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 Metrics Scoring Tool:
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 REQUIRE A SUSTAINABILITY SCORE?

- Plans of Subdivision of 10 or more residential units
- Site Plans
- Zoning By-law amendments to facilitate any of the above

WHAT TYPE OF APPLICATIONS ARE EXEMPT?

- Plans of Subdivision of 9 residential units or less
- Minor Site Plans
- Plans of Subdivision for the purpose of subdividing large blocks of land for the sole purpose of creating lots for future employment, industrial, commercial, or institutional development, and which will require a subsequent Site Plan approval.

DOES IT APPLY TO ZONING BY-LAW AMENDMENTS?

Yes. The score will be based on the preliminary information available at the Zoning By-law amendment stage. The score will then be refined when more details become available as part of the associated Plan of Subdivision and/or Site Plan applications.

IS THERE A MINIMUM REQUIRED SCORE?

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

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	• 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 as part of the proposed development.	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, Municipal Official Plan, 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	Markham Target added to reflect York Region Policy New community areas shall be designed to contain community core areas, which will be the focus of retail, personal services, human services, community services and provide connections to rapid transit. The community cores shall be within a reasonable walking distance from the majority of the population.	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 core area and the cluster of surrounding neighbourhoods. • Uses and densities within the community core area. • Centre point of community core area and 400 meter radius. • Uses and densities within the community core area.
Excellent:	3 points	**Not applicable to Markham – alternative target provided above** 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.	
	3 points	**Not applicable to Markham – alternative target provided above** 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:	• York Region New Community Guidelines • 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 prepared by an accredited professional (e.g member of the Canadian Association of Heritage Professionals), 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 and urban tree canopy 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.). City of Markham Trees for Tomorrow Streetscape Manual
Great:	+1 additional point s (total 2 points)	Trees will shade at least 75% of the walkway/sidewalk lengths within 10 years.	
Good:	3 point	**Target added for Markham as per York Region OP** Landscape plan will provide tree canopy for at least 40% of site within 10 years and the minimum soil volume is provided for each tree.	On a Landscape Plan: • Identify total site area and the total area that will be shaded by the tree canopy and quantify as a percentage.

Excellent:	+ 2 additional points (total 5 points)	**Target added for Markham as per York Region OP** Landscape plan will provide tree canopy for at least 50% of site within 10 years and the minimum soil volume is provided for each tree.	• The canopy calculation shall be based on the "Caliper to Canopy" methodology developed by the Emory University. Note: • Tree canopy target applies to private lands only and shall exclude park and open space blocks being conveyed to the City.
Great:	2 points	**Not applicable to Markham – alternative target provided above** 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	**Not applicable to Markham – alternative target provided above** Street trees are provided on both sides of street at intervals averaging no more than 10 metres, where supported by the municipality.	On a Landscape Plan: • Identify the distance intervals of street trees.
Excellent:	+ 2 additional points (total 3 points)	**Not applicable to Markham – alternative target provided above** 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:	• York Region Official Plan • 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	For residential uses, dedicate 3% of parking spaces on-site to carshare/zip car (does not apply to restricted parking spaces). 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)	For residential uses, dedicate 5% of parking spaces on-site to carshare/zip car (does not apply to restricted parking spaces). Provide preferred parking for these vehicles by incorporating signage and/or pavement markings.	
Good:	1 point	For non-residential uses, dedicate 3% of parking spaces on-site to carpooling and/or carshare/zip car (does not apply to restricted parking spaces). Provide preferred parking for these vehicles by incorporating signage and/or pavement markings.	
Great:	+1 additional point (total 2 points)	For non-residential uses, dedicate 5% of parking spaces on-site to carpooling and/or carshare/zip car (does not apply to restricted parking spaces). 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			
Intent:	To facilitate the use of electric vehicles.		
Applicable to:	☐ Block Plan	**☒ Draft Plan of Subdivision**	**☒ Site Plan**
	Points	**Requirement**	**Documentation**
Good:	2 points	For midrise and highrise residential uses with shared parking areas, at least 50% of the parking spaces are designed and constructed to permit future EVSE installation (e.g. rough-in).	On the Site Plan and Parking Floor Plans: • Provide the number of total parking spaces included per building on the site. • Provide the number of total parking spaces that will be provided rough-in provisions or with EVSE. • Provide the percentage of parking spaces that will be provided with rough-in provisions or with EVSE.

<table>
<tr><td>Excellent</td><td>+3 additional points
(total 5 points)</td><td>Target added for City of Markham
For midrise and highrise residential uses with shared parking areas, 100% of the parking spaces are designed and constructed to permit future EVSE installation (e.g. rough-in). Target added for City of Markham</td><td rowspan="4">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.</td></tr>
<tr><td>Excellent:</td><td>5 points</td><td>Target added for City of Markham as per FUA CEP
For lowrise residential with dedicated parking in a private garage, 100% of the parking spaces are designed and constructed to permit future EVSE installation (e.g. rough-in).</td></tr>
<tr><td>Good:</td><td>3 points</td><td>For non-residential uses, electric vehicle supply equipment (EVSE) is provided to serve 10% of parking spaces.</td></tr>
<tr><td>Great:</td><td>+2 additional points
(total 5 points)</td><td>For non-residential uses, electric vehicle supply equipment (EVSE) is provided to serve 20% of parking spaces.</td></tr>
<tr><td>References:</td><td colspan="3">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)</td></tr>
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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 200 meters (as per City of Markham Guidelines).	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 200 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 200 meters (as per City of Markham Guidelines).	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 200 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.
Good:	1 point	**Not applicable to Markham – alternative target provided above** 75% of block lengths do not exceed 200 meters (as per City of Markham Guidelines).	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)	**Not applicable to Markham – alternative target provided above** All block lengths do not exceed 200 meters (as per City of Markham Guidelines).	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.
References:	• City of Markham Future Urban Area Urban Design Guidelines • 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: • Linear path using existing and proposed active transportation network to illustrate 200 metre or 400 metre distance 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).
Great:	+1 additional point (total 2 points)	All public schools are located within a 200 meter walking distance to transit stops and/or dedicated cycle networks.	
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. 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.
Great:	+1 additional point (total 2 points)	Provide for 51-60 multi-use trials, paths, and streets intersections per square kilometre (sq.km).	
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	For site plans, provide/ extend /upgrade continuous sidewalks or multi-use trails on public streets where supported by the municipality. Points do not apply where an existing sidewalk will remain.	On the Block Plan, Draft Plan or Site Plan: • Provide continuous sidewalk or multi-use trails on both sides of public streets. • Verify and document that the sidewalks comply with Municipal Standards.
Good:	2 points	For subdivisions provide/ extend continuous sidewalks or multi-use trails on both sides of public streets where supported by the municipality.	
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 or to destinations on adjacent properties or public streets. **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 or public streets. • Highlight the pedestrian amenities provided along the pedestrian connections. Note:

Great:	+1 additional point (total 2 points)	A pedestrian connection is provided through the site and serves as a midblock connection between adjacent two adjacent properties and or public streets.	• 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)	**Not applicable to Markham – alternative target provided above** 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.
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	Short-term bicycle parking is located within 25m of building entrance and is weather protected if outdoors. Long-term bicycle parking is located in a secured area at grade or with dedicated elevator access on the P1 level.	
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:	• City of Markham Active Transportation Master Plan		

	• 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	Implement the objectives of the applicable municipal Active Transportation Master Plan and/or Trails/Pathways Master Plan by implementing the improvements as part of the development.	In the Transportation Study: • Identification of any existing or planned multi-use trails and/or bicycle 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:	• City of Markham Active Transportation Master Plan • 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:	• City of Markham Active Transportation Master Plan • 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**
Traffic Calming Targets below not applicable to Markham – conflicts with municipal standards			
Good:	1 point	75% of new local streets/roads are designed with traffic calming strategies.	In a Transportation Study or Traffic Calming 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: • Traffic calming strategies include but are not limited to: • Neckdowns, • Centre island narrowing, • Raised crosswalks, • Traffic circles and roundabouts, and/or • Speed display boards/vehicle activated traffic calming signs (VATCS).
Great:	+2 additional points (total 3 points)	100% of new local streets/roads are designed with traffic calming strategies.	
Good:	1 points	50% of new non-residential and/or mixed-use streets are designed with traffic calming strategies.	
Great:	+2 additional points (total 3 points)	75% of new non-residential and/or mixed-use streets are designed with traffic calming strategies.	
References:	• Whitby Green Standard v1 (2020): TT1.4 (Draft Plan of Subdivision, Site Plan)		

NATURAL ENVIRONMENT & PARKS

<table>
<tr><th colspan="4">NE-1: TREE CONSERVATION</th></tr>
<tr><td>Intent:</td><td colspan="3">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.</td></tr>
<tr><td>Applicable to:</td><td>☒ Block Plan</td><td>☒ Draft Plan of Subdivision</td><td>☒ Site Plan</td></tr>
<tr><td></td><td>Points</td><td>Requirement</td><td>Documentation</td></tr>
<tr><td>Good:</td><td>3 points</td><td>Preserve 25% of mature trees with a DBH ≥20 centimetres in situ on site.</td><td rowspan="2">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) and excludes trees within park blocks.
Mature trees include those evaluated by a certified Arborist and equal or greater than 20 cm DBH (diameter at breast height).</td></tr>
<tr><td>Great:</td><td>+2 additional points (total 5 points)</td><td>Preserve 50% of mature trees with a DBH ≥20 centimetres in situ on site or preserve 100% of healthy hedgerows in situ on site.</td></tr>
<tr><td>References:</td><td colspan="3">Town of Whitby Green Standard v1 (2020): LUN1.4 (Draft Plan of Subdivision, Site Plan)</td></tr>
</table>

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 large canopy 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.	For Subdivisions, provide a demonstration plan: • Illustrating how the required tree soil volumes and depths will be achieved for each of the proposed building types and ROW widths based on the driveway location, lot width, boulevard dimensions, typical utilities and any other constraints. For Site Plans, provide a Landscape Plan: • Identifying the tree planting locations, soil volume, soil depth, and soil quality that will be provided for each tree.
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 5% by dry weight; • 50%-60% sand, 20-40% silt and 6%-10% clay • pH between 6.5 and 7.0 • A minimum depth of 100 cm, or in accordance with municipal standards, whichever is higher. • Provide adequate drainage.	
References:	• City of Markham Trees for Tomorrow Streetscape Manual • 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	**Not applicable to Markham – 200mm is below standard** A minimum topsoil depth of 200 millimetres is provided across the entire site (excluding paved surfaces).	For Subdivisions, 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. For Site Plans provide a Landscape Plan and details identifying the minimum topsoil depth that is provided across the entire site.
Great:	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 single loaded roads, parks, SWM facilities, etc.) to 50% 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, parks and other public uses adjacent to any natural heritage features, and include the length of each that directly abuts the natural heritage feature. • Determine the length of the edges of the natural heritage system within the site. • Determine what percentage (%) of the edge of the natural heritage system is bounded by a public use. Note: • Clarification for Markham: any section of a natural heritage system with trail running between a private yard and the natural heritage system lot does not count towards a physical public connection. • Percentage (%) of the natural heritage system is determined by the length of the natural heritage system 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 single loaded roads, parks, SWM facilities, etc.) to 75% or more of the length of the natural heritage system that abuts the proposed development (interface between development and natural heritage systems).	
Good:	2 points	**Not applicable to Markham – alternative target provided above** 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).	

Great:	+2 additional point (total 4 points)	**Not applicable to Markham – alternative target provided above** 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:	• City of Markham Future Urban Area Urban Design Guidelines • 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.	For Subdivisions, 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. For Site Plans, provide a Landscape Plan: • Identifying the species and proposed quantities of native plants (trees, shrubs, perennials, etc.) that support pollinators on the plant list. • Providing 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) or 5% of the rooftop amenity area or 5% ground floor landscaped area (whichever is greater). • Provide a shed for gardening equipment storage. • Provide a water source for the garden space.	For Subdivisions, 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. For Site Plans, provide a Landscape Plan: • Illustrating the total landscaped area and/or roofed area of the project. • Specifying total area of garden space provided. • Identify supportive garden infrastructure (e.g. shed and water source).

		For ground-oriented residential developments: *With yards:* • For each residential lot, provide a raised garden bed that is at least 30 centimetres inches tall, 1.2 metres wide, and 1.8 metres long. *Without yards:* • For each unit, provide container gardens that can accommodate 15 gallons of soil and are at least 12 inches deep.	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.
Good:	2 points	**Not applicable to Markham – alternative target provided above** 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 (whichever is greater). • Provide a shed for gardening equipment storage. • Provide a water source for the garden space.	
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. 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 parkettes, neighborhood parks, and community parks included within the application. Note: • The public road must extend for the full frontage of the park. *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 each park. *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 AND BALANCE			
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 site.	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. Note: • Any stormwater facilities related to this metric shall not to be located within public parks.
Great:	+2 additional points (total 4 points)	Retain runoff volume from the 15 millimeter rainfall event on site.	
Excellent:	+3 additional points (total 7 points)	Retain runoff volume from the 25 millimeter rainfall event on site.	
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 • Vaughan's Urban Design Guidelines • 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 points	Drought-tolerant plants make up 75% of the total quantity of plants proposed on the landscape plan and no potable water is used for irrigation.	• Provide plant list from a Landscape Architect identifying drought tolerant species as per the Drought Tolerant Landscaping: A Resource for Development and quantify the total percentage of plants that are drought tolerant. • Provide a Letter of Commitment from the owner/developer confirming that no irrigation will be installed and that sod will be allowed to go dormant and brown in off-season months.
Great:	+4 additional points (total 6 points)	**Not applicable to Markham– alternative target provided above** 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:	• City of Toronto Tolerant Landscaping: A Resource for Development • 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. trails, 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:
			  o Identifies the green rating system that will be achieved and certified for the building(s).
			  o 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 to 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 east, west or south side of each low density residential dwelling.	On the Landscape Plan, identify the new trees to be placed on the east, west or south side of each residential dwelling.
Great:	2 points	Provide exterior shading for all east, west and south facing windows.	On Elevation Drawings, identify the exterior shading method that will be used on all east, west and south 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**
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.
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), • 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.
Excellent	+1 additional point per percent (%) increase up to 5 points (total 7 points)	In the project, more than 1% of the total energy is generated on-site by renewable energy sources, up to 5%.	
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:	6 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 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.	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.
Excellent:	+6 additional points (total 11 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.	For Site Plans and Subdivisions: • 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. For Site Plans the following energy model documentation is also required: • 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:
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.	• For TEUI and TEDI Energy Modelling Guidelines, please refer to the ZCB Energy Modelling Guidelines: https://www.cagbc.org/cagbcdocs/zerocarbon/CaGBC_EMG_for_ZCB_v01.pdf • For rules on carbon accounting and calculating GHGI, please refer to the Zero Carbon Building Standard: https://www.cagbc.org/cagbcdocs/zerocarbon/CaGBC_Zero_Carbon_Building_Standard_EN.pdf
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	**Not applicable to Markham – alternative target provided under IB-16** **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. 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.
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.	
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.	
Good:	2 points	Install electricity 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.	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 electricity meters for all energy end-uses that represent more than 10% of the building's total energy consumption. 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.
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	Annotation on the landscape plan, elevation drawings and photometric plan 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			
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.	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%. • Provide a completed checklist from the City of Markham's Bird-Friendly Guidelines Confirm that the visual markers on the glass have spacing no greater than 10cm x 10cm.

		• Visual markers provided on the glass of proposed buildings with spacing no greater than 10 centimeter x 10 centimeter.	
Good:	2 points	For subdivisions, 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. If the development is subject to Architectural Control, then bird-friendly strategies should be incorporated into the Architectural Control Guidelines.
References:	• 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)		

Metric	**IB-19 Solid Waste**		
Metric 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	Medium and High Density Residential: Provide 25m2 of flexible waste storage space for bulky items and to accommodate infrastructure related to special diversion programs (ex. textile recycling, electronic waste, etc.)	On a Site Plan and/ or Floor Plans: Confirm that City's applicable design standards have been satisfied. Clearly identify the 25m2 of flexible waste storage space
Great:	2 points	Medium and High Density Residential: Design the development with one or more centralized waste disposal rooms that are equipped with access control measures requiring users to "fob" to unlock the access door(s) and outfit each disposal room with a surveillance camera to deter dumping or improper disposal of waste.	On a Site Plan and/ or Floor Plans: • Clearly identify the waste chute system access control system and surveillance camera for each waste disposal room within the proposed development.
Great:	2 points	Medium and High Density Residential: Equip the building's waste chute system with access control measures requiring users to "fob" to unlock garbage, recycling and organic disposal chutes and outfit each	On a Site Plan and/ or Floor Plans: Clearly identify the waste chute system access control system and surveillance camera for each chute room within the proposed development.

		waste chute room with a surveillance camera to deter dumping or improper disposal of waste.	
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)		

IB-19: SOLID WASTE			
	Targets below do not apply to Markham. The targets have been substituted with the targets above to reflect aspirational targets of Waste & Environmental Management and exclude existing mandatory requirements		
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)		