrast. M-8: AT Network M-9: Distance to Public Transit	IB-4: Supp. Cementitious Materials IB-5: Life Cycle Assessment IB-6: Material Effic. Framing IB-9: Solar Gain Control IB-10: Solar Readiness
2022	10	5	6	6
2024	13	5	8	8
2026	17	7	8	10
2030	20	10	14	20

For example, in 2024 an application would need to receive 13 points from IB-12: Building Energy Efficiency and GHG Reduction, 5 points across from BE-1: Proximity to Amenities and BE-10: EV Charging.

Option B

Option B focuses specifically on ensuring that new construction helps municipalities achieve energy efficiency and GHG emission reduction targets as identified in their community energy plans, climate action plans, environmental master plans, and/or climate emergency declarations. By establishing minimum building performance requirements, Option B includes an implementation pathway for new construction to achieve the CHBA Net Zero Homes Program or Passive House requirements, consistent with Toronto Green Standard (Version 3)[13] and Whitby Green Standard implementation timeframes. Applications would be required to achieve minimum energy and GHG performance as outlined in IB-12: Energy Efficiency and GHG Reduction. The "Good" level shown in Table 13 would become mandatory in 2022.

Table 13. Minimum performance requirements.

Implementation year	IB-12: Energy Efficiency and GHG Reductions Metric level	Requirement
2022	Good	**Part 9 Residential Buildings** (3 storeys or less and less than 600 m2 in gross floor area), design the building(s) to achieve ENERGY STAR® for New Homes version 17.1 or R-2000® requirements, or equivalent.

[13] The City of Toronto recently expedited the implementation of the Toronto Green Standard so that Toronto Green Standard Version 4 Tier 3 will apply in 2028.

		Part 3 Buildings – Multi-Unit Residential, Office and Retail (more than 3 storeys or more than 600 m2 in gross floor area), develop a whole-building energy model, and design and construct the building to achieve the following whole-building performance metrics: ● Total Energy Use Intensity (TEUI): 170 kWh/m2/yr ● Thermal Energy Demand Intensity (TEDI): 70 kWh/m2/yr ● Greenhouse Gas Emissions Intensity (GHGI): 20 kgCO2/m2/yr. **All Other Part 3 Buildings**, develop a whole-building energy model, and design and construct the building to achieve at least a 15% improvement in energy efficiency over the Ontario Building Code (OBC) SB-10, Division 3 (2017) reference building.
2024	Great	**Part 9 Residential Buildings** (3 storeys or less and less than 600 m2 in gross floor area), design, construct, and label the building(s) to achieve ENERGY STAR® for New Homes version 17.1 or R-2000® requirements, or equivalent. **Part 3 Buildings – Multi-Unit Residential, Office and Retail** (more than 3 storeys or more than 600 m2 in gross floor area), develop a whole-building energy model, and design and construct the building to achieve the following whole-building performance metrics: ● Total Energy Use Intensity (TEUI): 135 kWh/m2/yr ● Thermal Energy Demand Intensity (TEDI): 50 kWh/m2/yr ● Greenhouse Gas Emissions Intensity (GHGI): 15 kgCO2/m2/yr **All Other Part 3 Buildings**, develop a whole-building energy model, and design and construct the building to achieve at least a 25% improvement in energy efficiency over the Ontario Building Code (OBC) SB-10, Division 3 (2017) reference building.
2028	Excellent	**Part 9 Residential Buildings** (3 storeys or less and less than 600 m2 in gross floor area), design and construct the building(s) to be Net Zero ready in accordance with the CHBA Net Zero Home Labelling Program, or equivalent. **Part 3 Buildings – Multi-Unit Residential, Office and Retail** (more than 3 storeys or more than 600 m2 in gross floor area), develop a whole-building energy model and design the building to achieve the following whole-building performance metrics associated with a near-net zero emissions level of performance: ● Total Energy Unit Intensity (TEUI): 100 kWh/m2/yr ● Thermal Energy Demand Intensity (TEDI): 30 kWh/m2/yr ● Greenhouse Gas Emissions Intensity (GHGI): 10 kgCO2/m2/yr **All Other Part 3 Buildings**, develop a whole-building energy model and design the building to achieve at least a 37% improvement in energy efficiency over the Ontario Building Code (OBC) SB-10, Division 3 (2017) reference building.
2032	Exceptional	**Part 9 Residential Buildings** (3 storeys or less and less than 600 m2 in gross floor area), design and construct the building(s) in accordance with the CHBA Net Zero Home Labelling Program or Passive House standards, or equivalent.

		Part 3 Buildings – Multi-Unit Residential, Office and Retail (more than 3 storeys or more than 600 m2 in gross floor area), develop a whole-building energy model and design the building to achieve the following whole-building performance metrics associated with a near-net zero emissions level of performance: • Total Energy Unit Intensity (TEUI): 75 kWh/ m2 yr • Thermal Energy Demand Intensity (TEDI): 15 kWh/m2/yr • Greenhouse Gas Emissions Intensity (GHGI): 5 kgCO2/m2/yr **All Other Part 3 Buildings**, develop a whole-building energy model and design the building to achieve at least a 50% improvement in energy efficiency over the Ontario Building Code (OBC) SB-10, Division 3 (2017) reference building.

3.2 Climate Grade

In this approach, applications are assigned a Climate Grade based on how the proposed developments would perform. Inspired by the energy and climate ratings applied to buildings in the United Kingdom (Figure 7), each development application would be assigned a grade that highlights its level of performance, with "A" denoting the best performing projects and "D" denoting the worst performing projects. The score would be based on the achievement of a minimum number of points under specific Indicators, as outlined in Table 14. The identification and allocation of points applies the same method as described in 3.1 Minimum Performance Option A.

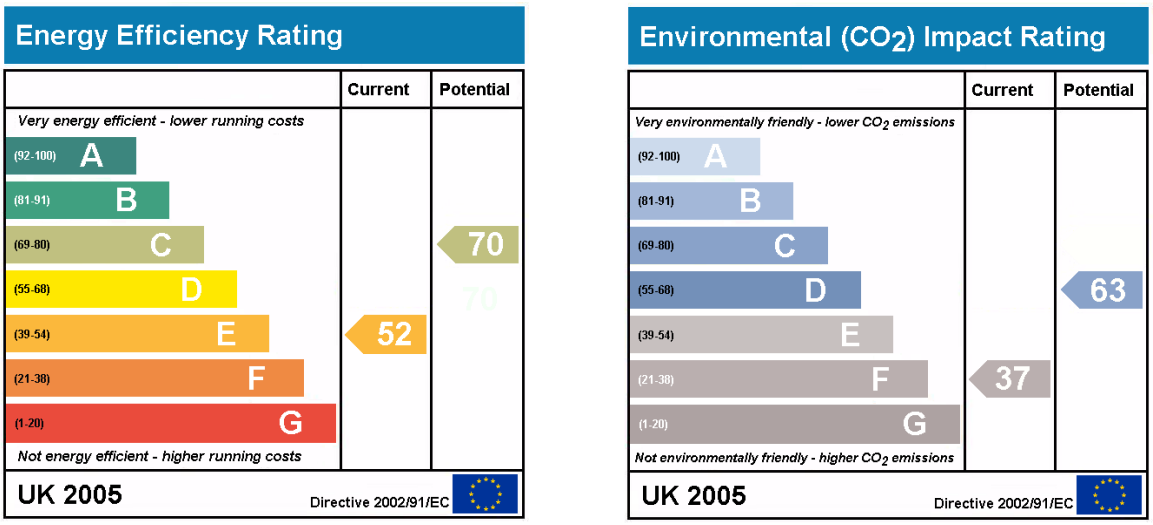

Figure 7. Example of labels applied to buildings in the UK, which can be adopted to the Climate Grade approach.

For example, to achieve a Climate Ranking of A, applications would be required to achieve 20 points in IB-12: Energy Efficiency and GHG Reduction, 10 points from the BE-1: Proximity to Amenities and BE-10: EV Charging categories, 14 points from the M-4: Walkable Streets, M-5 Pedestrian Amenities, M-6: Bicycle parking, M-7: Trails and Cycling Infrastructure, M-9: Distance to Public Transit categories, and 20 points from the IB-4 Supplementary Cementitious, IB-5 Life Cycle Assessment, IB-6 Material Efficiency Framing, IB-9 Solar Gain Control, and IB-10 Solar Readiness categories.

Table 14. Climate Grade method.

Grade	Building	Transportation	Active Transportation	Embodied Carbon
Metrics	IB-12: Building Energy Efficiency & GHG Reduction	BE-1: Proximity to Amenities BE-10: EV Charging	M-4: Walkable Streets M-5: Pedestrian Amenities M-6: Bicycle Parking M-7: Trails and Cycling Infrast. M-8: AT Network M-9: Distance to Public Transit	IB-4: Supp. Cementitious Materials IB-5: Lifecycle Assessment IB-6: Material Effic. Framing IB-9: Solar Gain Control IB-10: Solar Readiness
A	20	10	14	20
B	17	7	8	10
C	13	5	8	8
D	10	5	6	6

3.3 Project GHG Emissions

This approach involves evaluating applications based on achievements in identified GHG emissions reduction Metrics, focusing on transportation and building-related GHG emissions. Applications that achieve the Metrics identified in Table 15 would receive a "label" indicating that they enable (a) a lifestyle that results in a 50% GHG reduction from standard current practices, or (b) a zero emissions lifestyle.

The underlying logic of this approach is that the built environment can either enable or constrain a household's ability to reduce GHG emissions. An assessment of the "Excellent"/"Exceptional" level for each of the points listed in Table 15 indicates that the proposed building and available transportation choices (walking, cycling, transit, and electric vehicle (EV) infrastructure) could be close to emission-free. The "Great" level for each of these Metrics also enables a low carbon lifestyle, but denotes lower accessibility to zero-emission transportation modes and less efficient buildings. The "Great" level would enable a 50% reduction in emissions from the status quo.

Table 15. GHG emissions metrics.

50% Emissions Reduction	Zero Emissions
Achieves the "Great" level in all of the following metrics: • BE-1: Proximity to Amenities • BE-10: EV Charging • M-6: Bicycle Parking • M-9: Distance to Public Transit • IB-12: Building Energy Efficiency & GHG Reduction	Achieves the "Excellent" level in all of the following metrics: • BE-1: Proximity to Amenities • BE-10: EV Charging • M-6: Bicycle Parking • M-9: Distance to Public Transit • IB-12: Building Energy Efficiency & GHG Reduction

3.4 Climate Ranking

This approach is a branding initiative whereby applications that achieve specific Metrics can be labelled and marketed as projects that are leading in emissions reduction and/or adapting to climate change. All Metrics that influence transportation and building operational and embodied emissions have been identified as GHG mitigation activities. Those Metrics that increase readiness and resilience for a changing climate are identified for climate adaptation.

Table 16. Climate Ranking Metrics.

Climate Challenger (reducing GHG emissions; mitigation)	**Climate Adapter (preparing for climate change; adaptation)**
Achieves "Excellent" level for the following metrics: • BE-1: Proximity to Amenities • BE-10: EV Charging • M-6: Bicycle Parking • M-8: AT Network • M-9: Distance to Public Transit • IB-4: Supp. Cementitious Materials • IB-5: Life Cycle Assessment • IB-6: Material Efficient Framing • IB-9: Solar Gain Control • IB-10: Solar Readiness • IB-12: Building Energy Efficiency & GHG Reduction	Achieves "Excellent" level for the following metrics: • BE-6: Tree Canopy and Shaded Walkways • NE-1: Tree Conservation • NE-3: Healthy Soils • NE-5: NHS Enhancements • NE-9: Stormwater Quantity • IB-7: Heat Island Reduction (Non-Roof) • IB-8: Heat Island Reduction (Roof) • IB-14: Backup Power • IB-15: Extreme Wind Protection

Figure 8. Example of labels that could be applied to applications which achieve the relevant climate-related metrics.

4. Choosing the Best Methodology

4.1 Analyzing the Methodologies: Multi-Criteria Analysis

Multi-Criteria Analysis (MCA) is a method to support decision-making according to predetermined criteria and objects. MCA combines quantitative and qualitative data in a transparent format which can incorporate both expert and local judgement (Figure 9). In this project, MCA was used with input from the Technical Advisory Team (TAT) and members of the BILD York and Peel chapters to refine the criteria and to evaluate the methodologies.

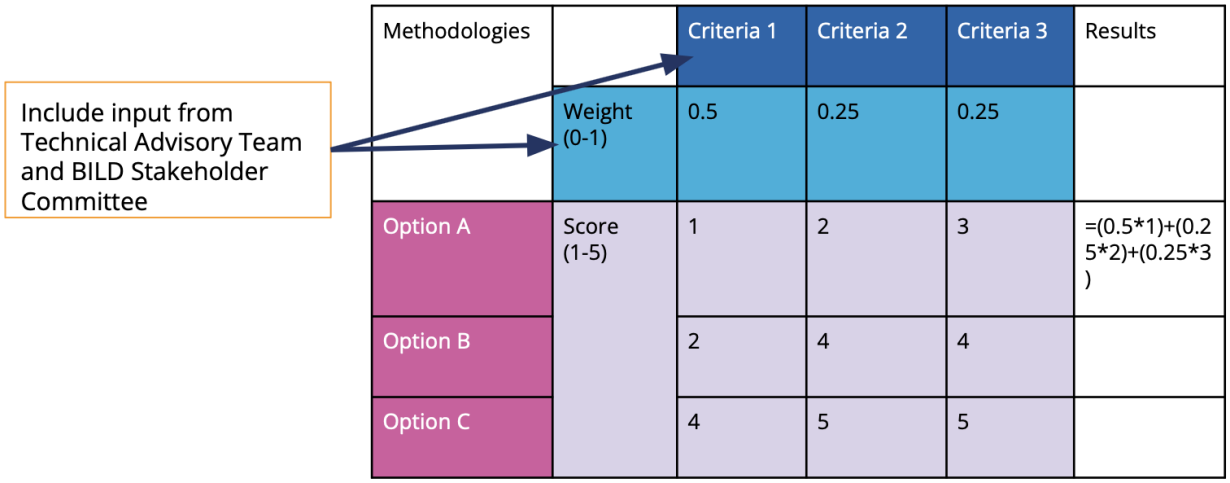

Figure 9. Visual representations of the MCA.

The criteria used to evaluate the methodologies includes:

- **Transferability:** Can the methodology be adopted by multiple municipalities?
- **Material improvement:** Does the methodology increase sustainability performance?
- **Progression:** Does the methodology have a mechanism to increase performance over time?
- **Practicality:** Can the methodology be easily implemented?
- **Adaptability:** Does the methodology take into consideration the local context of the development site?

Table 17. MCA results from SSG's analysis. Note: the criteria weighting (row 2) were developed in consultation with stakeholders.

	Transferability	Material Improvement	Progression	Practicality	Adaptability	Score
Weighting	3.4	3.2	2.5	4.1	3.3	-
Universal	5	5	2	3	4	63.5
Percent Improvement	2	2	5	3	3	47.9
Benchmarking	2	1	5	3	3	44.7

The MCA results indicate the preferred Sustainability Score Threshold methodology as Universal. The analysis found that neither Percent Improvement nor Benchmarking facilitate material improvements in the sustainability performance of development proposals. This result follows from the observation that the baseline scores were calculated from development applications completed prior to the development of the updated Sustainability Metrics.

4.2 Insights from the Engagement Process

Stakeholder engagement was set at the "Involve" level of the International Association of Public Participation (IAP2) spectrum. The methodologies, MCA, and recommendations were refined through ongoing communication with municipal staff. External stakeholders, including the development industry, were engaged at key milestones in the project.

The first workshop took place on October 29, 2021 and stakeholders provided input on the Threshold methodologies, the MCA criteria and weighting, and the various approaches to further the integration and reporting of climate change. Thirty-seven stakeholders attended this workshop, and an average of 40% of attendees provided feedback in the workshop engagement activities.

See Appendix C and D for the engagement strategy and detailed engagement summary. The input received from stakeholders during the first workshop directly informed the final recommendations in the following ways:

- **Result 1:** Stakeholders identified the potential strengths and weaknesses of each proposed threshold methodology.
- **Result 2:** Stakeholders approved the proposed criteria, provided additional criteria, and selected the weighting for the MCA used to select the recommended methodology. In addition, stakeholders participated in an MCA to increase understanding of the analysis process and determine their preferences. Universal scored the highest in the stakeholder MCA.

- **Result 3:** Stakeholders questioned the appropriateness of the External Standard as a methodology. Following additional internal research, this methodology was not explored further following the first workshop.
- **Result 4:** Participants ranked the approaches to improve integration and reporting of climate change. Minimum Climate Performance received 80% support from participants.

At the second workshop, held on December 7, 2021, stakeholders were informed how their feedback shaped the final recommendations and presented the recommended approaches. During the workshop, no stakeholders suggested modifications to the recommendations.

The TAT hosted a third meeting with select representatives of BILD York and Peel chapters (known as the BILD Working Group) on January 6, 2022 as a follow-up discussion on the recommendations presented at Workshop #2. SSG did not facilitate this workshop, however, members from the consulting team attended as a resource to answer questions regarding the methodologies and approaches. Based on the feedback received from the BILD Working Group, the recommendations were further refined, particularly as they relate to Universal – Pathway 2, and Minimum Performance Option B.

5. Recommendations

5.1 Recommended Methodology for Setting New Thresholds: Universal

Recommendations were developed based on feedback from external stakeholders and the TAT and results of the MCA.

Recommendation #1: Implement Universal methodology to establish new Thresholds for the updated Sustainable New Communities Program, commencing with Pathway 1 in 2022.

Table 18. Universal - Pathway 1 - implementation in 2022.

	Total points available	Bronze	Silver	Gold
Site Plan	241	41 - 61	62 - 75	76 - 241
Draft Plan	194	27 - 40	41 - 49	50 - 194
Block Plan	76	14 - 20	21 - 25	26 - 76

The engagement process identified Universal as the preferred methodology. It was also the highest scoring option in the Multi-Criteria Analysis. Additional strengths of the Universal – Pathway 1 are summarized below:

- The methodology results in a consistent set of Thresholds across municipalities.
- Establishing the Thresholds using the Diffusion of Innovation model provides a reliable approach to calculate the percentage increases between each Threshold level (Bronze, Silver, and Gold).
- By removing all "Good" level metrics associated with qualifier questions, the methodology takes into account differences in site specific contexts in which developers are only required to meet the total points available for Metrics that are applicable to all sites.
- In contrast to the other methodologies, the approach recognizes leaders in sustainable design and development by creating Score Thresholds that are more representative of the total points available.
- It is independent of the performance of previously approved development proposals (e.g.. average and median previous scores were not used to set the baseline) which were not reflective of current municipal policies, plans, and guidelines, industry best practices, or the updated suite of Sustainability Metrics.

Recommendation #2: Monitor and evaluate the development applications under the updated Sustainable New Communities Program, and transition to Thresholds to Universal – Pathway 2 in 2026.

Table 19. Universal - Pathway 2 - implementation in 2026.

	Total points available	Bronze	Silver	Gold
Site Plan	241	55 - 81	82 - 101	102 - 241
Draft Plan	194	44 - 65	66 - 80	81 - 194
Block Plan	76	14 - 20	21 - 25	26 - 76

Monitoring the Sustainability Scores following the formal launch of the updated Sustainable New Communities Program is a best practice to adapt the program, as needed. These adaptations might include responding to updates in municipal energy plans, Building Codes, or Provincial and Federal climate change directives, as well as ongoing communication with the public and stakeholders. Additionally, the new data gathered from green development standards and programs in each municipality can be used by the Province in assessing updates to the Ontario Building Code.

The phased approach, which increases the Score Thresholds over a scheduled period of time, allows applicants to adapt to the new Metrics and Thresholds before performance requirements are enhanced, and enables municipalities to evaluate the progress of applications meeting each

Threshold. The benefits of adopting Universal – Pathway 2 in a phased manner are summarized below:

- It provides a mechanism to increase sustainability and climate performance over time.
- It provides certainty to industry so that they have time to adjust without disruption to the updated Program requirements.
- It allows municipalities to perform an ongoing evaluation of the Sustainability Scores, Metrics and Thresholds, and to adapt the Program as necessary.

As the new Metrics and Thresholds are implemented, it may be easier than anticipated for applicants to achieve a Sustainability Score within and above the (minimum) Bronze Threshold. The phased approach enables the municipalities to evaluate whether the scores are advancing sustainability performance as intended and to align an incentives program accordingly.

Recommendation #3: Apply the Silver Score Threshold as the minimum performance for urban/town centres and intensification corridors.

Provincial and municipal policies, standards, and guidelines facilitate the achievement of Metrics related to compact urban-form (e.g. BE-1: proximity to amenities, BE-2: mixed-use development, BE-9: surface parking footprint, M-8: distance to transit). It is therefore recommended that each municipality consider elevating the minimum Threshold requirement for development in these areas to the Silver Sustainability Score Threshold. This avoids creating separate Metrics and Thresholds for these areas, while ensuring that new developments achieve higher sustainability performance.

For the City of Markham, a higher standard may be appropriate for medium and high density developments to ensure there is no decrease in performance requirements when transitioning from LEED to the Sustainable New Communities Program. In this case, the City should evaluate whether the Silver Threshold exceeds the existing LEED Silver requirement for medium and high density development.

Recommendation #4: Incorporate the Climate Change Minimum Performance Option B into the Sustainable New Communities Program.

Every tonne of GHG emissions matters, and all buildings and infrastructure that are not energy efficient result in additional emissions, and impede climate change mitigation and adaptation. Incorporating the Minimum Performance Option B to the Sustainable New Communities Program ensures an increase in building performance, which is critical to reducing emissions and avoids creating additional building stock that will need to be retrofitted in the near future. As IB-12 is an OBC-interior related Metric, the points available for the “Good” level are not included in the Universal – Pathway 1 Bronze Threshold (baseline) calculation; by achieving this mandatory Metric requirement, an application is well on the way to achieving the Bronze Threshold.

Table 20. Summary of Climate Performance requirements.

	2022-2023	2024-2027	2028-2031	2032-2035
Climate Performance Requirement	Achieve "Good" level	Achieve "Great" level	Achieve "Excellent" level	Achieve "Exceptional" level
IB-12: Energy Efficiency and GHG Reductions Metric requirements summary	**Part 9 Residential Buildings** (3 storeys or less, and less than 600 m2 GFA): design the building(s) to achieve ENERGY STAR® for New Homes version 17.1 or R-2000® requirements, or equivalent. **Part 3 Buildings Multi-unit residential, Office, and Retail** (more than 3 storeys or more than 500 m2 GFA): develop a whole-building energy model, and design and construct the building to achieve the following whole-building performance metrics: • TEUI: 170 kWh/m2/yr • TEDI: 70 kWh/m2/yr • GHGI: 20 kgCO2/m2/yr **All Other Part 3 Buildings:** develop a whole-building energy model, and design and construct the building to achieve at least a 15% improvement in energy efficiency over OBC.	**Part 9 Residential Buildings** (3 storeys or less, and less than 600 m2 GFA):design , construct, and label the building(s) to achieve ENERGY STAR® for New Homes version 17.1 or R-2000® requirements, or equivalent. **Part 3 Buildings Multi-unit residential, Office, and Retail** (more than 3 storeys or more than 500 m2 GFA): develop a whole-building energy model, and design and construct the building to achieve the following whole-building performance metrics: • TEUI: 135 kWh/m2/yr • TEDI: 50 kWh/m2/yr • GHGI: 15 kgCO2/m2/yr **All Other Part 3 Buildings:** develop a whole-building energy model, and design and construct the building to achieve at least a 25% improvement in energy efficiency over OBC.	**Part 9 Residential Buildings** (3 storeys or less, and less than 600 m2 GFA): design and construct the building(s) to be Net Zero ready in accordance with the CHBA Net Zero Home Labelling Program, or equivalent. **Part 3 Buildings Multi-unit residential, Office, and Retail** (more than 3 storeys or more than 500 m2 GFA): develop a whole-building energy model, and design and construct the building to achieve the following whole-building performance metrics: • TEUI: 100 kWh/m2/yr • TEDI: 30 kWh/m2/yr • GHGI: 10 kgCO2/m2/yr **All Other Part 3 Buildings:** develop a whole-building energy model, and design and construct the building to achieve at least a 37% improvement in energy efficiency over OBC.	**Part 9 Residential Buildings** (3 storeys or less, and less than 600 m2 GFA): design and construct the building(s) in accordance with the CHBA Net Zero Home Labelling Program or Passive House standards, or equivalent. **Part 3 Buildings Multi-unit residential, Office, and Retail** (more than 3 storeys or more than 500 m2 GFA): ddevelop a whole-building energy model, and design and construct the building to achieve the following whole-building performance metrics: • TEUI: 75 kWh/m2/yr • TEDI: 15 kWh/m2/yr • GHGI: 5 kgCO2/m2/yr **All Other Part 3 Buildings:** develop a whole-building energy model, and design and construct the building to achieve at least a 50% improvement in energy efficiency over OBC.

Of the four approaches for reducing emissions, the Minimum Performance was preferred by stakeholders and the TAT. Unlike Minimum Climate Performance Option B, Option A includes Metrics that are already being met in development. Therefore, Option A was deemed unnecessarily broad for advancing climate performance. The other three climate approaches are marketing tools

that are complementary and could be used along with Minimum Performance Option B approach at the discretion of each municipality.

The performance requirements/tiers and implementation timeframe generally align with those of the City of Toronto's Green Development Standards (Version 3), as well as the Town of Whitby's Green Development Standards (2020). It should be noted that the City of Toronto will be transitioning to TGS Version 4 in May 2022, and will be requiring the CHBA Net Zero Home Labelling Program or Passive House Standard for new construction by 2028, four years earlier than this proposal does. The performance requirements and implementation timeframe recommended in Table 20 will enable a consistent and predictable approach for developers across multiple municipalities.

A mandatory requirement ensures that the building stock is future-proofed and that no additional costs will need to be incurred to decarbonise these buildings. Making the requirement mandatory also levels the playing field and stimulates innovative approaches in the built environment to increase efficiency and lower capital costs.[14] Importantly, more efficient buildings also have lower operating costs for households and better air quality and thermal comfort for occupants.[15] High performance buildings provide emergency resilience to extreme climate events; for example, net-zero buildings often can provide power when centralized energy grids are down.[16]

6. Conclusion

The objective of the Sustainable New Communities Program is to advance the sustainability performance of new construction in the participating municipalities. This Program, however, will also catalyze co-benefits in public health, climate change mitigation and adaptation, natural heritage conservation, water and air quality, and economic development.

The revamp to the suite of Sustainability Performance Metrics was undertaken as part of an earlier and separate phase of the Sustainable New Communities Program update. This report serves as the second phase of the update, and identifies methods for establishing new Sustainability Performance Thresholds. The methods were evaluated against select criteria identified through stakeholder consultation; these included transferability, material improvement, progression, practicality, and adaptability. Based on the analysis, the Universal methodology was the best performing against the criteria.

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[14] For a detailed analysis of the impacts of increased building performance, see: Bernhardt, R. (2021). Addressing the Cost of Efficiency. Retrieved from: https://energystepcode.ca/app/uploads/sites/257/2021/05/Cost-of-Efficiency-Report-2021-final.pdf

[15] CHBA (2021). Do Net Zero Homes save you money? Retrieved from: https://blog.chba.ca/2021/10/26/do-net-zero-homes-save-you-money/

[16] Enck, J. (2021). Delivering Disaster-Resilient Buildings. Retrieved from: https://facilityexecutive.com/2021/10/delivering-disaster-resilient-buildings/

Universal – Pathway 1 established a baseline performance requirement by removing all points associated with all “Good” level Metrics that do not have qualifier questions and do not relate to OBC-interior matters. The removal of these two types of Metrics takes into account the differences in site contexts, ensuring developers are only required to meet the total points available to all sites, and also enables the industry to adjust to the updated Program requirements prior to increasing performance requirements. The phased approach, in which municipalities transition to Universal – Pathway 2 in 2026, is recommended so applicants in the municipalities have sufficient time to increase sustainability performance.

This approach is cautious. If applicants easily achieve or exceed the Bronze Threshold of Pathway 1, the partner municipalities should consider transitioning to Pathway 2 earlier than 2026. Phases three and four of the Sustainable New Communities Program Update involves identifying incentives, and updating outreach and education. Monitoring the Sustainability Scores will be crucial in understanding the Program's success and providing evidence of community co-benefits to justify this public investment.

In addition to the broader Sustainability Thresholds, a climate change Minimum Performance is recommended to ensure that the Sustainable New Communities Program advances the climate action goals and targets of the partner municipalities. As noted previously in this report, eliminating GHG emissions is no longer optional; it is a scientific imperative. The climate emergency requires immediate innovation, ambition and accelerated action.

The building and development industry has continued to innovate in the face of major societal challenges, highlighted by initiatives such as the Canada Green Building Council, Canadian Home Builders Association's Net Zero Homes program, and by pioneering net zero projects. The Sustainable New Communities Program provides a mechanism to further stimulate and accelerate this ongoing innovation.

Appendices

Appendix A: Assessment of Original and Updated Sustainability Metrics Methodology

To evaluate the performance of approved planning development applications under the updated Sustainability Metrics, the municipalities[17] provided a random sample of Site Plan, Draft Plan of Subdivision, and Block Plan applications that were approved within the last 5 years and under the original Metrics Program. 60 Site Plans, 39 Draft Plans and 4 Block Plans were evaluated and analyzed for trends by Metric category and municipality.

This assessment contributed to identifying key insights for establishing new Thresholds and determining Threshold approaches that are:

- Aligned with the climate goals of the four partner municipalities;
- Aligned with external third-party performance standards currently being applied by industry or non-profit organizations;Reflective of emerging technologies and trends; and
- Incorporate consideration for an enhanced approach for urban/town centres and intensification areas.

Table A1. Summary of application scores by a) Site Plan, b) Draft Plan and c) Block Plan under original and updated Sustainability Metrics.

Municipality	Number of Site Plan Applications	Average Score (under original Sustainability Metrics)	Average Score (under updated Sustainability Metrics)
Site Plan			
All	60	32	18
Brampton	15	38	17

[17] The City of Richmond Hill's City Council approved in-principle to update the City's Sustainability Metrics Tool and Threshold scoring on January 27, 2021. The threshold methodology generally aligned a minimum threshold with the community's Official Plan and other legislative requirements, based on a qualitative assessment of Good, Very Good or Excellent. Since each of the partner municipalities have unique official plans, this methodology was not used in this assessment.

Markham[18]	15	–	18
Richmond Hill	15	43	14
Vaughan	15	40	12
Draft Plan			
All	39	33	17
Brampton	10	38	17
Markham	10	–	23
Richmond Hill	10	33	15
Vaughan	9	30	15
Block Plan[19]			
All	4	30	20
Brampton	3	29	22
Vaughan	1	31	14

The scores under the updated Sustainability Metrics were lower across all municipalities and development application types. As noted in Section 2.1, the performance of applications under the updated Metrics cannot be taken as an absolute measurement of how future applications may perform.

The existing applications do not reflect what is undertaken by developers and builders today or how they can achieve points under the updated suite of Metrics, as these applications were developed in the context of older policies, guidelines, programs, and industry best practices, Metrics and Thresholds.

In addition, the higher performance in Block Plan applications was a result of a small sample size of 4 and is not representative of how applications may perform under the updated Metrics.

[18]The City of Markham joined the updated Sustainable New Communities Program Project in 2019, therefore there were no applications under the original Metrics.

[19]Only Brampton and Vaughan Block Plans were assessed under the updated Metrics. The City of Richmond Hill does not have a Block Planning process and the City of Markham did not approve any Block Plans in the last 5 years.

Appendix B: Detailed Methodologies and Results

The following section provides an overview of the information used to calculate the Thresholds for Universal, Percentage Improvement, and Benchmarking methodologies.

Universal methodology

Universal – Pathway 1

The baseline for the Bronze Threshold for Universal – Pathway 1 is calculated as:

- The total points of all "Good" level Metrics;
- Minus the points of all "Good" level Metrics with a qualifier question that are also not OBC-interior metrics (Table B1);
- Minus the points of all "Good" level Metrics for OBC-interior related (Table B2).

This calculation ensures that points associated with a Metric are not removed twice if the Metric has both a qualifier question and is OBC-interior related.

A modification in calculating the total points of all "Good" level metrics was made for Sustainability Metric IB-1 (Green Building Certification), which was set to 1 point instead of its original 7 points. This modification was made because in order for a planning application to achieve a total of 7 points for this Metric, the application would need to have seven certified green buildings on site. As a result, to allow for fairness it is assumed that all applications can achieve one building that would have a Green Building Certification.

Table B1. "Good" level metrics that have qualifier questions, and that are not OBC-interior related,[20] and available points for each application type.

Indicator Number	Metric	Points		
		Site Plan	Draft Plan	Block Plan
BE-5	Cultural Heritage Conservation	1	1	1
BE-5	Cultural Heritage Conservation	1	1	NA
M-2	School Proximity to Transit and Cycling	NA	1	1
M-10	Traffic Calming	1	1	NA
M-10	Traffic Calming	1	1	NA
NE-1	Tree Conservation	3	3	3
NE-4	Natural Heritage Connections	2	2	2
NE-5	Natural Heritage System Enhancements	1	1	NA

[20] Metrics that are also "Good" level OBC-interior related are: IB- 2, IB-14, IB-16, IB-19. The associated points are listed in Table B2 and were only removed once as noted in the previous equation.

NE-5	Natural Heritage System Enhancements	1	1	NA
NE-5	Natural Heritage System Enhancements	1	1	NA
NE-8	Park Access	3	3	3
NE-11	Potable Water Use	2	NA	NA
NE-12	Multi-purpose Stormwater Management	1	1	NA
Total points		**18**	**17**	**10**

Table B2. All "Good" level OBC-interior related metrics. Note: Block Plans do not have any OBC-interior metrics in the "Good" level.

Indicator Number	Metric	Points	
		Site Plan	Draft Plan
BE-10	Electric Vehicle Charging Stations	3	3
IB-1	Buildings Designed/Certified under Green Rating System	1	1
IB-2	Universal Design	2	NA
IB-10	Solar Readiness	NA	3
IB-12	Building Energy Efficiency, GHG Reduction	3	3
IB-12	Building Energy Efficiency, GHG Reduction	3	3
IB-13	Rainwater and Greywater Use	1	1
IB-14	Back-Up Power	1	1
IB-14	Back-Up Power	1	1
IB-15	Extreme Wind Protection	2	2
IB-16	Sub-Metering of Thermal Energy and Water	2	NA
IB-16	Sub-Metering of Thermal Energy and Water	2	NA
IB-19	Solid Waste	1	NA
IB-19	Solid Waste	1	NA
IB-19	Solid Waste	1	NA
Total points		**24**	**18**

Universal – Pathway 2

The baseline for the Bronze Threshold for Universal - Pathway 2 is calculated as:

- The total points of all "Good" level Metrics;
- Minus the points of all "Good" level Metrics with a qualifier question (Table B3).

Table B3 lists all "Good" level Metrics with a qualifier question and the associated points for each application type. The point value of 1 was applied to the IB-1 Metric, as detailed in the previous section.

Table B3. "Good" level metrics that have qualifier questions and that are not OBC-interior related, and available points for each application type.

Indicator Number	Metric	Points		
		Site Plan	Draft Plan	Block Plan
BE-5	Cultural Heritage Conservation	1	1	NA
BE-5	Cultural Heritage Conservation	1	1	NA
M-2	School Proximity to Transit and Cycling	NA	1	1
M-10	Traffic Calming	1	1	NA
M-10	Traffic Calming	1	1	NA
NE-1	Tree Conservation	3	3	3
NE-4	Natural Heritage Connections	2	2	2
NE-5	Natural Heritage System Enhancements	1	1	NA
NE-5	Natural Heritage System Enhancements	1	1	NA
NE-5	Natural Heritage System Enhancements	1	1	NA
NE-8	Park Access	3	3	3
NE-11	Potable Water Use	2	NA	NA
NE-12	Multi-purpose Stormwater Management	1	1	NA
IB-2	Accessibility For Multi-Unit Dwellings	2	N/A	N/A
IB-14	Back-Up Power	1	1	NA
IB-16	Sub-Metering of Thermal Energy and Water	2	NA	NA
IB-16	Sub-Metering of Thermal Energy and Water	2	NA	NA
IB-19	Solid Waste	1	NA	NA
IB-19	Solid Waste	1	NA	NA
IB-19	Solid Waste	1	NA	NA
Total points		**28**	**18**	**10**

Percentage Improvement

The baseline for Percentage Improvement is calculated using the median Sustainability Score (based on the updated Metrics) of all sample development applications from each municipality, and applied the Diffusion of Innovation Model to determine the subsequent Thresholds.

- Baseline = median sustainability performance of past applications
- Bronze = median sustainability performance + 20%
- Silver = median sustainability performance + 50%
- Gold = median sustainability performance + 84%

Calculation:

- Baseline = 15

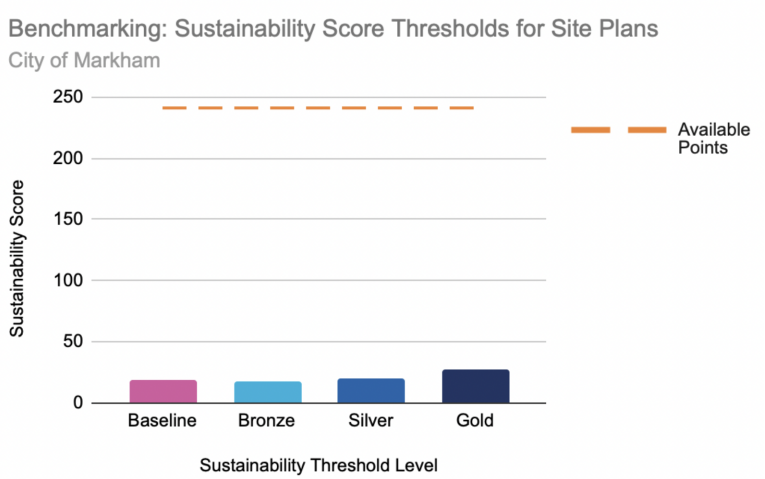
$$Bronze\ Score\ Threshold = Baseline * 1.2$$
$$Silver\ Score\ Threshold = Bronze\ Score\ Threshold * 1.5$$
$$Gold\ Score\ Threshold = Gold\ Score\ Threshold * 1.84$$

Table B4. Sustainability Score Thresholds resulting from the Percentage Improvement methodology.

	Total points available	Baseline	Bronze	Silver	Gold
Site Plan	241	15	18-22	23-27	28-241
Draft Plan	194	16	19-23	24-28	29-194
Block Plan	76	21	25-31	32-38	39-76

Benchmarking

Benchmarking uses the average scores of sample development applications for each municipality to calculate the baseline; thus Block Plans were not assessed because only one municipality had enough sample Block Plan applications to calculate an average score. Figures B1 to B3 summarize the baseline, Bronze, Silver, and Gold Thresholds for each muncipality's Site Plans and Draft Plans .



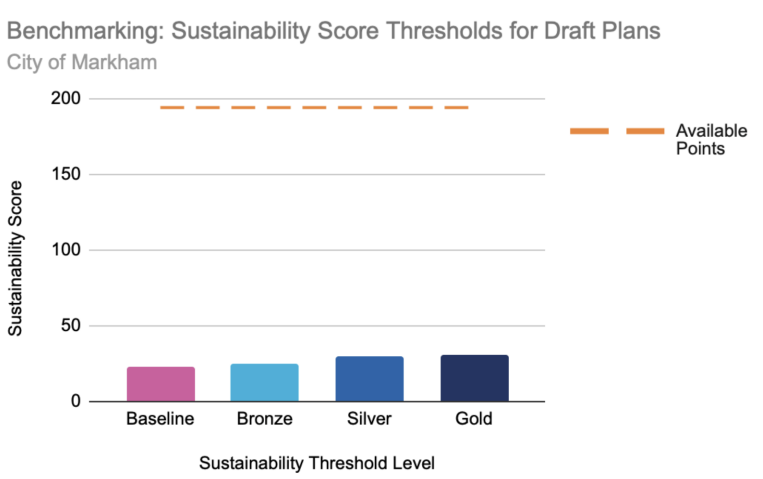
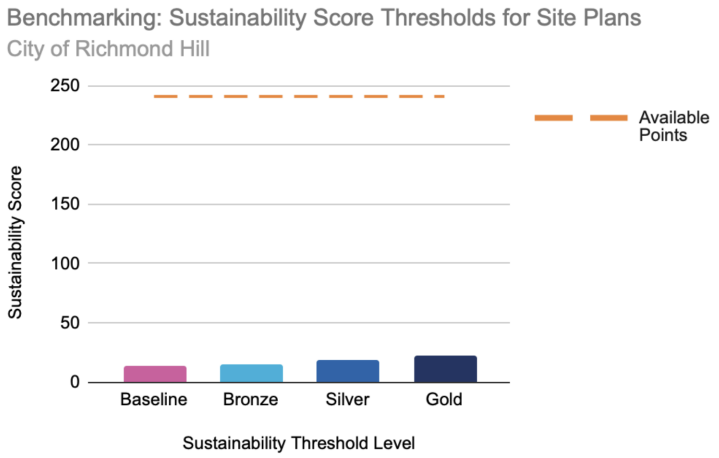


Figure B1. Benchmark Performance baseline and minimum points for each Threshold (Bronze, Silver, and Gold) for the City of Markham for Site Plan and Draft Plan applications. The orange dotted line represents the total points available for each application type.



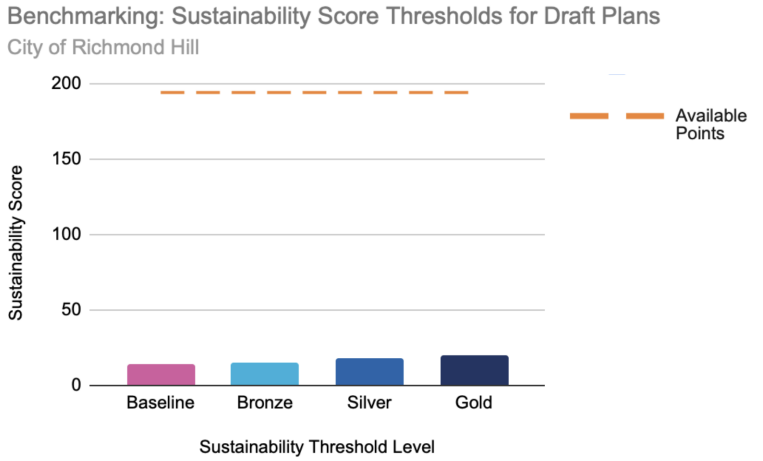
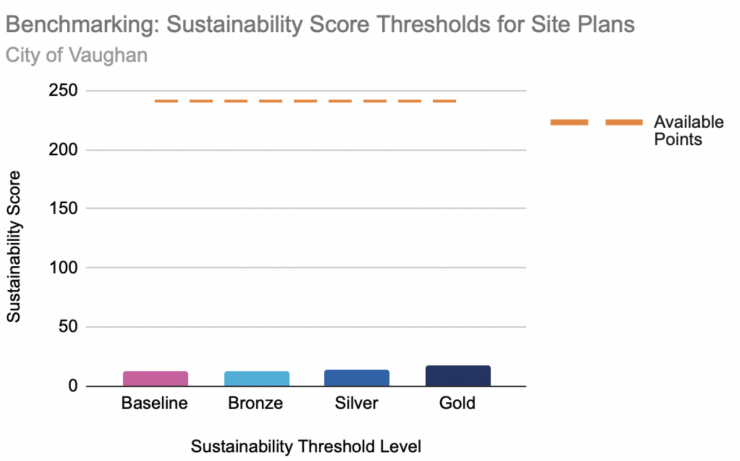


Figure B2. Benchmark Performance baseline and minimum points for each Threshold (Bronze, Silver, and Gold) for the City of Richmond Hill for Site Plan and Draft Plan applications. The orange dotted line represents the total points available for each application type.



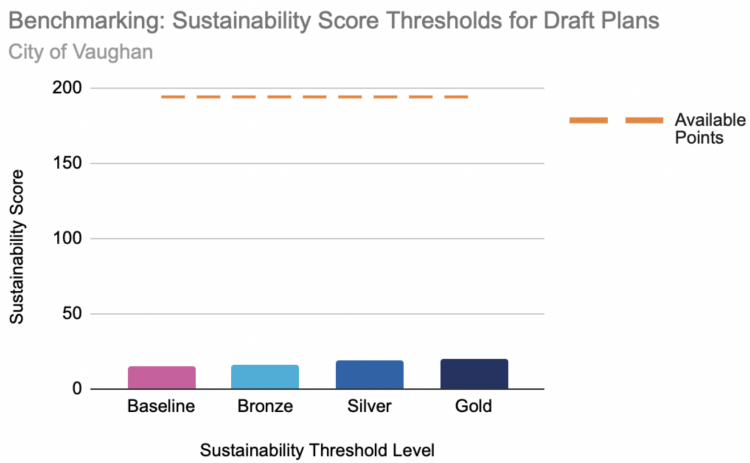
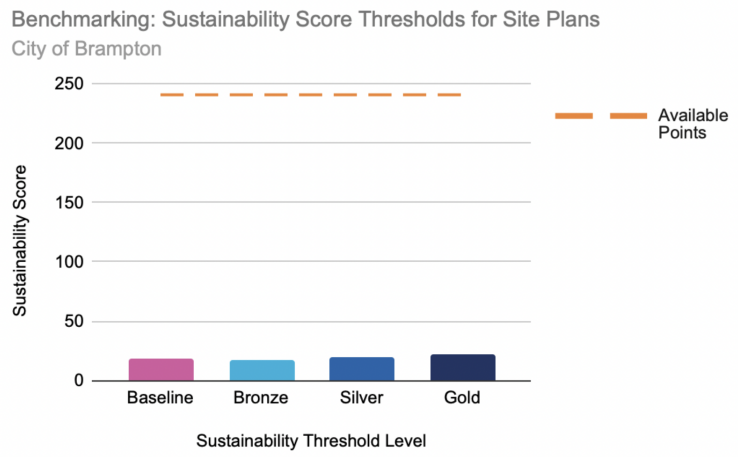


Figure B3. Benchmark Performance baseline and minimum points for each Threshold (Bronze, Silver, and Gold) for the City of Vaughan for Site Plan and Draft Plan applications. The orange dotted line represents the total points available for each application type.



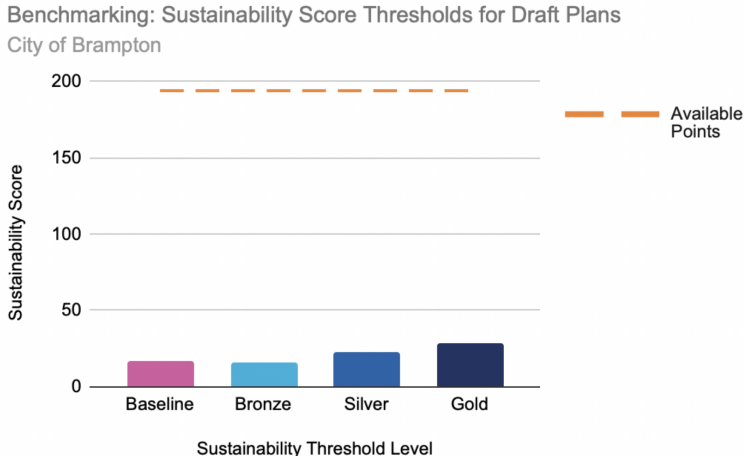


Figure B4. Benchmark Performance baseline and minimum points for each Threshold (Bronze, Silver, and Gold) for the City of Brampton for Site Plan and Draft Plan applications. The orange dotted line represents the total points available for each application type.

Appendix C: Engagement Plan

Document Intent

This Engagement Plan outlines the purpose, approach, and desired outcomes of engagement, as well as the roles and responsibilities of SSG, the City of Brampton, the City of Richmond Hill, the City of Vaughan, and the City of Markham during the engagement process.

Background

Context

The City of Brampton is seeking to update the Sustainability Score Thresholds for development proposals that were originally launched in collaboration with the City of Richmond Hill and the City of Vaughan between 2013 and 2015. Development proposals in these three cities are evaluated against Sustainability Metrics, generating a Sustainability Score. Thresholds are associated with different scores, and the municipalities can encourage, incentivize, or require a certain performance level using the thresholds.

Between 2018 and 2021, the Cities of Brampton, Richmond Hill, Vaughan, and Markham developed an updated set of Sustainability Metrics to reflect the changing policy environment. The aim of this project is to update the Thresholds to reflect the updated Metrics and align with environmental and climate action goals and targets of the four partner municipalities. Higher levels of performance will be identified for urban/town centres and intensification areas.

Supporting Strategic Documentation

The Sustainability Performance Metrics and the municipally approved development applications will provide useful background information for engagement activities, such as stakeholder meetings and workshops. Drawing examples, principles, and approaches from these documents will increase the unified Sustainability Metric's alignment with other plans and help to integrate all these different, but related, initiatives.

What is Being Decided and Who Decides?

All of the partner municipalities expect the new Sustainability Performance Thresholds to be prepared for approval by their Councils in 2022[21]. This project will achieve their aim to better align the Sustainability Performance Metrics and Thresholds to further efforts to address climate action and overall environmental sustainability.

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[21] The City of Richmond Hill independently developed new Thresholds that were approved, in principle, by its Council in 2021. Participation in this current work will inform the final Thresholds that Richmond Hill will move forward with.

Stakeholders will have an opportunity to provide input on the methodologies used to determine new

Thresholds, and this feedback will shape the final Thresholds. The consulting team will engage the municipalities through the Technical Advisory Team, which includes representatives from the City of Brampton, the City of Markham, the City of Richmond Hill, and the City of Vaughan. The Team will influence methodology development and the formulation of alternative methods.

The consulting team and the City of Brampton will engage representatives of the development sector through the Building Industry and Land Development Association (BILD). The Atmospheric Fund (TAF), Clean Air Partnership, and Canada Green Building Council will also be approached for input. These representatives will be engaged through Stakeholder Meetings in which they will be asked to share their methodology preferences.

Engagement Strategy

The Engagement Strategy is the framework that will ensure key internal and external interested or affected parties are informed about the project and given opportunities to provide feedback and contribute to creating the best Sustainability Score Thresholds possible. The strategy will also help build stakeholder support for implementation of the new Thresholds.

Guiding Principles

The following principles should guide the design and execution of all engagement activities:

- Engagement meeting formats will be guided by interested or affected parties' preference.
- While in-person engagement opportunities are preferred, the challenges of COVID-19 direct us to online engagement for the near future. Online engagement opportunities will be as interactive as possible. In-person opportunities will be planned should physical distancing measures be modified during the active engagement period.
- Engagement conversations will be values-based.
- We, the Project Team, will communicate values and educate interested or affected parties about complexity before and during the active engagement period in order to raise the general level of understanding around climate action planning.
- We, the Project Team, will involve key interested or affected parties in the information collection process to demonstrate process integrity and build credibility for recommendations.
- Communication of background information and engagement opportunities (times, dates, online venues) will happen in a reasonable time prior to engagement.
- Interested or affected parties will have opportunities to provide input.
- Concerns and aspirations will be discussed to formulate options for consideration.

- Decision-making will be consensus-based. In the event that a consensus is not possible, the decision-maker will consider the advice received during the engagements as much as possible in making the required decisions.

Engagement Objectives

Principally, the Engagement Plan seeks to:

1. Build understanding about the process necessary to undertake meaningful climate action;
2. Facilitate inclusive conversations among interested or affected parties to document stakeholder concerns and aspirations; and
3. Use stakeholder input as part of a collaborative problem-solving process with all interested or affected parties to identify opportunities and address the challenges associated with applying the Sustainability Score Thresholds in the four municipalities.

These objectives require the City of Brampton to deliver certain outputs (tangible deliverables) and outcomes (changes in understanding, perspective, relationships, level of trust, etc.). These outputs and outcomes will support the municipalities and the interested or affected parties in reviewing and adjusting the Sustainability Score Thresholds. Engaging with key interested or affected parties will provide opportunities to address concerns, discuss implications, and articulate the journey ahead. This will ensure that the new Thresholds are feasible, ambitious, equitable, and effective.

The following recommended objectives for this Engagement Plan have been informed by SSG's experience.

Objective 1: To inform, and more importantly, to engage interested or affected parties about the reformed Sustainability Score Thresholds.

- **Outcome:** Interested and affected parties understand the changes, planning, and investment required for the Sustainable New Communities Program to succeed, as well as the increasing costs of inaction. They also understand that change is achievable, and that financial and quality-of-life benefits will be realized as the updated Program is achieved.
- **Outcome:** Interested and affected parties know how to get involved, are motivated to identify alternative approaches, and become partners in the realization of the new Thresholds and Sustainable New Communities Program overall.

Objective 2: To involve interested and affected parties in gathering feedback to inform the update to the Sustainability Score Thresholds. This will ensure that the Thresholds reflect the four municipalities' operational realities, strategic visions, expertises, and cultures. It will also ensure critical stakeholder impacts are considered.

- **Outcome:** The four municipalities collaborate with their implementation partners to maximize the impact of the Thresholds.

- **Output:** Stakeholder input on Thresholds approaches that will be used to make decisions about new Thresholds.
- **Output:** Contact lists of stakeholders who wish to continue to participate in the Sustainable New Communities Program Update' implementation.

Objective 3: To inform interested and affected parties about how their involvement will shape the new Sustainability Score Thresholds and to provide feedback to those interested or affected parties about the development of the new Thresholds and progress in implementing them over the long term.

- **Outcome:** Interested or affected parties understand the impact of their participation in shaping the updated Thresholds.
- **Output:** Interested and affected parties were informed how their feedback shaped the final recommendations through Workshop 2: What We Heard and Recommendations.

References in this section to "inform, consult, involve, and collaborate" are explained in Figure D1: IAP2 (International Association of Public Participation) Spectrum of Engagement.

Givens

Givens are facts that are outside the scope of engagement, which means they are not negotiable. The givens for this engagement include the following:

- Climate change is real and is primarily driven by human activity.
- The Sustainability Metrics have been updated.
- The Cities of Brampton, Vaughan, Markham, and Richmond Hill will set new Sustainability Score Thresholds.

Interested or Affected Parties

Working with the Technical Advisory Team, we will identify who should be engaged and how to reach them. Additionally, we will review the Cities' existing efforts. This approach may be limited to the minimum three sessions defined in the RFP or extended beyond that, if required, based on our preliminary analysis and discussions with the Project Manager and the Technical Advisory Team.

Technical Advisory Committee (TAT) Members

- City of Brampton
    - Stavroula Kassaris, Environmental Planner
    - Kristina Dokoska, Environmental Planner
- City of Markham
    - Marty Chan, Senior Planner
    - Mattson Meere, Senior Planner

- City of Richmond Hill
    - Brian DeFreitas, Senior Planner
    - Christine Lee, Policy Researcher
- City of Vaughan
    - Ashley Faulkner, Senior Planner
    - Andrew Haagsma, Planner

Interested and Affected Parties

- Steering Committee Members
    - Michael Hoy, Supervisor of Environmental Planning, City of Brampton
    - Tony Iacobelli, Manager of Natural Heritage, City of Markham
    - Ruth Rendon, Senior Environmental Planner, City of Vaughan
    - Sybelle von Kursell, Manager of Policy Planning, City of Richmond Hill
- Building Industry and Land Development Association (BILD) - York and Peel chapters
- Clean Air Partnership
- Region of Peel
- The Atmospheric Fund (TAF)
- York Region

Engagement Timeline

Phase 1: Engagement Design

Project initiation: September 2021–October 2021

Activity	SSG role	City role	Objectives	Timeframe
Engagement Plan design	Draft Engagement Plan	Refine and approve	All	November

Phase 2: Active Engagement Period

October 2021–December 2021

Activity	IAP2 Spectrum Level	SSG Role	City Role	Objectives	Timeframe
Technical Advisory Team communication updates.	Inform. Promise to the Technical Advisory Team: We will keep you informed about the plan's progress and opportunities for you to become involved.	Assist in developing regular project updates for distribution through Brampton communication channels.	Edit and draft key messages. Create invites for engagement meetings.	1–3	Sept.-Dec.
Technical Advisory Team Meeting 1—Start-up and Success Criteria: SSG will meet the Technical Advisory Team to discuss the project approach and work plan, including when the Committee will be engaged. SSG will also seek input on the engagement approach and success criteria for the project.	Collaborate. Promise to the Technical Advisory Team: We will incorporate your preferences and feedback to the greatest extent possible, and we will seek advice in formulating methods.	Introductory presentation of project. Discuss challenges and opportunities. Define what success looks like in the project.	Edit draft messaging and presentation. Create invites for engagement events.	1–3	Sept.

Technical Advisory Team Meeting 2— Approaches to Sustainability Score Thresholds: SSG will present the methodologies for identifying thresholds and the results of a multi-criteria analysis to the Technical Advisory Team. Input will be provided through breakout groups and a post-presentation survey.	Involve. Promise to the Technical Advisory Committee: We will incorporate your preferences and feedback to the greatest extent possible, and we will seek advice in formulating alternatives.	Prepare an overview of the project process and milestones. Provide digital framework/exercise tools. Respond to questions about the methodology.	Coordinate meeting timing and hosting. Review presentation materials prior to the meeting.	1–3	Oct.
Stakeholder Meetings 1: SSG wlll involve ey stakeholder groups, including, but not limited to municipal staff, BILD, and development industry consultants. SSG will present the	Involve. Promise to the BILD Stakeholder Committee: We will incorporate your preferences and feedback to the extent possible, and we will seek advice in formulating alternatives.	Lead the workshop, finalize ideas, ask questions, and outline methodologies. Identify and communicate possible methodologies.	Identify and convene group members. Review presentation materials prior to the meeting. Coordinate meeting timing and hosting.	1–3	Nov.

methods and assessment to solicit input through breakout groups and a post-presentation survey. SSG will prepare an agenda and a presentation and distribute them to the Project Manager a week before the meeting(s). SSG will also take meeting minutes.					
Stakeholder Meeting 2: SSG will present the recommended methodology and thresholds to the stakeholders.	Involve. Promise to the BILD Stakeholder Committee: We will incorporate your preferences and feedback to the greatest extent possible, and we will seek advice in formulating alternatives.	Lead the workshop, finalize ideas, ask questions, and outline methodologies. Identify and communicate possible methodologies.	Review presentation materials prior to the meeting. Coordinate meeting timing and hosting.	2, 3	Dec.

IAP2 Public Participation Spectrum

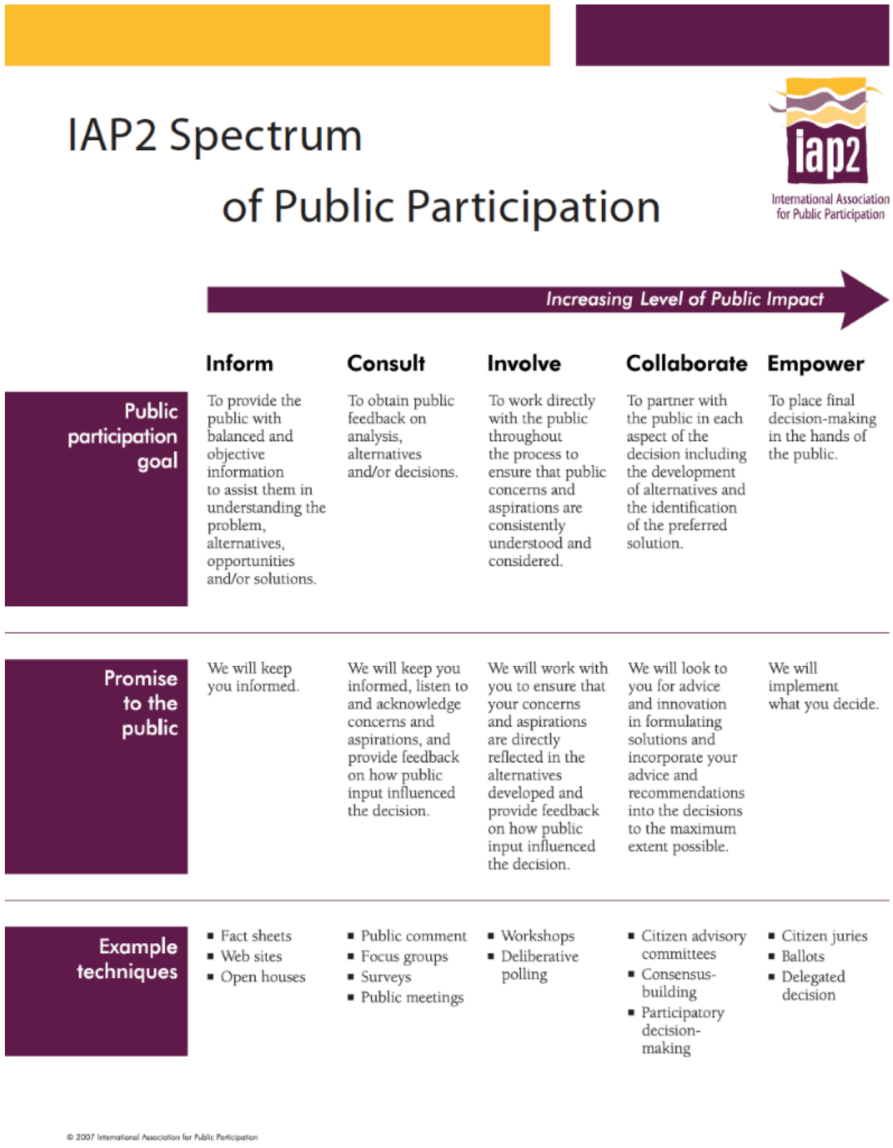

Figure C1. IAP2 Spectrum of Public Participation.

Appendix D: Engagement Summary

How We Engaged

To meet the engagement objectives identified in the Engagement Plan (Appendix D), SSG engaged with interested and affected parties through a series of Technical Advisory Team (TAT) meetings and stakeholder workshops.

Technical Advisory Team (TAT)

The TAT is composed of representatives from the four partner municipalities: the City of Brampton, the City of Markham, the City of Richmond Hill, and the City of Vaughan.

During the first TAT meeting, SSG collaborated with the TAT to discuss the project approach, work plan, and the engagement approach and timeline. At the second TAT meeting, SSG presented the methodologies for identifying thresholds and results from the preliminary multi-criteria analysis.

At the final TAT meeting, SSG presented the recommended methodology for updating the Sustainability Score Thresholds, the recommended approach for enhancing climate change performance integration, and the approach for enhanced sustainability performance requirements for urban/town centres and corridors. SSG collaborated with the TAT on the development of the final stakeholder workshop presentation and recommended approaches. Since feedback from the TAT was integrated throughout the project, this report focuses on the engagement results of the stakeholder workshops.

Stakeholder Workshops

Key stakeholders from the Building Industry and Land Development Association (BILD), development industry consultants, municipal and other government agencies staff attended the two stakeholder workshops. During the first workshop, SSG presented the methodologies for identifying new Thresholds, the multi-criteria analysis (MCA) for selecting the preferred methodology, and the approaches to enhance climate change performance integration and reporting; stakeholders provided feedback on each of these topics. During the second workshop, SSG presented the recommended Threshold methodology, integration approach to enhance climate change performance, and the proposed approach for urban/town centres and corridors. Feedback was gathered during the workshop and through a post-workshop comment period.

Engagement Results

Who Participated

Sixty-seven stakeholders attended the two stakeholder workshops.

Thirty-seven stakeholders attended workshop 1. Eight were representatives from the consulting industry and non-profits, 20 were representatives from the development industry, and nine were

representatives from either the municipal or regional governments. In addition, 14 representatives from TAT and SSG attended. TAT members, other municipal staff and SSG did not participate in the engagement activities.

Thirty stakeholders attended workshop 2. Four were representatives from the consulting industry and non-profits, 17 were representatives from the development industry, and nine were representatives from either the municipal or regional governments. In addition, nine representatives from TAT and SSG attended; TAT members, municipal staff and SSG did not participate in the engagement activities.

Recommended Threshold Methodology

Workshop 1 Engagement Activity

SSG presented the four Threshold methodologies and used Metimeter (Menti), an online interactive presentation software to facilitate polling and open question periods to collect feedback on each methodology. SSG advised workshop participants that feedback would be used to inform the final recommended Score Threshold approach; however, participation during the engagement periods for the methodologies was low with an average of 32% of stakeholders responding to the four engagement questions and little discussion despite attempts to encourage questions and comments from workshop attendees.

Universal[22]

Sixteen workshop participants responded to the question on Universal. Many participants suggested that Universal is a context-specific, local, simple, and customizable approach.

> *"[Universal] is the most flexible as it reflects the local context. That is very important because the existing context is out of a developer's control."*
>
> *"[Universal] seems easy to be accountable and probably the best received."*

Percentage Improvement

Thirteen workshop participants responded to the question on Percentage Improvement. Many participants suggested that Percentage Improvement is a simple, clear, achievable, and progressive approach.

> *"Percentage Improvements may be good to ensure projects are continually improving site conditions. Great to monitor progress over time."*

Benchmarking

Seven workshop participants responded to the question on Benchmarking. Although the engagement question asked for strengths of the methodology, most of the feedback highlighted areas of concern. The participants' most prominent concerns about the Benchmarking methodology

[22] During the engagement process the Universal methodology was referred to as Relativism, the City of Brampton updated the methodology name in February 2022.

are that it is competitive, difficult, unpredictable, and not context-specific. However, two participants suggested the methodology is efficient and easy.

> *"Benchmarking may be competitive and may also align with opportunities for incentives. The constraint is that there could be many approaches that are meeting the base minimum score, so the benchmarking [threshold levels are] rather low."*

External Standard

Twelve workshop participants responded to the question on external standards. Although the engagement question asked for strengths of the methodology, a mix of strengths and concerns were expressed. Participants suggested that it is a credible, researched, and well-known approach. The participants' most prominent concerns were that it is not context-specific and that it is cumbersome, restrictive, and difficult.

> *"For the external standard, is there just one standard which is the focus, or are there multiple ones?"*

Workshop 2 Universal Methodology Engagement Activity

In workshop 2, SSG presented the recommended methodology to update the Sustainability Score Thresholds — Universal Phased Approach. During the workshop, SSG used three engagement activities to encourage participants' questions and feedback, including opportunities and challenges.

Engagement Activity 1

The question period was hosted live with participants asking questions directly to SSG consultants and the TAT. The majority of the questions focused on the updated Sustainable New Communities Program overall and the timelines for implementation.

Engagement Activity 2

Workshop participants were asked about the opportunities offered by the Universal methodology via a Menti poll. Six stakeholders provided feedback during the activity. Stakeholders said the approach:

- Offers flexibility for different sites (two comments);
- Enables incremental improvement and clear direction for improvements over time (two comments);
- Is geography specific (two comments); and
- Involves simple implementation and is easy to understand (one comment).

Engagement Activity 3

Workshop participants were asked about the challenges of the Universal methodology via a Menti poll. Three stakeholders provided feedback during the activity. They indicated the approach:

- Might not meet the climate action challenge and municipal GHG goals (two comments); and
- Did not provide a clear way to progress standards beyond 2026 (one comment).

Multi-Criteria Analysis

Workshop 1 Engagement Activities

Engagement Activity 1

In workshop 1, SSG presented the four multi-criteria analysis (MCA) criteria for analyzing the proposed Threshold methodologies. Based on feedback from participants, a fifth criterion was added to identify whether the methodology can be adapted to reflect the local and site context.

The following MCA criteria used in the analysis were finalized based on stakeholder feedback:

- **Transferability:** Can the methodology be adopted by multiple municipalities?
- **Material improvement:** Does the methodology increase performance?
- **Progression:** Does the methodology have a mechanism to increase performance over time?
- **Practicality:** Can the methodology be easily implemented?
- **Adaptability:** Can the methodology be adapted to reflect the local and site context?

Engagement Activity 2

In the second engagement activity, SSG used a Menti poll to set the weighting for the MCA criteria which were used to select the recommended methodology. Participants were asked to weigh each criterion on a sliding scale from 1 to 5, where 1 was of lowest importance and 5 was of highest importance. Table D1 displays the weighting averaged from the responses provided by the 20 stakeholders who participated in this activity.

Table D1. MCA weighting criteria selected by workshop participants.

	Transferability	Material Improvement	Progression	Practicality	Adaptability
Weighting	3.4	3.2	2.5	4.1	3.3

Engagement Activity 3

In the third engagement activity, a poll was used to score each Threshold methodologies against the selected MCA criteria. The aim of the activity was to increase participant knowledge of the MCA process by developing a trial score for the Threshold methodologies. While the weighting of each criteria selected in engagement activity 2 was used in SSG's final MCA process, the scoring in engagement activity 3 was only a practice and was not used as the final scoring for selecting the final recommended methodology. Approximately 37% of stakeholders participated in this engagement activity, which indicated a preference for Universal and Percentage Improvement (Table D2).

Table D2. Workshop 1 results of the MCA engagement activity.

	Transferability	Material improvement	Progression	Practicality	Adaptability	Score
Weighting	**3.4**	**3.2**	**2.5**	**4.1**	**3.3**	**-**
Universal	3.5	2.3	1.8	3.9	3.9	52.62
% Improvement	2.8	3.6	3.8	2.9	2.9	47.54
Benchmarking	2.4	2.6	2.9	2.2	2.8	41.60
External	3.4	2.5	2.0	2.7	1.6	30.88

Workshop 2

An engagement activity was not completed in workshop 2. Instead, a question period was offered. In addition, workshop participants were informed about how their feedback on the MCA weighting was integrated into the selection of the final recommended Threshold methodology.

Enhancing Climate Change Integration

Workshop 1 Engagement Activity

SSG presented four approaches for enhancing integration of climate change into the Sustainable New Communities Program and used a menti-poll to collect feedback on the workshop attendees' support for each approach. Participants were asked to rank their support for each approach on a scale of strongly disagree, disagree, agree, and strongly agree.

SSG advised that the poll would be used to inform the selection of the recommended approach. Participation was higher than in the engagement activity for the Threshold methodologies, with an average of 50% of stakeholders participating in the climate change engagement activities.

Minimum Climate Performance

Twenty stakeholders participated in the Minimum Climate Performance approach Menti poll:

- 50% strongly agreed;
- 30% agreed;
- 5% selected agreed; and
- 15% disagreed.

Climate Score

Seventeen stakeholders participated in the Climate Score approach Menti poll:

- 12% strongly agreed;
- 35% agreed;
- 35% disagreed; and
- 18% strongly disagreed.

GHG Calculation

Nineteen stakeholders participated in the GHG Calculation approach Menti poll:

- 5% strongly agreed;
- 63% agreed;
- 0% disagreed; and
- 32% strongly disagreed.

Climate Ranking

Eighteen stakeholders participated in the Climate Ranking approach Menti poll:

- 11% strongly agreed;
- 17% agreed;
- 22% disagreed; and
- 50% strongly disagreed.

Workshop 2

An engagement activity was not completed in workshop 2, Instead, a question period was offered. In addition, workshop participants were informed about how their feedback from the first workshop was used to select the final recommended approach for enhancing the integration of climate change into the Sustainable New Communities Program.

General Feedback

A post-workshop participant poll was available for stakeholders to provide general feedback. Two workshop participants provided the following feedback via this activity:

> *"A good sample of approaches to integrate climate action into the metrics, keeping in mind the goal of zero emissions by 2030 and the need to move toward that performance objective."*
>
> *"It was excellent to see a thorough and quantitative analysis that 'filled the variable space' so that a range of options were represented. This certainly makes the recommended approach more defensible."*

Additional Engagement

Following the Stakeholder Workshop #2, BILD requested a meeting with TAT and the BILD Working Group to discuss the recommendations presented at the first workshops. The BILD Working Group was initially established during the Sustainability Metrics updates phase. The Working Group is comprised of representatives of builders/developers who frequently work in York and Peel region, as well as a building science consultant. SSG did not facilitate this workshop; however, a project team member was available during the call as a resource and to answer questions pertaining to the recommendations.

During the meeting, the BILD Working Group provided feedback on the proposed Thresholds and building energy and GHG emission performance requirements, as well as the importance of reviewing implementation of the new Metrics and Thresholds, particularly before any transition to higher performance requirements is pursued. The meeting informed the final recommendations of this report.

Integrating Feedback

The feedback from the two stakeholder workshops/meetings was used to develop the final recommended Threshold approach and the final recommended approach for enhancing the integration and reporting of climate action into the Sustainable New Communities Program.

Attachment 3

Sustainability Metrics – Metric IB-18 Bird Friendly Design (i.e Bird Safe Design) and Bird Safe Standards

IB-18: BIRD-FRIENDLY DESIGN (i.e. BIRD SAFE DESIGN)			
Intent:	To reduce the incidents of bird collisions and provide an urban environment where birds can thrive. The built environment can have strong negative impacts on birds. Design and system selection can result in fewer bird collisions and deaths.		
Applicable to:	☐ Block Plan	☐ Draft Plan of Subdivision	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	2 points	A combination of Bird-Friendly Design strategies on at least 85% of contiguous glass area greater than 2 square meters (m^2) within the first 16 meters of the building above-grade (including interior courtyards) and above green roofs is applied. **AND** The remaining 15% of glazed windows do not need to be treated unless the glazing is larger than 2 square meters (m^2) or in close proximity to open spaces, a green roof or a natural heritage feature. Bird-Friendly Design Strategies may include: Visual patterns on glass, Window films, Fenestration patterns, Angled glass downwards, Reducing night sky lighting. Visual markers provided on the glass of proposed buildings with spacing no greater than 5 centimeter x 5 centimeter.	On the building Elevation drawings: Highlight and declare the total area of contiguous glass, below 16m above grade that is greater than 2 m^2. Indicate the areas treated bird friendly design strategy, noting which strategy has been used. Quantify the total area of continuous glass that has been treated by bird-friendly design strategies and confirm that it is at least 85%. Confirm that the visual markers on the glass have spacing no greater than 5cm x 5cm.
Good:	2 points	Apply Bird-Friendly Design strategies for ground-oriented residential development that is adjacent to natural heritage systems and open spaces.	Provide a Letter of Commitment signed by an accredited professional (architect or professional engineer) and the owner/developer that confirms Bird Friendly Design strategies are incorporated for developments adjacent to natural heritage systems and open spaces, listing which acceptable Bird Friendly Design strategies are to be included.
References:	City of Vaughan: Urban Design Guidelines. City of Markham Bird Friendly Guidelines Whitby Green Standard v1 (2020): LUN1.7 (Site Plan) Toronto Green Standard v3 Tier I: Ecology (EC4.1) (CF, LR, MHR); Tier II: Ecology (EC4.3) (LR), (EC4.4) (MHR) Thinking Green Item (2018): 10 (Site Plan)		

City of Vaughan's Bird Safe Standards

Film, Frit and Acid Etched Markers

Best efforts should be made to treat all buildings from finished grade to 16m with Bird Safe Design treatments. Where not feasible, for 85% of contiguous glass larger than $2m^2$ in area from finished grade to 16m should be treated. Such treatments include visual external markers in the form of stripes, dots or other patterns. A variation of patterns can be used to create individuality in building design through Bird Safe Design treatments.

Balcony railing and interior courtyards with clear glass should be treated. Green roofs can often be situated as low as the second storey of a building, these should be treated. Also, a green roof up to 4m from landscaped feature when above 16m above grade should also be treated.

Standards for Visual Markers

- **Size:** The size of a marker pattern should be 0.32cm (1/8 inch) or greater. These visual marker standards can change based on current research observations.
- **Density:** To deter bird-window collisions for most species, visual markers should be spaced vertically at 5cm horizontally and 5cm vertically. FLAP Canada's research confirmed these standards.
- **First Surface Application:** To effectively disrupt the illusion of an environment or throughway to an open space beyond the clear or reflective surface, markers must be applied to the exterior (first) surface of the glass.
- **Contrast and Visibility:** Markers must have high contrast from clear or reflective exterior surfaces and be visible under varying weather conditions.
- For the 15% remaining glass surface should be applied if the area of continuous glass is greater than $2m^2$ or is near open spaces, green roofs or natural heritage features. Such treatments include closer-spaced window mullions and decorative grills.

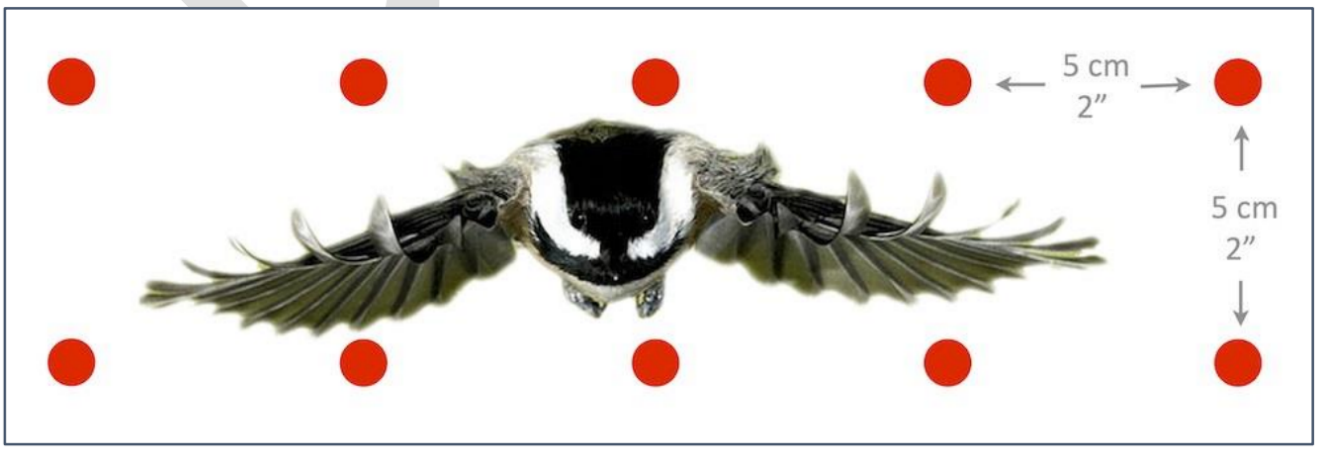

Figure 1 - Image provided on page 11 of Ottawa's Bird-Safe Design Guidelines

Bird Safe Landscaping Principles

All building facades where trees and vegetation are proposed adjacent to the windows should be treated. If locating trees near glass, plant trees and vegetation within 1m from glass areas or further than 30m from glass areas. The use of fruit-bearing trees and vegetation that attracts birds should be minimized near untreated glass and reflective surfaces. As an alternative to planting trees near glass, plant low shrubs and groundcover.

Lighting Controls and Design

Birds migrating at night may be drawn to urban areas by artificial light, especially during inclement weather. The artificial light may confuse and disorient the birds, causing birds to collide with buildings and other structures, or become exhausted and highly vulnerable to predators. The harmful impacts of interior and exterior lighting can be mitigated through lighting controls and design.

Interior Lighting

Interior lighting should be shut off from 11 p.m. to 6 a.m., minimal light should be used during spring (March to June) and fall (August to November) bird migration periods, and motion sensors or an auto shutoff system with a maximum 30-minute vacant period should be installed. Automated blackout blinds can be installed and drawn for intensely lighted interior spaces.

Exterior Lighting

For all exterior lighting, up-lighting should be avoided at all times by attaching cut-off shields for streetlights and external building lights. Exterior lighting should be limited to areas where lighting is needed for safety and security. Avoid creating “pools”, “spots” or “floods” of light that could attract birds. As per the City of Vaughan’s Property Standards By-law, light is not permitted to spill out from the property line.

Best Practice Standards

Please see the following for best practice Bird Safe standards:

- Fatal Light Awareness Program Canada
- CSA Bird Friendly Building Design (2020)
- City of Ottawa Bird Safe Design Guidelines (2020)
- City of Markham's Bird Friendly Guidelines (2014)
- Toronto Green Standard v3 Tier I: Ecology (EC4.1) (CF, LR, MHR); Tier II: Ecology (EC4.3) (LR), (EC4.4) (MHR)