Measuring the Sustainability Performance of New Development
FINAL COMPREHENSIVE REPORT

PREPARED FOR THE CITIES OF BRAMPTON AND VAUGHAN AND TOWN OF RICHMOND HILL

Prepared by Halsall Associates
July 2013

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Measuring the Sustainability Performance of New Development was prepared by Halsall Associates and The Planning Partnership.

This report represents a unique collaboration of the City of Brampton, City of Vaughan and Town of Richmond Hill. This project was undertaken in two phases: Phase 1, Sustainable Community Development Guidelines (SCDG) was led by the City of Brampton and integrates the Region of Peel Healthy Development Index; Phase 2, Sustainability Performance Metrics was led by the City of Vaughan with administration support provided by the City of Brampton. Funding support from the Green Municipal Fund of the Federation of Canadian Municipalities and the Region of Peel Public Health Department is greatly appreciated by the partner municipalities.

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EXECUTIVE SUMMARY

The project, Measuring Sustainability Performance of New Development in Brampton, Richmond Hill and Vaughan, is a collaboration of municipal partners (City of Brampton, Town of Richmond Hill, and City of Vaughan) and environmental partners (TRCA and Clean Air Partnership). A Memorandum of Understanding was signed by the municipal partners in January 2011 following confirmation of matching funds of $85,000 from the Green Municipal Fund of the Federation of Canadian Municipalities. This project has been developed in two phases. Phase 1 consisted of developing the *Sustainable Community Development Guidelines (SCDGs)* for the City of Brampton. Phase 2, the primary focus on this report, was informed by Phase 1 to develop sustainability metrics for development applications. A 3rd phase is likely to follow, with the focus by each municipality on project implementation, monitoring and sharing results between the municipalities.

The intended result of this Phase of the project is a user-friendly checklist of sustainability performance metrics to integrate into the planning application review process that are consistent among the partner municipalities. The consulting team of Halsall Associates and The Planning Partnership has delivered the Final Comprehensive Report according to the RFP requirements. The focus of the Final Comprehensive Report is to:

- Describe the engagement and review process followed for the project;
- Explain the structure of the Sustainability Performance Metrics and Tools;
- Identify potential implementation incentives; and
- Communicate opportunities for next steps.

The final list of deliverables for this phase of the project includes:

- This Final Comprehensive Report;
- Sustainability Performance Metrics, Targets and Precedents (Appendix A in the Final Comprehensive Report);
- An excel-based dynamic tool for implementation;
- A manual and user guide to inform the dynamic tool entries;
- A Metrics log that tracks the ongoing feedback and revisions from the public and private sector working sessions (Appendix C in the Final Comprehensive Report); and
- A Guidebook to assist in the calculation of select metrics and overall submission requirements.

The Sustainability Performance Metrics are organized as a matrix, identifying the indicators, metrics, targets, precedents and point allocation for each metric. The Sustainability Performance Metrics can apply to a range of planning application types (e.g. block plans, draft plans of subdivision, site plans) and consists of four categories, twenty eight indicators and up to 45 metrics (depending on the plan type).

It was determined through the evaluation and consultation process to identify mandatory and enhanced performance targets for each metric, where applicable. Mandatory targets represent the "*business as usual*" situation, that is, the target required to be satisfied for an application to be considered for approval by the municipality. Two tiers of enhanced performance targets are identified: the minimum performance targets, which are considered as "*doing better than you need to*", while the aspirational performance targets are considered as "*best in class*". Points are awarded when a proposed plan

satisfies the recommended minimum and/or aspirational targets for the various metrics. No points are awarded for metrics in which only the mandatory targets are satisfied.

As a result, the Sustainability Performance Metrics are structured in a manner that allows an applicant to select the appropriate metrics to demonstrate whether an enhanced performance target, either the recommended minimum or aspirational, is met. This allows the applicant to tailor the sustainable design features to the site. It is the intent that each municipality will identify a threshold sustainability score for incentives it wishes to offer applicants to encourage implementation of the recommended minimum or aspirational metrics. While the Sustainability Performance Metrics will be consistent across the partner municipalities, each municipality will elaborate how it intends to encourage the implementation of the Sustainability Performance Metrics as part of the planning application review process based on its own unique context.

1.0 VISION AND SUSTAINABILITY GOALS

Developing policy and measuring progress towards sustainability has become increasingly important in managing growth and improving health and wellbeing within cities. Concerns over public health, climate change, energy, and resource use have brought sustainability to the forefront for those planning, building and managing communities in Ontario. Provincial legislation, plans and policies now speak to this sustainability priority as evident in the Provincial Policy Statement (PPS 2005) and the *Planning Act* (Bill 51), and the *Places to Grow Act*, 2005. A number of municipalities in the GTA, including Toronto, East Gwillimbury and Pickering, have developed Sustainability Guidelines, Standards or Metrics as one set of planning tools to achieve healthy, complete, sustainable communities.

Responding to this growing priority for sustainable development, the Cities of Brampton and Vaughan and the Town of Richmond Hill (the municipal partners) have joined together to produce a consolidated set of sustainability guidelines, including metrics and targets as key planning tools to guide the sustainability performance of new development applications including Secondary Plans, Block Plans, Subdivisions and Site Plans. The Sustainability Guidelines, Sustainability Performance Metrics and companion tools also aim to:

- Provide consistency of sustainability guidelines and metrics across the three municipalities, which will simplify the process and create efficiencies for developers;
- Provide a tool to quantify and rank the intended performance of proposed projects/plans; and
- Improve the submission and review process for the municipal partners and developers.

The guidelines act to complement and support other provincial/municipal requirements, such as the Ontario Building Code, urban design and healthy community guidelines, master environmental servicing plans, environmental impact studies, natural heritage evaluations, and growth management plans. Policy direction for this project is supported in various documents approved or adopted by the three partner municipalities as described below.

1.1 City of Brampton

Brampton is planned as a dynamic, urban, sustainable municipality, where growth is managed that protects the environment, enhances its heritage as a Flower City, contributes to the economy and enhances the quality of life. The City of Brampton has an inventory of over 175 environmental sustainability plans, programs, projects and initiatives. Below is a brief outline of three of the most relevant programs: the Official Plan; Environmental Master Plan; and Development Design Guidelines.

Brampton's Official Plan 2006 "Our Brampton ... Our Future" (OP 2006) provides the overarching policy support for implementing triple-bottom line sustainability in all aspects of City functions. The OP's Sustainable City Concept is further supported by policies provided in Transportation, Natural Heritage and Environmental Management, Recreational Open Space and Urban Design.

Brampton Grow Green will be the City's first Environmental Master Plan and will provide a sustainable environmental framework for the City as both a land use approval authority and a corporation. The EMP is intended to:

- bring cohesion to current environmental initiatives, policies and programs across City departments and services;
- identify new best practices to guide the City's operational, planning and regulatory functions;
- develop community and stakeholder awareness, collaboration and partnerships for environmental sustainability; and
- act in combination with the OP 2006, the Strategic Plan and the Growth Management Program as the City's Integrated Community Sustainability Plan.

City Council approved the *Development Design Guidelines* (DDGs) in 2003 with a focus on new development. The City is now preparing the newest chapter of the DDGs, the *Sustainable Community Development Guidelines* (SCDGs) which is Phase I of the larger collaborative project between Brampton, Vaughan and Richmond Hill. The SCDGs provides the framework to guide the development of specific metrics and targets (i.e. to be determined in Phase II) by providing a comprehensive list of potential sustainability measures, practices and policy strategies. Both phases are intended to guide the planning and design aspects of sustainable communities at a range of scales from Secondary Plan Areas, Block Plan Areas, and Draft Plan of Subdivision and Site Plans.

In support of the SCDGs, other City programs and initiatives include:

- Brampton's Growth Management Program – manages growth through the delivery of services and structures;
- Parks, Culture and Recreation Master Plan – provides a framework to direct the development and delivery of recreation facilities to promote active lifestyles;
- PathWays Master Plan – provides a long term plan to provide infrastructure for alternative and active modes of transportation across the City;
- Transportation and Transit Sustainable Master Plan – provides a framework for the delivery of an integrated multi-modal transportation network.

1.2 City of Vaughan

Building on the Strategic Plan, *Vaughan Vision 2020,* and *Green Directions*, the Vaughan Official Plan (VOP 2010) is the largest single policy document emerging from *Vaughan Tomorrow*. VOP 2010, adopted by Council in September 2010, will help secure the City's green policy transformation. This project addresses section 9.1.3 of the VOP 2010 in referring to the development of "green development standards".

Green Directions Vaughan is the City's Community Sustainability and Environmental Master Plan (CSEMP). The plan establishes the principles of sustainability to be used in the development of other plans and master plans to achieve a healthy natural environment, vibrant communities and a strong economy. Green Directions Vaughan includes a series of recommended actions that span the entire sphere of municipal responsibility, including operational and regulatory functions. A specific action item directs the City to develop sustainability guidelines for use in the development review process.

The City-wide Urban Design Guidelines and Standard, scheduled to be undertaken in 2014 upon approval of the 2014 capital budget, is a complementary document to the City of Vaughan's new Official Plan (VOP) that is critical in implementing the "Plan for Transformation" into an attractive, livable and healthy community with a distinct identity. Whether the Sustainability Metrics document is integrated into the City-wide Urban Design Guidelines and Standard or acts as a companion checklist will be decided by City staff.

1.3 Town of Richmond Hill

The Richmond Hill Official Plan, partially approved by Order of the OMB on April 5, 2012, represents a fundamental shift in the Town's approach to land use planning. The Official Plan establishes a vision for "building a new kind of urban" community through a focus on environment-first/sustainability, city-building, and place-making. In doing so, the Plan aims to harness the process of urbanization as a positive force on the landscape, establishing policies that aim to improve and enhance the environment over the long term. Policies in the Official Plan direct the Town to prepare Town-wide urban design guidelines and sustainable design criteria to ensure the placemaking and sustainable design policies are addressed through individual development applications.

The Final Town-wide Urban Design Guidelines will follow the Sustainability Metrics prepared as part of Phase II of this project. These documents will be used together as two new tools to foster a *new kind of urban* community as part of the development application review process.

2.0 INTRODUCTION

2.1 Purpose of Sustainability Performance Metrics

The Sustainability Performance Metrics will provide a tool to help municipal staff and developers inform, guide, and quantify the sustainability performance of new development. By adopting the proposed sustainability metrics as a lens through which to evaluate future development, communities will become more liveable. Residents will be healthier, more physically active, and more resource conscious.

Sustainability metrics and targets have been defined to help guide and quantify the sustainability performance for various scales of land use planning (i.e. site plans, subdivision/neighbourhood plans, block plans).

2.2 Process and Consultation

This project is a collaboration between the three partner municipalities and is being undertaken in two phases (summarized below). A continued third phase is likely to follow, with the focus on project implementation in each municipality, monitoring and sharing results.

Phase I: Sustainable Community Development Guidelines (SCDGs) for the City of Brampton.

Phase I was led by The Planning Partnership and included the preparation of qualitative urban design principles for the City of Brampton. A high-level summary of the SCDGs are included in Section 4.0. This document was shared with Vaughan and Richmond Hill as part of the FCM partnership. Vaughan and Richmond Hill are using the document to inform their own municipal-wide Urban Design Guideline projects. The four sustainability themes used in the Phase 1 document, namely: 1. Built Environment; 2. Natural Heritage/Open Space; 3. Mobility; and 4. Infrastructure; were used to organize the Sustainability Performance Metrics prepared in Phase II of the project.

Phase II: Sustainability Performance Metrics for the Cities of Brampton and Vaughan and Town of Richmond Hill.

Phase II was led by Halsall Associates, working collaboratively with The Planning Partnership. Building on the principles and guidelines developed under Phase I, and using the four sustainability themes established in the Phase I document, quantitative sustainability metrics were developed for the municipal partners. The final sustainability metrics (see Appendix A) were developed to help inform and measure the sustainability performance of new developments within the three municipalities.

Phase II of the project followed the process below to ensure the final sustainability metrics are realistic from a technical perspective and implementable as part of the planning application review process:

1. Develop draft sustainability metrics and review with the Municipal Partners Technical Advisory Team (TAT);
2. Identify development sites within the partner municipalities upon which to test the practicality and implementability of the draft sustainability metrics;

3. Chair a collaborative workshop with municipal staff and key stakeholders (Workshop 1) to evaluate the draft metrics and apply them to the selected test sites (see section 3.4.1 for Workshop 1 feedback);
4. Chair a collaborative forum with the development industry to inform the industry about the project and gather input on implementation of draft sustainability metrics (see section 3.6 for the Developer Forum feedback);
5. Chair a collaborative workshop with municipal staff and key stakeholders (Workshop 2) to refine certain sustainability metrics and discuss implementation, including a proposed dynamic tool to guide users through the applicable sustainability metrics (see section 3.4.2 for Municipal Workshop 2 feedback);
6. Consolidate feedback and revise draft sustainability metrics;
7. Draft sustainability performance metrics brought to municipal Councils for public input;
8. Individual municipal workshops (Workshop 3) to test the draft sustainability performance metrics;
9. Peer review by the TRCA and the Clean Air Partnership on draft sustainability metrics (provided under separate cover);
10. Two working sessions with BILD members on draft sustainability performance metrics;
11. Finalize Sustainability Performance Metrics; and
12. Develop and deliver an Implementation tool (the dynamic sustainability tool).

Phase III: Implementation and Monitoring of the Sustainability Performance Metrics

Phase III is beyond the scope of this project but will likely include further collaboration among the partners. Municipal specific fine tuning of the Sustainability Performance Metrics and implementation strategies will respond to local conditions. The main components of this phase will likely include:

- Amendment considerations to existing documents (OP, Site Plan, Secondary Plans, etc…);
- Revisions and/or development of municipal standards, such as related to engineering design criteria and urban design;
- Submission requirements;
- Education and communication;
- Internal testing of implementation tool;
- Customizing the point thresholds and associated incentives;
- Pilot projects; and
- Staff resourcing considerations.

2.3 Document Organization

The proposed sustainability performance metrics have been incorporated into both static and dynamic tools. The static tool acts as a checklist for municipal staff and developers to help inform the sustainability performance of the proposed development. The checklist is structured with the headings listed below:

- Categories;
- Indicators;
- Performance metrics;
- Mandatory, minimum and aspirational targets;

- Precedents; and
- Point allocation.

A further description and definition of the categories, indicators, metrics and targets are provided in Sections 3.2 and 5.0. The sustainability performance metrics, precedents and point allocations are included in Appendix A, with further rationale behind each of the metrics presented in Appendix B.

The excel-based Dynamic Tool provides an efficient and effective means for applicants and municipal staff to quantify the sustainability performance of proposed plans. For each of the sustainability performance metrics, strategic questions are posed within the tool and points are awarded depending on user inputs. To cater to a variety of planning scales recognized in the review of development applications (i.e. Block Plan, Draft/Neighbourhood Plan, and Site Plans) and project types (i.e. greenfield, employment land and intensification), the sustainability metrics have been differentiated into the categories listed below. It should be noted that many of the sustainability performance metrics may be applicable at various scales of development and therefore, across multiple plan type applications.

1) Block Plan;
2) Draft/Neighbourhood Plan; and
3) Site Plan.

The static tool is available for reference, while the intent of the dynamic tool is to provide an efficient and effective implementation of the sustainability performance metrics through the development review and approval process.

2.4 Tiers of Guidelines and Performance Metrics

The sustainability performance metrics were identified through review of best-in-class precedents including LEED for Neighbourhood Development (LEED ND) and similar sustainability guidelines implemented by other GTA municipalities, and reviewed through multiple technical stakeholder engagements. Each of the metrics and targets was evaluated against the following criteria:

- Realistic;
- Informative;
- Clear/Transparent;
- Manageable;
- Relevant;
- Measureable; and
- Impactful.

Three performance levels were identified for each of the metric targets:

- Mandatory;
- Recommended Minimum; and
- Aspirational.

All projects must satisfy the mandatory performance requirements to be considered for approval. This is essentially the existing standard or requirement according to relevant legislation and/or policies. The recommended minimum and aspirational target levels vary for each metric, but were informed and defined by the inputs from multiple technical stakeholder engagements. The minimum performance targets are considered as "*doing better than you need to*", while the aspirational performance targets are considered as "*best in class*".

Based on input from the Workshops, it became clear that not all metrics should carry the same weighting/point allocation. Metrics that support the municipalities' priorities and provide multiple sustainability benefits were considered to have a greater weighting/point allocation. The following indicators were considered to align with the municipalities' sustainability priorities in addition to providing the greatest impact on creating more sustainable built form and healthy communities:

1) Energy Management (Energy conservation/district energy);
2) Walkability and Mobility;
3) Water Management (Conservation, Stormwater);
4) Local food production; and
5) Natural Systems.

2.5 How to Use the Metrics

The performance metrics form a sustainability checklist organized as a matrix, identifying the indicators, metrics, targets, precedents and point allocation for each metric. This static tool serves as a reference for municipal staff and applicants to follow when preparing certain types of planning applications (e.g. block plans, draft plans of subdivision, site plans). The checklist identifies the key sustainability priorities for the municipalities and the relative importance (point allocation) against the various metrics.

The dynamic tool, based on the static tool checklist, was developed to improve the implementation of the sustainability metrics. The intent of the dynamic tool is to have applicants fill in the relevant inputs. The dynamic tool will generate both an *Application* and *Community* score that reflects the proposed plan's achievement of the applicable sustainability metrics. An *Application* score will only consider metrics and their associated point tally that the applicant has control over. The *Community* score will reflect the overall score of the proposed plan in relation to all applicable metrics, including those metrics typically under the municipalities' or region's influence (i.e. accessibility to schools, public transportation, etc…). The dynamic tool will be supported by a user manual and a reference guide (the draft user manual and reference guide will likely be further refined by each of the partner municipalities as part of the implementation process). Both documents are intended to explain how the tool works, the point structure and how a user enters the appropriate inputs for scoring.

2.5.1 Metric Point Allocation

LEED for Neighbourhood Development (LEED ND), other municipal sustainability performance guidelines and the sustainability priorities for each of the partner municipalities was used to help inform the point allocation for each metric. Points are ONLY awarded when a proposed plan satisfies the recommended minimum and/or aspirational targets for the various metrics. No points are awarded for metrics that satisfy mandatory targets.

Table 1 provides a summary of the draft point breakdown for the various plan types (Site, Draft and Block), broken out by the four categories.

Table 1: Point Total Breakdown

Categories	Point Allocation		
	Site Plan	Draft Plan	Block Plan
Built Environment	82	64	58
Mobility	18	26	26
Natural Environment & Open Space	27	28	28
Infrastructure & Buildings	78	20	11
Total	**205**	**138**	**123**

As shown, the totals for each of the plan types varies, depending on the number of metrics that have been defined for the plan type. To simplify the ranking procedure, each of the plan types will be normalized and evaluated based on a 100% score. Table 2 summarizes the percentage breakdown point allocation for the key sustainability priorities, as defined by the partner municipalities (see section 2.4).

Table 1: Point Total % Breakdown

Municipal Sustainability Priorities	Point Breakdown (%)		
	Site Plan	Draft Plan	Block Plan
Energy Management	26%	13%	9%
Walkability and Mobility	34%	52%	64%
Water Management	14%	8%	9%
Local Food Production	2%	3%	3%
Natural Systems	6%	13%	9%
Other Categories	**Point Breakdown (%)**		
	Site Plan	**Draft Plan**	**Block Plan**
Parking	8%	0%	0%
Materials and Solid Waste	4%	1%	0%
Economy	3%	5%	6%
Certification	3%	4%	0%
Total	**100%**	**100%**	**100%**

As shown, the Draft and Block plan point accumulation and resulting score are heavily influenced by walkability, comprising of over 50% of the overall score. This weighting emphasizes that new community and neighbourhood developments will need to integrate multiple disciplines and stakeholders into the planning efforts to perform well within the ranking.

The impact of walkability is still heavily weighted within the Site Plan metrics, but as expected, the building scale features start to have a greater influence on the overall score of the plan.

2.5.2 Mandatory Metrics and Minimum Point Threshold

In addition to the point allocation identified above, all mandatory metrics need to be satisfied for an application to be considered for approval by the municipality. Mandatory metrics are not assigned point allocations, as shown in Appendix A.

It should be noted that not all plan types will score in every category. Depending on the metric and plan type, the respective points will either be excluded from the total or the plan will be docked points. For example, a plan that only includes single family homes is excluded from Metric 49 (solid waste storage collection areas). As a result, those two points will be excluded from the total. On the other hand, if a plan does not have access to Basic or Lifestyle amenities, the plan will be docked points.
It is recommended that a minimum point threshold be established by each municipality for any incentive programs the municipality wishes to offer. Minimum point thresholds should be advanced as part of the implementation strategy in each municipality.

2.5.3 Point Structure

Appendix A provides a summary of the points allocated to each of the metrics, broken out by the Recommended Minimum and Aspirational Targets. For the most part, the point allocation is fairly straight forward. If a plan satisfies the Recommended Minimum and/or Aspirational targets, the relevant points will be awarded to the plan. In certain examples, a sliding scale has been developed to account for the potential variability within the metric. The following provides a high level summary of the metrics that utilize a sliding scale point structure.

Table 2: Point Structure - Sliding Scale

Applicable Plan Type	Metric	Point Structure
Draft, Block ,Site Plans	Proximity to Basic Amenities	6pts awarded to minimum 6pts awarded to aspirational 2pts awarded per amenity, for a maximum of 3 amenities Maximum pts = 12
Draft, Block, Site Plans	Proximity to Lifestyle Amenities	3pts awarded to minimum 3pts awarded to aspirational 1pt awarded per amenity, for a maximum of 3 amenities Maximum pts = 6

Draft, Block, Site Plans	Design for Life Cycle Housing	A minimum of 10% is required to be considered for a potential point. <u>Block/Draft Plan</u> *Accommodation Type – 2pts* - 1pt if 2 of 3 Accommodations are >10% - 2pts if 3 Accommodations are > 10% *Ownership – 2pts* - 2pts if Affordable/low-income housing > 10% *Housing Type – 3pts* - 1pt if 2 of the 4 housing types are >10% - 2pts if 3 of 4 housing types are > 10% - 3pts if 4 housing types are > 10% <u>Site Plan</u> *Accommodation Type – 3pts* - 1pt if 2 of 5 Accommodations are >10% - 2pts if 5 Accommodations are > 10% - 3pts if 5+ Accommodations are > 10% *Ownership – 1pt* - 1pt if Affordable/low-income housing > 10% *Housing Type – 3pts* - 1pt if 2 of the 4 housing types are >10% - 2pts if 3 of 4 housing types are > 10% - 3pts if 4 housing types are > 10%
Site Plans	Building Energy Efficiency	*Minimum Target (3pts)* - Achieve 35% better than MNECB and/or EnerGuide 83 (if applicable) *Aspirational Target (14pts)* - Submetering – 3pts - Commissioning – 3pts - For every 5% improvement in energy efficiency (over 35%), award an additional point (i.e. 60% improvement would yield 8 total points)
Site Plans	Solar Readiness	1pt awarded for minimum target Up to 7 additional points can be awarded for Aspirational target 1pt – 1% renewable energy generation An additional point for every 2% renewable energy generation increment (i.e. 13% generation is 7 points).

3.0 STUDY APPROACH

3.1 Background Research on Sustainability Metrics

The work carried out in Phase I of this project, the *Sustainable Community Development Guidelines* (SCDGs) served to inform the sustainability metrics and targets developed in Phase II. The sustainability metrics and targets were further informed by other municipal Sustainability Guidelines. The following is a list of references that were reviewed during the process of developing the sustainability metrics to be considered for this project:

- Brampton Official Plan 2006 "*Our Future… Our* Brampton";
- Brampton Grow Green;
- Brampton Development Design Guidelines;
- Brampton Sustainable Community Development Guidelines (SCDGs);
- Vaughan Vision 2020;
- Green Directions (Vaughan OP 2010);
- Richmond Hill Official Plan – Building a New Kind of Urban;
- Richmond Hill Strategic Plan – A Plan for People, A Plan for Change;
- Places to Grow *Better Choices, Brighter Future.* 2006;
- City of Toronto Green Development Standard;
- Seaton Sustainable Place-Making Guidelines, City of Pickering;
- Health Background Study, Region of Peel, City of Toronto, Heart & Stroke Foundation;
- Peel Region Official Plan
- Thinking Green! Development Standard, Town of East Gwillimbury;
- Sustainable Pickering;
- Markham Centre Performance Measures, Town of Markham;
- Markham Greenprint, Town of Markham;
- York Region Sustainability Strategy, Towards a Sustainable Region, Region of York;
- York Region Official Plan;
- Vision 2026 Towards a Sustainable Region, Sustainability Progress Report 2010, Region of York; and
- LEED for Neighbourhood Development (LEED ND).

3.2 Selecting Performance Metrics and Increments

Prior to identifying the appropriate indicators, metrics and targets, it was important that the team come to a common understanding of the typical language used to help define sustainability metrics. Indicators, metrics and targets are commonly used in the industry and the meaning can be inconsistent if not properly defined during the initial stages of the project. Although the definitions may vary, the following definitions were considered for this project:

1) Indicators: Key impacts within each sector that the municipality will strive to change and report against to represent its sustainability performance. Specific indicators have been developed for each of the plan types (i.e. Block Plan, Draft/Neighbourhood Plan, and Site Plan). An example of an indicator is “energy consumption”.

2. Metrics: The outcome(s) that will be reported to define performance in an indicator. Metrics can be qualitative or quantitative. An example of a metric for the indicator “energy consumption” may be ekWh/m^2.

3. Targets: The desired end-state or goal that a planning application could achieve for a particular metric. Targets are derived from current performance efficiencies, policies and external benchmarks. Targets are typically separated into the following hierarchy:
   - Mandatory;
   - Recommended Minimum; and
   - Aspirational.

The precedent research outlined in Section 3.1 highlighted that there are potentially hundreds of sustainability performance indicators, metrics and targets that could be used to help inform future planning. Given the number of precedents, the consultant and municipal Technical Advisory Team (TAT) agreed that, in order to develop an implementable tool, the number of identified performance metrics needs to be manageable, measurable and clear. On projects as diverse and comprehensive as this one, there is often a desire to “cast a wide net” given how broad the idea of sustainability is, and how substantive the potential impact can be.

Identifying appropriate sustainability performance metrics for this project was initiated with a brain-storming session with the consultant team. Synergies between indicators were identified and performance metrics were drafted that align with municipal priorities. Performance metrics that promoted multiple sustainability benefits (i.e. proximity to amenities generally contributes to reduced Vehicle Kilometres Travelled, improved connections, increased active transportation, and improved health) were also identified to help simplify and consolidate the number of metrics. Upon completion of this brainstorming session and research phase, the key performance metrics were identified and presented to the TAT.

The sustainability performance tool developed for this project consists of four categories, twenty eight indicators and up to 45 metrics (depending on the plan type). Based on background research of other municipal sustainable guidelines and feedback from the workshops, this appears to be a manageable set of performance metrics that capture the sustainability priorities for the municipalities while being clear and concise enough to maintain current service levels for the planning approvals process.

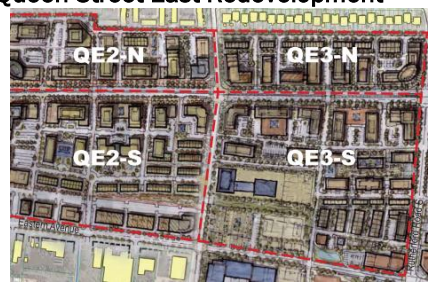
3.3 Test Sites and Evaluation Criteria

The consultant team worked with the municipal Technical Advisory Team (TAT) to select test sites that would be used to test the proposed sustainability metrics. Various test sites were reviewed for appropriateness and were selected based on the following evaluation criteria:

- Variation in scale and plan application;
- Data availability; and
- One test site per municipality.

The three candidate test sites in Table 3 were selected. Key design/planning characteristics are also summarized in the Table.

Table 3: Test Site Selection

MUNICIPALITY	TEST SITE	KEY CHARACTERISTICS
City of Vaughan	Nashville Heights Community – Block 61 	Scale: Draft Block Plan Type: Greenfield Size: 185 ha Population: 8,000 Jobs: 700 Density: 14 units/ha (approximately 2600 residential units) Parks: 6 Neighbourhood parks, linear parks and 2 Public Squares Schools: 2 Elementary Schools
City of Brampton	Queen Street East Redevelopment 	Scale: Site Plan (considered a collection of site plans) Type: Corridor Redevelopment/Intensification Size: 33.37 ha Population: 13,250 Jobs: 2,700
Town of Richmond Hill	Yonge Street and 16th Avenue (NE Corner) 	Scale: Site Plan Type: Urban Node Intensification Size: 9.37 ha Population: 2,500* Jobs: 1,250* Density: 148 units/ha

* Assumes 1.8 ppu and overall resident to employee ratio of 1:2

Evaluating each of the selected sites using a set of proposed sustainability metrics served as a means to test and ensure that the draft metrics are realistic, manageable, impactful, clear and measureable. For each of the test sites selected, information was provided by the TAT and consolidated by the consultant team. Workshop packages were developed for each of the test sites demonstrating how certain sustainability performance metrics would be evaluated for each site.

3.4 Results of the Municipal Workshops

Two full-day municipal workshops were facilitated by the consultant team to review the proposed sustainability tools (sustainability performance checklist and dynamic tool), test the sustainability performance metrics against the test sites and gather feedback on implementation. Municipal staff from the following departments attended:

- Planning – Policy;
- Planning – Development;
- Engineering;
  - Stormwater Management
  - Transportation
  - Infrastructure;
- Planning - Building Standards;
- Natural Environment;
- Parks and Urban Forestry;
- Solid Waste/Public Works;
- Urban/Community Design; and
- Cultural Heritage.

3.4.1 Municipal Workshop 1 – Metrics Testing

Municipal Workshop #1 was held on September 25, 2012 and included approximately 40 municipal staff from Brampton, Richmond Hill and Vaughan, and representatives from the Clean Air Partnership, the Region of Peel, and the Region of York. The workshop was divided into two sessions:

1) Presentation - General project introduction and context;
2) Break out groups – Review performance metrics and test against the selected sites.

The intent of the workshop was to:

- Introduce the project and describe the key deliverables;
- Introduce the test sites;
- Demonstrate how the draft metrics would be applied to the test sites; and
- Obtain preliminary technical feedback on the draft sustainability metrics and targets.

The workshop also provided an opportunity for the City of Vaughan to present the initial findings and analysis for their Greenhouse Gas (GHG) and Energy forecasting initiative. The purpose of the initiative is to identify the energy conservation opportunities and resulting GHG implications, by considering various energy reduction and efficiency scenarios.

The feedback from the workshop was consolidated and reviewed by the consultant team and with the municipal TAT, and a metrics revision log (included in Appendix C) was developed to track the evolution of the sustainability metrics and targets. The log was updated throughout the course of this project to reflect technical feedback received.

The outcome and key findings from the Municipal Workshop #1 are summarized below:

Metrics applied to test sites
The workshop was used as a testing exercise to check that the draft sustainability performance metrics could be practically applied to typical planning application types at various scales of development including Greenfield, intensification/redevelopment, and infill. Each breakout group was assigned one of the three test sites outlined in Table 4, and were instructed to apply/consider each of the proposed metrics to assess/determine whether the metrics:

- Were understandable, measurable and quantifiable;
- Applied to the test site in question; and
- Had clear, consistent language/terms.

Draft metrics that required more discussion
The breakout groups served as an opportunity to review each of the draft metrics included in the Secondary/Block Plan, Subdivision/Neighbourhood Plan, Site Plan and Building Plan charts. Through this exercise, the groups identified metrics that needed more discussion, and in some cases, additional technical input. Although the discussions varied from group to group, there was generally agreement that the following metrics needed to be refined and in some cases, better quantitative metrics needed to be established:

- Walkability;
- Proximity to amenities and schools;
- Access to local food;
- Housing mix;
- Energy and water conservation;
- Stormwater management; and
- Parking/bike parking.

3.4.2 Municipal Workshop 2

Municipal Workshop 2 was held after the Developer Forum, on November 7, 2012. Workshop 2 included approximately 35 to 40 municipal staff from Brampton, Richmond Hill and Vaughan, and representatives from the TRCA and the Region of Peel. The intent of the workshop was to update municipal staff on the progress of finalizing a list of draft sustainability metrics, highlight the feedback from the developer forum and obtain specific feedback on the following:

- Engineering-related metrics;
- Implementation strategies/considerations;
- Metric point allocation; and
- Dynamic tool functionality.

The outcome and key findings from the Municipal Workshop #2 are summarized below:

Engineering-specific metrics
A primary focus of the Municipal Workshop 2 was to discuss certain engineering-related metrics including the following:

- Building energy efficiency;
- District energy viability;
- Stormwater quantity;
- Stormwater quality;
- Stormwater re-use;
- Speed controls; and
- Walkability.

Most of the discussion focussed on setting the mandatory, minimum and aspirational targets. For metrics regarding stormwater, TRCA agreed to work with the team to provide direction on the quantity and quality (including temperature) metrics and targets. The discussion surrounding walkability raised a number of challenges and opportunities, where the current road/sidewalk design standards may conflict with the proposed minimum and aspirational targets presented in the proposed sustainability metrics. It is recognized that during the implementation phase each municipality will need to revisit its current regulations and standards and consider creating alternative design standards to address sustainability objectives.

The municipal workshop also reviewed the key takeaways from the developer forum. The key takeaways and developer concerns included topics surrounding project implementation and tool roll out, developer incentives and transparency/consistency of language. The developer forum feedback is summarized in section 3.6

The metrics feedback was consolidated and revisions were tracked in the sustainability metrics log (Appendix C).

Project implementation and incentives
The workshop was used to help identify the key challenges and opportunities related to the implementation of the proposed sustainability metrics. A priority identified for the implementation of the sustainability metrics was to embed the metrics into existing required documentation and procedures (i.e. address within reports/studies/plans that are already required as part of a complete application). For example, the metrics could be used at the beginning of the planning approvals process (e.g. the pre-submission stage) like a screening tool, clarifying the minimum sustainability performance by setting out what the municipality expects at the outset. The metrics could result in an efficiency improvement by consolidating multiple report requirements into one document

(i.e. transportation plan, urban design guidelines, stormwater management plan, etc…) and by quantifying the sustainability performance each development is achieving.

Key implementation questions that came up during the workshop include:

1) How can you avoid having the applicant say they will do something but don't follow through, particularly after an incentive has been awarded?
2) When in the process is the score confirmed and when is the incentive granted?
3) Will a project need to undertake an evaluation more than once?
4) Who within the municipalities would be managing this plan evaluation/process?

Potential incentive strategies were also discussed including reducing the approval time for projects that are pushing the sustainability bar. Although the specific mechanisms were not defined, a specific staff structure to expedite approvals for aspirational projects was discussed as an incentive for leading edge projects. The municipal partners may review this as one of several incentive options.

Point allocation
At the time of Workshop 2, the point allocation had not been defined for each metric relative to Mandatory, Minimum and Aspirational targets. The discussion at the workshop focused on informing municipal staff about how the dynamic tool will be structured on a point based system informed by the municipal priorities relative to development application type.

Points are awarded for a development application based on which Minimum and/or Aspirational targets are achieved. The overall sustainability performance of the development proposal would be quantified and broken out into the four categories (i.e. built environment, mobility, green space/natural environment and infrastructure). The score quickly allows municipal staff to appreciate the overall sustainability performance of the proposed plan, while also identifying key opportunities to further improve the application's performance relative to municipal priorities based on the categories.

Dynamic Tool
A preview of the dynamic tool was presented to the group to highlight the overall layout and general functionality of the tool. This introduction provided municipal staff the opportunity to raise any comments, concerns or opportunities to improve the tool functionality. Generally the group seemed comfortable with the direction and application of the dynamic tool, although prior to releasing the dynamic tool for public use, each municipality will carry out an internal evaluation against existing applications to ensure that the output is reasonable and the sustainability performance score aligns with known project expectations. The roll out plan of the dynamic tool was discussed at a high level and it was agreed that the tool would need to undergo testing during a future phase (Project Implementation) of this project as defined by each of the municipal partners.

3.4.3 Municipal Workshop 3

A third set of half-day municipal workshops was carried out in April 2013 to further test the sustainability metrics and rank the performance of various plan and development types. The workshops consisted of individual sessions in each of three municipalities with a collection of municipal planners, engineers, natural heritage, urban design and building staff. The following types of plans were reviewed and scored within the three half-day sessions:

- Town of Richmond Hill
    - Low-density Draft Plan
    - Mixed Use Site Plan (targeting LEED Silver)
- City of Brampton
    - Mixed Use Block Plan
- City of Vaughan
    - Commercial Plaza Site Plan.

The outcome of the three workshops demonstrated that the plans could effectively be scored within a three hour working session with municipal staff. The workshop also quickly highlighted opportunities for the developer team to consider to help improve the application score. Overall, the score outcome matched the expected performance that was anticipated by the municipal staff.

3.5 Results of the Peer Review

Both the Toronto and Region Conservation Authority (TRCA) and the Clean Air Partnership (CAP) are providing third party review of the sustainability metrics. Both reviews are provided under separate cover.

CAP's review is primarily focused on the transferability of the metrics and tools outside the three municipalities. TRCA's review is primarily focused on the natural heritage elements, stormwater, water, biodiversity, and soil and tree quality.

3.6 Results of the Developer Forum

Similar to the municipal Workshop 1, a private sector forum was held October 17, 2012 to introduce the project objectives to the development community, including consultants. Municipal staff identified developers working in their municipalities and also attended the forum. The following table summarizes the private sector representation at the forum:

Table 4: Developer Forum Participation

Greenpark Homes	Brookfield Homes	EMC Group	Tridel
GHD (BILD member)	Amos Environmental + Planning	Savanta Inc (BILD member)	Daniels
Deltera	MMM Group	Starlane Home	Liberty Development
TACC Developments	Metrus Development Inc. (BILD Member)	Stantec	Provident Energy Management
Times Group Corporation	Reliance Comfort	PCL Construction	Clearsphere

The developer forum was held with the intent to:

1. Introduce the project;
2. Introduce the structure of the sustainability metrics;
3. Identify high priority indicators/metrics;

4. Identify and prioritize incentive mechanisms; and
5. Identify current regulatory, policy and industry barriers for sustainable development.

The key takeaways from the developer forum are summarized below.

General Comments

- Language needs to be consistent and transparent;
- Where possible, metrics should be supported by benchmarks and precedents;
- Metric weighting/point allocation should reflect municipal priorities, sustainability impact and potential cost (capital and savings) implications;
- Need to clearly separate Private from Public metric responsibilities;
- How can we actually monitor and measure the performance of a community/plan? We need to ensure that the design and performance intent is supported by a quantifiable result and is monitored over time;
- Need to ensure that metrics align with engineering and regulatory standards. Some standards (i.e. road dimension, sidewalks) are seen as barriers to current development practices; and
- The developer community is accepting of municipalities using this type of evaluation system. The developers want to be more sustainable but they see certain municipal standards as a barrier from a time-perspective.

Review of draft metrics

The forum also provided an opportunity for input on the proposed categories of sustainability metrics. Based on feedback at the Forum, many of the development industry's priorities were already included within the draft categories of sustainability metrics. Additional performance metrics that were proposed include:

- Public Engagement – interest in a metric that incentivizes developers to provide education packages for new residents and signage throughout the community to explain the sustainability features of the project;
- Developer Acknowledgement – interest in an Awards program that recognizes developers that have built sustainable projects.

Incentive Opportunities

The developer forum also provided an opportunity to identify and prioritize potential incentive mechanisms to reward/acknowledge Aspirational projects. The developer group were in agreement that the best incentive is to expedite the approval process for high-performing sustainability projects. Currently, innovative and pioneering initiatives are seen to take longer through the development approvals process, whereas the opposite could occur in order to promote sustainable projects. To provide an accelerated approvals process for innovative and pioneering sustainability projects, the municipalities need to ensure that technical review staff are well informed and engaged in the sustainability metrics, and that a municipal champion is identified, to advance and shepherd the development application through the approvals process.

Development charge rebates and increased density allowances were also discussed. The industry didn't feel that these incentives provide the same emphasis or traction as compared to an expedited approvals process for high-performing sustainability projects.

3.7 BILD Workshops

BILD requested an additional consultation and engagement session for interested BILD members to further engage in a more detailed discussion on the draft sustainability metrics and to better understand how the tool would be used as part of the planning process. Two half-day workshops were held with approximately 30 BILD members. A general overview of the static tool was presented, followed by an explanation of the point based system and how the points would be used to trigger potential incentives.

Some concerns were raised regarding the point-based system, particularly around metrics that the industry considered were outside their control (i.e. location of schools, access to public transit, etc…). The metrics and overall structure of the tool were developed to address this concern by separating the metrics into two categories: *Applicant* and *Community*. Eligibility for incentives offered by the partner municipalities will be evaluated based on the *Applicant* score of the plan. The *Community* score will be used as a monitoring tool by the partner municipalities to understand the overall performance of a plan, along with matters the municipalities or Regions may need to address to create more sustainable communities.

4.0 PHASE I SUSTAINABILE COMMUNITY DEVELOPMENT GUIDELINES SUMMARY

As mentioned in section 2.2, this project is being completed in two phases, with a possible third phase focused on project implementation. Phase I of the project was led by the City of Brampton and The Planning Partnership, with the goal to develop *Sustainable Community Development Guidelines* (SCDGs). The Phase I SCDGs will be a new chapter in the City of Brampton's Development Design Guidelines and will assist the City in the review of development applications and technical reports and documentation. The SCDGs will serve to help describe the qualitative sustainability aspects proposed developments should aim to achieve, including highlighting examples of how they could be achieved.

The focus of the guidelines is on qualitative urban design and community development principles. The guidelines apply to a range of development scales, which include Secondary Plans, Block Plans, and Draft Plans of Subdivision, and Site Plans. These guidelines helped serve to inform the metric and target priorities for Phase II of the project. The section below summarizes the process, principles and key outcomes from Phase I of the project.

Phase I was initiated with precedent research to help inform the SCDGs. Precedent research included a review of policies, municipal guidelines and recognized standards, including but not limited to:

- Seaton Sustainable Place-Making Guidelines, City of Pickering;
- Health Background Study, Region of Peel, City of Toronto, Heart and Stroke Foundation;
- Thinking Green Development Standard, Town of East Gwillimbury;
- Markham Centre Performance Measures, Town of Markham; and
- LEED 2009 for Neighbourhood Development, Canadian Alternative.

Each of the standards and guidelines were reviewed in detail and summarized in order to appreciate and understand the reporting requirements, overall intent and implementation considerations. The background precedent research was used to help develop the format and delivery of the SCDGs.

Phase I also included a study of five, large-scale, City of Brampton sustainability initiatives. This study was used to further reinforce the City's sustainability commitments and ensure these commitments were well established as SCDG priorities. The five precedent initiatives that were evaluated in Phase I include:

1) Mount Pleasant Village – Transit-oriented development;
2) The Pearson Eco-business Zone – Partners in Project Green;
3) The Transportation and Transit Master Plan;
4) ZUM – Bus Rapid Transit (BRT) Service; and
5) Higher order transit – Hurontario/Main Street Master Plan.

This background research provided a general overview of how the City of Brampton desires to shape its future. The review, while not exhaustive, also identified gaps that need to be further addressed in City policies to assist in the development of the SCDGs.

Based on the City of Brampton's priorities and long term vision, the following guiding principles were developed for the SCDGs:

1) Support the mix and diversity of land uses in a compact, transit supportive development form to help balance residential, employment and services and to improve active travel (i.e. walkability, transit use, etc.) between homes, workplaces, schools and amenities;

2) Preserve the natural heritage system, urban agricultural and open spaces by directing development to existing communities;

3) Provide residents with access to locally grown food;

4) Provide for a range and mix of housing opportunities, choices and accessibility for all income levels and needs;

5) Create walkable and connected communities with neighbourhood amenities and priority destinations within walking distance of residents. Enhance streetscapes to encourage residents to be physically active and socially engaged;

6) Provide a variety of economical, safe and accessible mobility options through the provision of a connected network of streets, sidewalks, bicycle lanes, trails and public transit systems;

7) Encourage the responsible use of resources to ensure long-term sustainability, reduce greenhouse gas emissions and demands on energy and water, and improved waste management;

8) Create jobs concurrent with residential growth to ensure a long term balanced economy while encouraging live-work opportunities;

9) Ensure that growth and development is fiscally sustainable;

10) Optimize opportunities for infill, intensification and revitalization;

11) Promote place-making that instills a sense of civic pride; and

12) Preserve the City's rich cultural heritage through adaptive reuse and restoration.

In order to achieve the sustainability goals of the SCDGs, it is essential that good planning and urban design be prioritized. The form of the built environment influences a person's lifestyle choices, which when considered on a broader scale, can contribute to the success or failure of the sustainability goals. The specifics of achieving the goals of the SCDGs should be set out through performance measures that can be logically and clearly followed, implemented and measured by those who design and build communities, as well as those who administer the review process and manage the community. It should be noted that the onus of achieving these goals falls equally on the public and private sectors.

5.0 SUSTAINABILITY PERFORMANCE METRICS

The guiding principles and performance indicators developed under Phase I of the project served as a basis to help inform the sustainability performance metrics and targets for Phase II of the project. As a result, the overall format, logic and priorities are shared between the two phases.

As identified in section 2.3, the Sustainability Performance Metrics consists of a grouping of themes, indicators, performance metrics, targets, and precedents. The following section provides a summary of the hierarchy and how the themes and indicators were selected.

5.1 Sustainability Categories

The Sustainability Performance Metrics are organized into four categories. The four categories represent the main structuring elements of a community which are required to achieve a sustainable and healthy living environment.

The following provides a description of each theme area and why each is an important component of a sustainable community. Each theme area has a number of corresponding indicators that are listed in the following section.

Built Environment
The indicators for Built Environment speak to how we inform place 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 and amenities, 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
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

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.

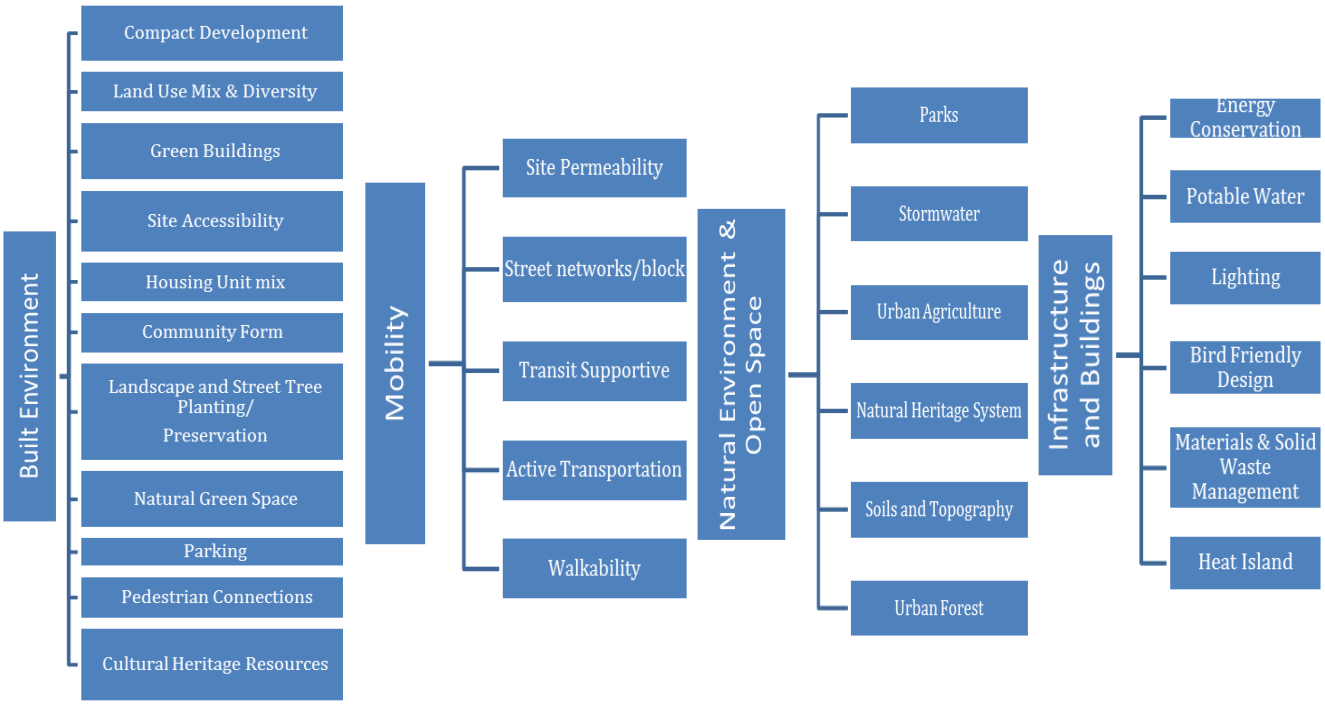
Infrastructure and Buildings

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.

5.2 Indicators

For each of the categories, performance indicators have been selected, informed by background research, including other municipal sustainability guidelines, and private and public sector workshop feedback. Within each of the four categories, the performance indicators identify the characteristics that need to be considered in order to achieve the sustainability goals defined for new developments. Figure 1 summarizes all of the sustainability performance indicators that have been selected for the Cities of Brampton and Vaughan and the Town of Richmond Hill.

Figure 1: Sustainability Indicators



As shown, the list of sustainability indicators covers a wide spectrum of built form, mobility, public realm and design issues, all of which will contribute to the overall health, prosperity and performance of a new development. It should be noted that not all indicators will be applicable to all plan applications. As referenced in section 2.3, the applicability of the various indicators are filtered based on the development application type (i.e. Block plan, draft plan, and site plan) and project type (greenfield, employment land, intensification).

5.3 Sustainability Metrics and Targets

For each of the sustainability performance indicators listed above, specific performance metrics and mandatory, minimum and aspirational targets have been identified. The metrics and targets have been defined based on internal and stakeholder consultations, in addition to referencing supplemental standards (such as LEED ND and other municipal guidelines).

The sustainability metrics and targets have been reviewed through multiple consultation and engagement sessions, and by a third party review provided by the TRCA and CAP.

As is the case with the Toronto Green Standard, the sustainability metrics and targets are expected to evolve and change as market acceptance and implementation of sustainability measures improves with experience. As new priorities are identified, the metrics, targets and dynamic tool can be re-evaluated on a regular basis.

A list of the sustainability performance metrics, targets and point allocation is included in Appendix A.

5.4 Sustainability Metric Precedents

As referenced in section 3.1, background research was carried out to help inform the development of the sustainability performance metrics. As shown in Appendix A, a precedent is referenced for over 80% of the metrics, identifying a recognized standard, municipal policy or guideline or provincial policy that has helped inform the mandatory, recommended minimum and aspirational targets. Highlighting these precedents should help improve the adoption and acceptance of the sustainability performance metrics, in both the private and public sectors, as they have already gained acceptance in other development communities.

6.0 IMPLEMENTATION

While the sustainability metrics themselves will be consistent across the partner municipalities, how they are implemented will vary slightly in each municipality. Each municipality is at a different stage in terms of integrating sustainability thinking into its planning application review process. As a result, a third phase of this project will likely be initiated by each of the partner municipalities to address specific implementation and monitoring issues.

Collaboration amongst the partner municipalities is still expected during the next phase, with each municipality defining how it wishes to implement and incentivize the sustainability metrics based on its unique governance structure and local context. In addition to tailoring or customization of the tools developed as part of Phase 2, components of this next phase will likely include:

- Amendments to existing documents (OP, Site Plan, Secondary Plans etc.);
- Revisions and/or development of municipal sustainability standards;
- Revisions to submission requirements;
- Education and Communication;
- Customizing the tools for local context/conditions;
- Customizing the point thresholds and associated incentives;
- Pilot projects;
- Governance;
- Staff resourcing; and
- Update Terms of Reference of various technical background studies (e.g. Transportation Studies, Servicing Reports, Stormwater Plans, etc.) to reference Sustainability Performance Metrics.

6.1 Submission Requirements

The submission requirements to demonstrate compliance against the Municipalities' sustainability requirements will be identified by each municipality in the implementation phase of the project. The submission requirements will likely include the following supporting documentation:

- Submit a print out of the (application's) plan's sustainability score at pre-application consultation meeting (similar to East Gwillimbury), identifying that all Mandatory targets have been satisfied;
- Municipal receipt and review of technical background reports (in conformance with a complete application package) including draft sustainability checklist;
- Municipality and commenting agencies review reports, plans, sustainability checklist and/or sustainability report. The sustainability checklist, for example, will identify the performance target achieved for each metric and where the data supporting a metric's quantification is located in the reports/plans (i.e Metric 23 is quantified under Section X of the transportation report).

6.2 Recommended Incentive Strategies

The municipal partners may choose to establish incentive programs to support the implementation of the sustainability metrics. Where an incentive is offered, the municipality will establish a threshold point score that the proposed planning application must achieve to be considered for the incentive. Incentives will be based on the *Application* score, while the *Community* score will serve as a monitoring tool to track the overall sustainability performance of the plan. Each of the municipal partners will implement incentive programs at its own pace with additional work likely being completed as part of a future Phase 3.

The following incentive opportunities were identified as part of the background review and consultation and engagement process to further encourage the implementation of the sustainability metrics in new developments. It should be noted that these incentives have been discussed at a high level at the Municipal and Developer workshops. The actual viability of implementing each incentive within the partner municipalities may require additional study:

- Establish municipal cross-department working groups/committees to help implement the sustainability tool and develop alternative municipal design standards;
- Expedited approval process for high performing applications;
- Increased opportunities for density (in urban centres);
- Servicing allocation;
- Stormwater discharge tax;
- Development charge rebates: and
- Awards program to recognize and celebrate high performing projects.

Based on the feedback received at the Developer Forum and BILD workshops, the preferred incentive to encourage higher sustainability performance targets (i.e. Minimum or Aspirational) is an expedited approval process. Feedback at the developers form, and the BILD workshops identified concerns that the current approvals process takes too long, and is too iterative. As a result of this drawn out process, developers are frustrated and unwilling to commit to innovative sustainability projects. Additionally, innovative projects that go beyond standard building practices are often further delayed as current engineering standards are often at odds with engineering standards proposed in “innovative and pioneering” projects.

High level background research was undertaken on expedited approval processes used in other cities/municipalities to encourage and reward higher performing developments. A high level summary of these incentives is provided below. For further details, we recommend each municipality to follow up directly with the program champions.

Table 5: Expedited Approvals Summary

City	Incentive Program	Description and Key Features
Chicago, IL	Green Permit	Eligible projects include green technologies (green roofs, renewables, rainwater harvesting) or LEED certification. Qualifying projects are offered an expedited building approval process (< 30 days) and possible reduction in permit fees. Developers are provided with a single point contact to coordinate submission requirements and meetings and a 7-step process to follow.
San Diego, CA	Sustainable Building Expedite	Eligible projects will certify to LEED Silver or include solar PV to generate a proportion of the building's energy. Qualifying projects are offered expedited building approvals that are expected to reduce the review process time by 25% (compared to a normal approval process). The program is reviewed annually and revised every three years
Seattle, WA	Priority Green Permitting	Eligible projects demonstrate high performance thresholds in energy (>15% better than Seattle's Building Code), water efficiency (WaterSense plumbing fixtures) and waste reduction (75% construction waste diversion). Eligible projects can also include LEED certification (Gold or Platinum) or Built Green (level 4 or 5). Qualifying projects are offered a single point contact, priority in scheduling meeting, faster initial review and construction permitting process. Developers hire an approved verifier or consultant, who documents and verifies compliance.
Santa Monica, CA	Expedited Permitting for Green Buildings	Eligible projects will certify to LEED. Applicants must also highlight key building design features that contribute to the environmental performance of the project.
Ottawa, ON	Green Lane Express	Qualifying projects follow an integrated approval process. Municipal champions have been trained in the process and are LEED accredited. Municipal champions follow the development application from initial concept to final approval.

While most programs implemented elsewhere focus on the building scale, common elements are featured in multiple programs:

- Single point contact within the municipality;
- Trained municipal staff;
- Annual review of design standards and programs; and
- Interdepartmental communication/collaboration.

In December 2012, York Region completed a study which scanned incentive programs across Canada (*Municipal Sustainable Development Incentive Programs*). The intent of the scan was to highlight the successes, challenges, implementation strategies and uptake of various incentive programs. The key conclusions of this report aligned well with the common elements that were featured in the incentive programs listed above. The key conclusions and associated municipalities are listed below:

- **Identify a Local Champion** – Dedicated champions to be trained on the overall value of the program and not just focus on a primary interest area (Guelph and Caledon).
- **Interdepartmental Staff Consultation** – Cross department working groups for staff to share challenges and successes (Caledon and Hamilton).
- **Private Sector Engagement** – Follow up sessions with developers and consultants to gather feedback on the process, value and opportunities for improvement.

- **Post Implementation Performance** – Need to evaluate if the program and measures are demonstrating value. Most programs to date have not considered how to actually monitor, measure and track ongoing performance of the metrics/standards adopted.
- **Private Sector Signoff on Aspiring Projects** – For projects targeting high performance, a private sector consultant could be considered to verify and sign-off on the performance achieved by the plan (Toronto Tier 2 verification).

6.3 Recommendations for Next Steps

Each of the partner municipalities will likely implement the sustainability metrics using a slightly different approach. Below is a high level overview of what should be considered as part of each municipality's implementation phase:

1. Customization of the Dynamic Implementation Tool;
2. Education/Training Workshops for Internal Staff and External Planning Consultants and Commenting Agencies;
3. Creation of a Monitoring Tool;
4. Research and Analysis of Incentives; and
5. Evaluation of Municipal Standards and Specs in relation to the Final Sustainability Performance Metrics.

APPENDIX A - Site Metrics

Site (S) Metrics

Category	Indicator	Metric #	Metric	Mandatory Target	Recommended Minimum Target			Aspirational Target			Precedent	Total Available Points
			Building Type		**Single Family Home**	**Multi-Fam Buildings (>3 storeys)**	**Commercial/ Retail/Inst**	**Single Family Homes**	**Multi-Fam Buildings (>3 storeys)**	**Commercial/ Retail/Inst**		
Built Environment	**Compact Development**	**1**	**Floor area ratio/Floor Space Index (usually applies only to multi-unit medium density and high density)**	**Satisfy Municipal Official Plan requirements**				-			**Municipal OP**	
	Land use mix and diversity	**2**	Proximity to Basic Amenities		50% of DU and jobs are within a 800m walking distance to existing or planned Baisc Amenities Basic amenities include: 1. Grocery store/farmers market, place to buy fresh produce 2. Community/Recreation Centre 3. Pharmacy 4. Library (UP TO 6 POINTS) If the amenities are not within the distance specified above and the site is designated as mix use, the mix of population and employment uses achives a 2:1 ratio on the site. (3 POINTS)			75% of DU and jobs are within a 400m walking distance to existing or planned Basic Amenities Basic amenities include: 1. Grocery store/farmers market, place to buy fresh produce 2. Community/Recreation Centre 3. Pharmacy 4. Library (UP TO 6 POINTS) If the amenities are not within the distance specified above and the site is designated as mix use, the mix of population and employment uses includes major office space, an anchor commercial/retail tenant or a minimum of 3 stories of employment uses. (3 POINTS)			Municipal OP Thinking Green Item 1, 2, 9 LEED NC SSc2	*12*
		3	Proximity to Lifestyle Amenities		50% of DU and jobs are within a 800m walking distance to existing or planned Lifestyle amenities Lifestyle Amenities include: 1. General retail 2. convenience store 3. Theatre 4. Coffee store 5. Hair salon 6. Bank 7. Place of worship 8. Daycare 9. Restaurant/Pub Other (UP TO 3 POINTS)			75% of DU and jobs are within a 400m walking distance to existing or planned Lifestyle amenities Lifestyle Amenities include: 1. General retail 2. Convenience store 3. Theatre 4. Coffee store 5. Hair salon 6. Bank 7. Place of worship 8. Daycare 9. Restaurant/Pub Other (UP TO 3 POINTS)			Municipal OP Thinking Green Item 1, 2, 9 LEED NC SSc2	*6*
	Green Buidings	**4**	Building(s) designed and/or certified under an accredited "green" rating system	Municipal buildings greater than 500m² must be designed to LEED Silver or alternative equivalent	Site includes 1 or more green buildings certified under a recognized third party standard (i.e. Energy Star, LEED NC, CS, CI, EB, Homes) (2 POINTS)			Additional aspirational points are available for development plans that include 5 or more buildings. Buildings on site will be certfied under a recognized third party standard (i.e. Energy Star, ASHRAE 189, LEED NC, CS, EB, Homes, etc…) 2 points if 50% to 75% of buildings are certified +2 points if 76% to 100% of buildings are certified			Municipal OP Sustainable Design and Construction Policy for Municipal Buildings LEED ND GIBp1	*6*

Category	Indicator	Metric #	Metric	Mandatory Target	Recommended Minimum Target		Aspirational Target		Precedent	Total Available Points
Built Environment	**Site Accessibility**	**5**	Universal Design	Design 10% of residential units in apartment buildings to provide a barrier-free path of travel from the suite entrance door to the doorway of at least one bedroom at the same level, and at least one bathroom in accordance with OBC.	Design a minimum of 20% of the DU in accordance with ICC/ANSI A117.1 Universal Design Standards (or equivalent) (1 POINT)	N/A	Design a minimum of 30% of the DU in accordance with ICC/ANSI A117.1 Universal Design Standards (or equivalent) (1 POINT)	N/A	Accessibility Act Municipal Accessibility Plan LEED ND NPDc11 OBC Requirement	*2*
		6	Number of universally accessible points of entry to buildings and sites	100% of primary entrances	100% of emergency exits (1 POINT)		100% of all entries and exits (1 POINT)		Accessibility Act Municipal Accessibility Plan LEED ND NPDc11	*2*
	Housing Unit mix	**7**	Design for life cycle housing		The housing types includes a diversified mix that caters to singles, families, multi-generational, live-work, mixed use, affordable/low income, attached, detached, townhome and med-to-high-rise residential. (POINTS AWARDED BASED ON A SLIDING SCALE)	N/A	The housing mix includes a mix of housing types, catering to singles, families, multi-generational, live-work, mixed use, affordable/low income, attached, detached, townhome and med-to-high-rise residential. (POINTS AWARDED BASED ON A SLIDING SCALE)	N/A	Municipal OP	*7*
	Landscape and Street Tree Planting / Preservation	**8**	% Tree canopy within proximity to building/pedestrian infrastructure	Satisfy municipal planting requirements	Provide shade within 10 years for at least 50% of the walkways/sidewalk lengths All trees should be selected from the applicable municipal tree list. (2 POINT)		Provide shade within 10 years for at least 75% of the walkways/sidewalk lengths. All trees should be selected from the applicable municipal tree list. (2 POINTS)		Municipal OP LEED ND NPDc14	*4*
		9	Maintain existing healthy trees	Arborist Report provided that identifies and evaluates where on-site healthy mature trees will be protected (in-situ or moved) or removed.	Where healthy mature trees must be removed, new trees (not including street trees) are provided on site or as determined by the municipality to mitigate the lost canopy coverage of the trees removed. (2 POINTS)		Healthy mature trees greater than 20 cm. DBH preserved in situ on site. (2 POINTS) Smaller healthy trees (less than 20 cm. DBH) transplanted. (1 POINT)		Municipal Precedent	*5*
		10	Soil Quantity and Quality		Pits, trenches or planting beds should have a topsoil layer with an organic matter content of 10 to 15 % by dry weight and a pH of 6.0 to 8.0. The topsoil layer should have a minimum depth of 60 cm. The subsoil should have a total uncompacted soil depth of 90 cm. Minimum soil volume of 30 cubic metres per tree (2 POINTS)				TGS TIER I Canadian Cities with Soil Volume Standards TRCA - Preserving and Restoring Healthy Soils: Best Practice Guide for Urban Construction	*2*
	Natural Green Space	**11**	Proximity to accessible natural green space		Visual and pysical connections (such as public access blocks, single loaded roads) are provided to the natural heritage system and parks. (1 POINTS)		Visual and physical connections (such as public access blocks, single loaded roads) are provided to 50% of the natural heritage system. (2 POINTS)			*2*

Category	Indicator	Metric #	Metric	Mandatory Target	Recommended Minimum Target			Aspirational Target			Precedent	Total Available Points
Built Environment	**Parking**	**12**	Bicycle Parking	Satisfy Municipal Standards		Provide a minimum 0.6 bike parking spots per unit Provide a minimum 5% of bike parking at grade (1 POINT)	0.13 bike parking spots for permanent employees for every 100m2 GFA. Provide 0.15 bike parking spots for visitors for every 100m2 of GFA. (1 POINT)		Provide a minimum of 0.8 bike parking spots per unit Provide a minimum 10% of bike parking at grade (1 POINT)	Place bike parking in weather protected areas in close proximity to building entry (1 POINT) For office or institutional buildings, provide 1 shower (for men and women) for every 30 bike parking spots and a change room. (2 POINTS)	TIER I & TIER II	*6*
		13	Off-Street Parking		N/A	Locate all new off-street parking at the side or rear of buildings (1 POINT)		N/A	Less than 20% of the total development area is allocated to new, off-street surface parking facilities. (1 POINT) Consolidate 85% or more of the surface parking to parking structures in Intensification Areas. (5 POINTS)		LEED ND NDPc5	*7*
		14	Surface Parking			Develop and implement a strategy to minimize surface parking for permanent employees and residents. (1 POINT)						*1*
		15	Carpooling and Efficient Vehicle Parking				3% of the site parking spots (or a minimum of 4 parking spots) to be dedicated to car pooling and/or fuel efficient / hybrid vehicles and/or carshare/zip car (does not apply to compact cars). Dedicated parking spots located in preferred areas close to building entries. (1 POINT)			5% of the site parking spots to be dedicated to car pooling and/or fuel efficient / hybrid vehicles and/or carshare/zip cars (does not apply to compact cars). Dedicated parking spots located in preferred areas close to building entries. (1 POINT)	TGS LEED NC SSc4.3	*2*
	Pedestrian Connections	**16**	Traffic Calming		75% of new residential-only streets designed with traffic calming strategies. (1 POINT) 50% of new non-residential and/or mixed-use streets are designed with traffic calming strategies (1 POINTS)			100% of new residential-only streets designed with traffic calming strategies. (1 POINT) 75% of new non-residential and/or mixed-use streets are designed with traffic calming strategies (1 POINT)			LEED ND NPDc1	*4*

Category	Indicator	Metric #	Metric	Mandatory Target	Recommended Minimum Target		Aspirational Target		Precedent	Total Available Points
Built Environment	**Pedestrian Connections**	**17**	School Proximity to Transit routes & Bikeways		All schools are located within a 400m walking distance to transit routes and/or dedicated bike network (2 POINTS)		All schools are located within a 200m walking distance to transit routes and/or dedicated bike network (2 POINTS)			*4*
		18	Proximity to school		50% of dwelling units are within 800 meters walking distance to public/private elementary, montessori, and middle schools (2 POINTS) 50% of dwellings units are within 1600 meters to a high school (1 POINT)	N/A	75% of dwelling units are within 400 meters walking distance to public/private elementary, montessori, and middle schools (2 POINTS) 75% of dwellings units are within 1000 meters to a high school (1 POINT)	N/A	LEED ND NPDc15	*6*
	Cultural Heritage Resources	**19**	Cultural Heritage Conservation	Comply with Cultural Heritage Conservation policies under provincial legislation (i.e. the Ontario Heritage Act, Planning Act and PPS, etc), Standards and Guidelines for Historic Places, municipal Official Plan, municipal by-laws, Municipal Register of Cultural Heritage Resources and/or Municipal Heritage Inventory.	100% evaluation of properties included in the Municipal Heritage Inventory and/or Register, and 100% retention and protection of cultural heritage resources that qualify for designation under the Ontario Heritage Act. (2 POINT)		100% conservation of cultural heritage resources identified in the Municipal Heritage Register or Inventory and their associated landscapes and ancillary structures in accordance with the Standards and Guidelines for the Conservation of Historic Places in Canada. (2 POINTS)		Municipal OP policies on Cultural Heritage Ontario Heritage Act Municipal Inventory of Buildings of Architectural and Historical Significance	*4*
Mobility	**Site Permeability**	**20**	Connectivity	Connect buildings on the site to off-site pedestrian paths, surface transit stops, parking areas (car and bike), existing trails or pathways, or other destinations (e.g. schools). Outdoor waiting areas located on the site must offer protection from weather. Where a transit stop is located within a walking distance of the project site boundary, the building main entrance should have a direct pedestrian linkage to that transit stop			Provide amenities and street furniture (benches, additional bike parking, landscaping) along connections provided on the site and between the site and adjacent destinations. (2 POINTS)		TGS TIER II Municipal OP	*2*
	Transit supportive	**21**	Distance to public transit		Site is within 800m walking distance to an existing or planned commuter rail, light rail, bus rapid transit or subway with stops or Site is within 400m walking distance to 1 or more bus stops with frequent service. (3 POINTS)		Site is within 400m walking distance to an existing or planned commuter rail, light rail , bus rapid transit, or subway with frequent stops or Site is within 200m walking distance to 1 or more bus stops with frequent service. (3 POINTS)		Regional OP (proximity) Municipal OP (if revised to speak to connectivity) LEED NC 2009 SSc4.1	*6*
	Active Transportation	**22**	Proximity to cycling network		75% of residents/jobs are within 400 meters of existing or apporved by council path/network		100% of residents/jobs are within 400 meters of existing or apporved by council path/network			*4*

Category	Indicator	Metric #	Metric	Mandatory Target	Recommended Minimum Target	Aspirational Target	Precedent	Total Available Points
Mobility	**Walkability**	**23**	Promote walkable streets	Sidewalks must be in accordance with the applicable Municipal Standards. Sidewalk width must be at least 1.5 meters.		On 100% of street, continuous sidewalks or equivalent provisions must be provided on both sides of streets, where not a mandatory requirement. (2 POINTS) Provide pedestrian amenities to further encourage walkable streets. (2 POINTS)	LEED ND NPDc1	*4*
Natural Environment & Open Space	**Parks**	**24**	Park Accessibility		Provide 2 road frontages for each urban square, parkette, and neighbourhood park provided and 3 road frontages for each community park provided. (3 POINTS)	Provide 3 or more road frontages for all parks provided. (3 POINTS)	LEED ND Cornell Community Mt. Pleasant Village Brampton Development Design Guideline Existing Policies	*6*
	Stormwater	**25**	Stormwater Quantity	Retain runoff volume from the 5mm rainfall event on site. Provide quantity or flood control in accordance with applicable Municipal and conservation authority requirements	Retain runoff volume from the 10mm rainfall event on site. (3 POINTS)	Retain runoff volume from the 15mm rainfall event on site. (3 POINTS)	TRCA's Stormwater Management Criteria TRCA SWM Criteria Document	*6*
		26	Stormwater Quality	Remove 80% of Total Suspended Solids (TSS) on an annual loading basis from all runoff leaving the site (based on the post development level of imperviousness). All ponds will be designed with Enhance Level of Protection (Level 1).	N/A	81% to 90% of Total Suspended Solids (TSS)removed from a 10mm rainfall event. (1 POINTS)	N/A	91% to 100% of Total Suspended Solids (TSS)removed from a 15mm rainfall event. (4 POINTS)	TGS TIER II	*5*
		27	Rainwater Re-use			Buildings designed for rainwater re-use readiness (i.e.plubming infrastructure included in building) (1 POINT)	Rainwater captured on-site and used for low-grade functions (i.e. toilet/urinal flushing, irrigation) (3 POINTS)		*4*
		28	Stormwater Architecture/Features			Introduce stormwater amenities that provide both functional and aesthetic benefit to the site. (2 POINTS)			*2*
	Urban Agriculture	**29**	Dedicate land for local food production		Provide 80ft2/DU of garden space (2 POINTS)	N/A	Dedicate 15% of roofspace for local food production (2 POINTS)	N/A	LEED ND NPDc13	*4*

Category	Indicator	Metric #	Metric	Mandatory Target	Recommended Minimum Target		Aspirational Target		Precedent	Total Available Points
Infrastructure and Buildings	**Energy conservation**	**30**	Solar Readiness		100% of all new building designed for solar readiness (i.e. electrical conduit/plumbing riser roughed in) (1 POINT)		On-site energy generation from renewable energy source (points awarded based on % of renewable energy generated relative to total building) (SLIDING POINT SCALE)		LEED NC EAc2	*8*
		31	Passive solar alignment		Applies to 50% of new buildings: The building(s)'s long axis is within 15degrees of E-W The building(s) E-W lengths are at least as long as the N-S lengths (3 POINTS)		Applies to 75% of new buildings: The building(s)'s long axis is within 15degrees of E-W The building(s) E-W lengths are at least as long as the N-S lengths (3 POINTS)		LEED ND GIBc10	*6*
		32	Building energy efficiency	Design all buildings in accordance with OBC.	Single family homes or multiunit residential buildings (3 storey or lower) must be built to EnerGuide 83 (or equivalent) (3 POINTS)	Buildings must be designed to 35% better than MNECB (3 POINTS - MAXIMUM)	Single family homes or multiunit residential buildings (3 storey or lower) must be built to EnerGuide 85 (or equivalent) (1 POINT)	Buildings energy perforamcne exceeds MNECB by 35% or more (SLIDING POINT SCALE) Building commissioning required for all buildings (multi unit res above 3 storeys, commercial, inst) (3 POINTS) Building electricity sub-metering required for all tenants and per residential suite (3 POINTS)	LEED ND GIBp2 TGS TIER I & TIER II	*21*
		33	District energy viability		Develop an energy strategy for the development, identifying opportunities for conservation, energy sharing, renewables, etc... (2 POINTS)		In an intensification area, where district energy has been deemed viable by the municipality, carry out a district energy feasibility study. (3 POINTS)			*5*
	Potable Water	**34**	Reduce potable water used for irrigation		Redcue potable water used for irrigation by 50%, compared to a midsummer baseline case. (2 POINTS)		No potable water is used for irrigation. (4POINTS)		LEED NC WEc1 TIER I	6
		35	Water Conserving Fixtures	Include plumbing fixtures with the following maximum flow rates: Residential: Toilets: 6LPF Faucets: 8.3LPM Showerhead: 9.5LPM CRI Same as Residential with: Urinals 3.8LPF Faucets 8.3LPM (private applications only), 1.9LPM all other Satisfy applicable municipal standards (e.g. York Region Official Plan policy 5.2.22)	Include water fixtures that obtain a 10% to 20% reduction over the baseline fixture (Mandatory target fixture or applicable municipal standard). (3 Points)		Include water fixtures that obtain > 20% reduction over the baseline fixture (Mandatory target fixture). (3 POINTS)		LEED ND GIBp3 TIER I and TIER II TGS	6

Category	Indicator	Metric #	Metric	Mandatory Target	Recommended Minimum Target	Aspirational Target	Precedent	Total Available Points
Infrastructure and Buildings	**Lighting**	**36**	Parking garage lighting	Minimum level of illumination of 50 lux	Use occupancy sensors (motion and thermal) on 2/3 of parking lighting fixtures, while always maintaining a minimum illumination of at least 10 lux (1 POINT)			1
		37	Reduce light pollution	Satisfy applicable municipal standards	Shield exterior light fixtures >1000 lumens to provide night sky lighting No uplighting allowed (1 POINT)	Develop lighting controls that reduces night time spillage of light by 50% from 11pm to 5am (non residential) No architectural lighting allowed between 11pm and 5am (1 POINT)	LEED NC SSc8 TIER I and TIER II	2
		38	Energy Conserving Lighting	Satisfy applicable municipal standards	Use LEDs and photocells on all exterior (exposed) lighitng fixtures (2 POINTS)			2
	Bird friendly design	**39**	Bird Friendly Design		Use a combination of Bird Friendly Design strategies to treat at least 85% of the exterior glazing located within the first 12m of the building above-grade (including interior courtyards). Visual markers on the glass should have a spacing no greater than 10cm x 10cm Where a greenroof is constructed with adjacent glass surfaces, ensure the glass is treated 12m above greenroof surface (2 POINT)		TGS TIER 1 City of Toronto Bird Friendly Design Guidelines	2
	Materials & Solid Waste Management	**40**	Solid Waste	Satisfy applicable municipal standards	Storage and collection areas for recycling and organic waste are within or attached to the building or deep collection recycling and organic waste storage facilities are provided. (1 POINT)	Three chute system is provided. (1 POINT)	TGS TIER I	2
		41	Recycled / Reclaimed Materials	Satisfy Municipal Standards	Minimum 25% of recycled/reclaimed materials should be used for new infrastructure including roadways, parking lots, sidewalks, unit paving, etc. (1 POINT)	Minimum 30% of recycled/reclaimed materials should be used for new infrastructure including roadways, parking lots, sidewalks, unit paving, etc. (1 POINT)	LEED ND GIBc15	2
		42	Material Re-use and Recycled Content		At least 5% reused content in building materials and/or landscaping materials (hardscaping such as paving or walkways) is provided. (1 POINT) At least 10% recycled content in building materials and/or landscaping materials (hardscaping such as paving or walkways). (1 POINT)	At least 10% reused content in building materials and/or landscaping materials (hardscaping such as paving or walkways) is provided. (1 POINT) At least 15% recycled content in building materials and/or landscaping materials (hardscaping such as paving or walkways). (1 POINT)	TGS TIER II	4

Category	Indicator	Metric #	Metric	Mandatory Target	Recommended Minimum Target		Aspirational Target		Precedent	Total Available Points
Infrastructure and Buildings	**Heat Island**	**43**	Reduce heat island effect from the built form - Non Roof			For 50% of the site's hardscape, include any combination of the following: - Underground/covered parking - Hardscape shading - Hardscape material with an SRI > 29 - Open grid pavers (>50% pervious) (2 POINTS)		For 75% of the site's hardscape, include any combination of the following: - Underground/covered parking - Hardscape shading - Hardscape material with an SRI > 29 - Open grid pavers (>50% pervious) (1 POINT)	Municipal OP LEED NC SSC7.1/7.2 TGS TIER I & II	3
		44	Reduce heat island effect from the built form - Roof			*Cool Roof* For 75% of the roof area, include roofing materials with solar reflective index (SRI) of: Low-sloped roof: 78 Steep-sloped roof: 29 (2 POINTS) *Vegetated Roof* Install vegetated roof for 50% of the roof area (4 POINTS) An additional 2 points is awarded if a *Cool* roof is installed on the remaining 50%		*Cool Roof* For 90% of the roof area, include roofing materials with solar reflective index (SRI) of: Low-sloped roof: 78 Steep-sloped roof: 29 (1 POINT) *Vegetated Roof* Install vegetated roof for 75% of the roof area (2 POINT) An additional 2 point is awarded if a *Cool* roof is installed on the remaining 25%	Municipal OP LEED NC SSC7.1/7.2 TGS TIER I & II	8

APPENDIX A - Block and Draft Plan

Block Plan (B) & Draft Plan (D) Metrics									
Category	**Indicator**	**Applies To**	**Metric #**	**Metric**	**Mandatory Target**	**Minimum Target**	**Aspirational Target**	**Precedents**	**Available Points**
Built Environment	**Compact Development**	**B&D**	**1**	Persons & Jobs per hectare *Note:* Each municipality defines density ranges by land use types within the Official Plan and the Secondary Plans	Places to Grow - 50 (min) ppl+jobs/ha or as further defined in the municipal Official Plan York Region - 70 (min) ppl+jobs/ha or as further defined in the municipal Official Plan and / or approved Secondary Plan				*M*
		B	**2**	Location Efficiency	Height and/or density conforms to the minimum or maximum targets established in the applicable Municipal Official Plan	Achieve a 50% increase in density along existing or planned mid block collectors, planned for transit (1 POINT)	Achieve a 100% increase in density along existing or planned mid block collectors planned for transit (2 POINTS)		*3*
	Land use Mix and diversity	**B&D**	**3**	Proximity to Basic Amenities		50% of DU and jobs are within a 800m walking distance of at least 3 existing or planned Basic Amenities (Amenities listed below) Basic amenities include: 1. Grocery store/farmers market, place to buy fresh produce 2. Community/Recreation Centre 3. Pharmacy 4. Library (UP TO 6 POINTS)	75% of DU and jobs are within a 400m walking distance of at least 3 existing or planned Basic Amenities (Amenities listed below) Basic amenities include: 1. Grocery store/farmers market, place to buy fresh produce 2. Community/Recreation Centre 3. Pharmacy 4. Library (UP TO 6 POINTS)	Thinking Green Item 1, 2, 9 LEED NDPc3	*12*
		B&D	**4**	Proximity to Lifestyle Amenities	Satisfy Municipal Official Plan requirements	50% of DU and jobs are within a 800m walking distance of at least 3 existing or planned basic amenities (Amenities listed below) Lifestyle Amenities include: 1. General retail 2. Convenience store 3. Theatre 4. Coffee store 5. Hair salon 6. Bank 7. Place of worship 8. Daycare 9. Restaurant/Pub Other (UP TO 3 POINTS)	75% of DU and jobs are within a 400m walking distance of at least 3 existing or planned basic amenities (Amenities listed below) Lifestyle Amenities include: 1. General retail 2. Convenience store 3. Theatre 4. Coffee store 5. Hair salon 6. Bank 7. Place of worship 8. Daycare Restaurant/Pub Other. (UP TO 3 POINTS)	Thinking Green Item 1, 2, 9 LEED NDPc3	*6*

Block Plan (B) & Draft Plan (D) Metrics									
Category	**Indicator**	**Applies To**	**Metric #**	**Metric**	**Mandatory Target**	**Minimum Target**	**Aspirational Target**	**Precedents**	**Available Points**
Built Environment		**D**	**5**	Urban Tree Diversity	Where trees are planted in a row in an urban area (e.g. street trees, trees in a parking area, park, etc.), alternate tree species at least every 2 trees or in accordance with approved municipal standards.				
	Landscape and Street Tree Planting / Preservation	**D**	**6**	Maintain existing healthy trees	Arborist Report provided that identifies and evaluates where on-site healthy mature trees will be protected (in-situ or moved) or removed.	Where healthy mature trees must be removed, new trees (not including street trees) are provided on site or as determined by the municipality to mitigate the lost canopy coverage of the trees removed. (2 POINTS)	75% of healthy mature trees greater than 20 cm. DBH are preserved in situ on site. (3 POINTS)	Municipal Precedent	*5*
		D	**7**	Soil Quantity and Quality	Satisfy Municipal Tree Planting Standards	Pits, trenches or planting beds should have a topsoil layer with an organic matter content of 10 to 15 % by dry weight and a pH of 6.0 to 8.0. The topsoil layer should have a minimum depth of 60 cm. The subsoil should have a total uncompacted soil depth of 90 cm. Minimum soil volume of 30 cubic metres per tree (2 POINTS)		TGS TIER I Canadian Cities with Soil Volume Standards TRCA - Preserving and Restoring Healthy Soils: Best Practice Guide for Urban Construction	*2*
	Green Buidings	**D**	**8**	Building(s) designed and/or certified under an accredited "green" rating system	Public Buildings greater than 500m² must be designed to LEED Silver or alternative equivalent	Site includes 1 or more green buildings certified under a recognized third party standard (i.e. Energy Star, ASHRAE 189, LEED NC, CS, CI, EB, Homes, etc...) (2 POINTS)	Additional aspirational points are available for development plans that include 5 or more buildings. Buildings on site will be certfied under a recognized third party standard (i.e. Energy Star, ASHRAE 189, LEED NC, CS, EB, Homes, etc…) 2 points if 50% to 75% of buildings are certified +2 points if 76% to 00% of buildings are certified	Municipal OP Sustainable Design and Construction Policy for Municipal Buildings LEED ND GIBp1	*6*

Block Plan (B) & Draft Plan (D) Metrics									
Category	**Indicator**	**Applies To**	**Metric #**	**Metric**	**Mandatory Target**	**Minimum Target**	**Aspirational Target**	**Precedents**	**Available Points**
Built Environment	**Housing Unit Mix**	**B&D**	**9**	Design for life cycle housing:		The housing types include a diversified mix that caters to singles, families, multi-generational, live-work, mixed use, affordable/low income, attached, detached, townhome and med-to-high-rise residential. (POINTS AWARDED BASED ON A SLIDING SCALE)	The housing types include a diversified mix that caters to singles, families, multi-generational, live-work, mixed use, affordable/low income, attached, detached, townhome and med-to-high-rise residential. (POINTS AWARDED BASED ON A SLIDING SCALE)	Thinking Green Item 3 LEED NDPc4	*7*
	Community Form	**B**	**10**	Community and Neighbourhood Scale		Community form based on a hierarchy of the following: *Community* - formed by a clustering of neighbourhoods, typically 6 to 9 (depending on topography and natural features), to sustain a viable mixed use node and public transit. *Neighbourhood* - shape and size defined by 400 metres (5 minute walk) from centre to perimeter with a distinct edge or boundary defined by other neighbourhoods or larger open spaces. *Neighbourhood centre* - acts as a distinct centre or focus with a compatible mix of uses that include medium and high-density, retail or community facilities, and a parkette/village square. *Mixed use node* - central to the cluster of neighbourhoods the node should include higher residential densities, retail, employment opportunities, be accessible, and served by public transit. (4 POINTS)	_____		*4*

Block Plan (B) & Draft Plan (D) Metrics									
Category	**Indicator**	**Applies To**	**Metric #**	**Metric**	**Mandatory Target**	**Minimum Target**	**Aspirational Target**	**Precedents**	**Available Points**
Built Environment	**% of Tree canopy within proximity to building/ pedestrian infrastructure**	**B&D**	**11**	% canopy coverage	Provide street trees on both sides of streets according to Municipal Standards.	Tree-Lined Streets Provide street trees on both sides of new and existing streets within the project and on the project side of bordering streets, between the vehicle travel lane and walkway, at intervals averaging no more than 9 meters. (1 POINT) Shaded Streets Provide shade within 10 years of planting for at least 50% of sidewalk lenghts. All trees should be selected from the applicable Municipal tree list. (1 POINT)	Tree-Lined Streets Provide street trees on both sides of new and existing streets within the project and on the project side of bordering streets, between the vehicle travel lane and walkway, at intervals averaging no more than 6 meters. (1 POINT) Shaded Streets Provide shade within 10 years of planting for at least 75% of sidewalk lenghts. All trees should be selected from the applicable Municipal tree list. (1 POINT)	LEED ND NPDc14	*4*
	Natural Heritage	**B&D**	**12**	Connection to Natural Heritage		Visual and physical connections (such as public access blocks, single loaded roads) are provided to 25% of the natural heritage system. (2 POINTS)	Visual and physical connections (such as public access blocks, single loaded roads) are provided to 50% of the natural heritage system. (2 POINTS)		*4*
	Pedestrian Connections	**B&D**	**13**	Traffic Calming		75% of new residential-only streets designed with traffic calming strategies. (1 POINT) 50% of new non-residential and/or mixed-use streets are designed with traffic calming strategies (1 POINT)	100% of new residential-only streets designed with traffic calming strategies. (1 POINT) 75% of new non-residential and/or mixed-use streets are designed with traffic calming strategies (1 POINT)	LEED ND NPDc1	*4*
		B&D	**14**	School Proximity to Transit routes & Bikeways		All schools are located within a 400m walking distance to transit routes and/or bikeways (2 POINTS)	All schools are located within a 200m walking distance to transit routes and/or bikeways (2 POINTS)		*4*
	Pedestrian Connections	**B&D**	**15**	Proximity to school		50% of dwelling units are within 800 meters walking distance to public/private elementary, montessori, and middle schools (2 POINTS) 50% of dwellings units are within 1600 meters to a public/private high school (1 POINT)	75% of dwelling units are within 400 meters walking distance to public/private elementary, montessori, and middle schools (2 POINTS) 75% of dwellings units are within 1000 meters to a public/private high school (1 POINT)	LEED ND NPDc15	*6*

Block Plan (B) & Draft Plan (D) Metrics									
Category	**Indicator**	**Applies To**	**Metric #**	**Metric**	**Mandatory Target**	**Minimum Target**	**Aspirational Target**	**Precedents**	**Available Points**
Built Environment	**Cultural Heritage Resources**	**B&D**	**16**	Cultural Heritage Conservation	Comply with Cultural Heritage Conservation policies under provincial legislation (i.e. the Ontario Heritage Act, Planning Act and PPS, etc), Standards and Guidelines for Historic Places, municipal Official Plan, municipal by-laws, Municipal Register of Cultural Heritage Resources and/or Municipal Heritage Inventory.	100% evaluation of properties included in the Municipal Heritage Inventory and/or Register, and 100% retention and protection of cultural heritage resources that qualify for designation under the Ontario Heritage Act. (2 POINT)	100% conservation of cultural heritage resources identified in the Municipal Heritage Register or Inventory and their associated landscapes and ancillary structures in accordance with the Standards and Guidelines for the Conservation of Historic Places in Canada. (2 POINTS)		*4*
Mobility	**Street networks/block**	**B&D**	**17**	Block perimeter/length		75% of block perimeters do not exceed 550m. 75% of block lengths do not exceed 250m. (2 POINTS)	100% of block perimeters do not exceed 550m. 100% of block lengths do not exceed 250m. (2 POINTS)	Thinking Green Item 3 LEED NPDp1	*4*
		B&D	**18**	Intersection density		Street Intersections per sq km = 40 to 50 (2 POINTS)	Street Intersections per sq km =51 to 60 (1 POINT) Street Intersections per sq km >61 (1 POINT)	LEED NPDp3 Neptus Foundation	*4*
	Transit supportive	**B&D**	**19**	Distance to public transit	Satisfy Official Plan Targets	50% of residents/employment is within 800m walking distance to existing or planned commuter rail, light rail or subway with frequent stops or 50% of residents/employment is within 400m walking distance to 1 or more bus stops with frequent service. (3 POINTS)	75% of residents/employment is within 400m walking distance to existing or planned commuter rail, light rail or subway with frequent stops or 75% of residents/employment is within 200m walking distance to 1 or more bus stops with frequent service. (3 POINTS)	LEED NC 2009 SSc4.1 LEED ND SLLc3	*6*
	Active Transporation	**B&D**	**20**	Creation of Trail or Bike Paths	Comply with Master Plan		Advances the objectives of the applicable Pedestrian and Cycling Master Plan (2 POINTS)		*2*
		B&D	**21**	Proximity to cycle network		75% of residents/jobs are within 400 meters of existing or apporved by council path/network (2 PONITS)	100% of residents/jobs are within 400 meters of existing or apporved by council path/network (2 PONITS)		*4*

Block Plan (B) & Draft Plan (D) Metrics									
Category	**Indicator**	**Applies To**	**Metric #**	**Metric**	**Mandatory Target**	**Minimum Target**	**Aspirational Target**	**Precedents**	**Available Points**
Mobility	**Walkability**	**B&D**	**22**	Promote walkable streets	Sidewalks must be in accordance with the applicable Municipal Standards. Sidewalk width must be at least 1.5 meters.	On 75% of streets, continuous sidewalks or equivalent provisions must be provided on both sides of streets, where not a mandatory requirement. (2 POINTS)	On 100% of street, continuous sidewalks or equivalent provisions must be provided on both sides of streets, where not a mandatory requirement. (2 POINTS) Provide pedestrian amenities to further encourage walkable streets. (2 POINTS)	LEED ND NPDc1	*6*
Natural Environment & Open Space	**Parks**	**B&D**	**23**	Park Accessibility		Provide 2 or more road frontages for each urban square, parkette, and neighbourhood park provided and 3 road frontages for each community park provided. (3 POINTS)	Provide 3 or more road frontages for all parks provided. (3 POINTS)	LEED ND Cornell Community Mt. Pleasant Village Existing Policies	*6*
	Stormwater	**B&D**	**24**	Stormwater Quantity	Retain runoff volume from the 5mm rainfall event on site or achieve best efforts Provide quantity or flood control in accordance with applicable Municipal and conservation authority requirements	Retain runoff volume from the 10mm rainfall event on site. (3 POINT)	Retain runoff volume from the 15mm rainfall event on site. (3 POINTS)	TGS TIER II TRCA DIRECTION	*6*
		B&D	**25**	Stormwater Quality	Remove 80% of Total Suspended Solids (TSS) on an annual loading basis from all runoff leaving the site (based on the post development level of imperviousness). All ponds will be designed with Enhance Level of Protection (Level 1).	Remove 81% to 90% of Total Suspended Solids (TSS) from all runoff leaving the site during a 10mm rainfall event. (Based on the post development level of imperviousness). (1 POINTS)	Remove 91% to 100% of Total Suspended Solids (TSS) from all runoff leaving the site during a 15mm rainfall event. (Based on the post development level of imperviousness). (4 POINTS)	TGS TIER II TRCA DIRECTION	*5*

Block Plan (B) & Draft Plan (D) Metrics									
Category	**Indicator**	**Applies To**	**Metric #**	**Metric**	**Mandatory Target**	**Minimum Target**	**Aspirational Target**	**Precedents**	**Available Points**
Natural Environment & Open Space	**Urban agriculture**	**B&D**	**26**	Dedicate land for local food production		Provide 80ft2/DU of garden space (2 POINTS)	Provide the following garden space per site density DU Density Growing Space/DU 17-35DU/ha 200ft2 36-54DU/ha 100ft2 >54DU/ha 80ft2 (2 POINTS)	LEED ND NPDc13	*4*
	Natural Heritage System	**B&D**	**27**	Natural Heritage System Enhancements	Satisfy Municipal Official Plan requirements		Demonstrate ecological gain above and beyond the municipal natural heritage requirements. (2 POINTS)		*2*
	Soils and Topography	**B&D**	**28**	Restore and enhance soils	Undertake a Topsoil Fertility Test according to Municipal Standards	Undertake a Topsoil Fertility Test for the entire site and implement its recommendations. (1 POINT)	Development on highly permeable soils is avoided following TRCA and CVC Low Impact Development Stormwater Management Planningand Design Guide. (2 POINTS) In addition to implementing the recommendations of the Topsoil Fertility Test, a minimum topsoil depth of 200 m is provided across the entire site. (2 POINTS)	TRCA DIRECTION	*5*

Block Plan (B) & Draft Plan (D) Metrics									
Category	**Indicator**	**Applies To**	**Metric #**	**Metric**	**Mandatory Target**	**Minimum Target**	**Aspirational Target**	**Precedents**	**Available Points**
Infrastructure & Buildings	**Energy conservation**	**B&D**	**29**	Passive solar alignment		50% (or more) of the blocks have one axis within 15 degrees of E-W. E-W lengths of those blocks are at least as long as the N-S lengths of blocks (3 POINTS)	75% (or more) of the blocks have one axis within 15degrees of E-W E-W lengths of those blocks are at least as long as the N-S lengths of blocks (3 POINTS)	LEED ND GIBc10	*6*
		D	**30**	Building energy efficiency	Single Family Homes: Design all buildings in accordance with OBC.	75% of single family homes or multiunit residential buildings (3 storey or lower) must be built to EnerGuide 83 (or equivalent) (2 POINTS)	90% of single family homes or multiunit residential buildings (3 storey or lower) must be built to EnerGuide 85 (or equivalent) (2 POINT)		*4*
		B&D	**31**	Energy Management		Develop an energy strategy for the development, identifying opportunities for conservation, energy sharing, renewables, etc… (2 POINTS)	In an intensification area, where district energy has been deemed viable by the municipality, carry out a district energy feasibility study. (3 POINTS)		*5*
	Lighting	**D**	**32**	Reduce light pollution	Satisfy applicable municipal standards	Shield exterior light fixtures >1000 lumens to prevent night sky lighting No uplighting allowed (1 POINT)		LEED NC SSc8 TIER I and TIER II	*1*
		D	**33**	Energy Conserving Lighting	Satisfy applicable municipal standards	Use LEDs and/or photocells on all exterior (exposed) lighitng fixtures (applies to street lights, park lights, pedestrian walkways). (2 POINTS)			*2*
	Material Management	**D**	**34**	Recycled / Reclaimed Materials	Satisfy applicable municipal standards	Minimum 25% of recycled/reclaimed materials should be used for new infrastructure including roadways, parking lots, sidewalks, unit paving, etc. (1 POINT)	Minimum 30% of recycled/reclaimed materials should be used for new infrastructure including roadways, parking lots, sidewalks, unit paving, etc. (1 POINT)		*2*

APPENDIX B – Rationale and Sources Used to Inform Metrics

Built Environment - Compact Development - Persons and jobs per ha

Rationale: To conserve land and promote active transportation, transit efficiency, liveability and improve public health.

Sources: Growth Plan for the Greater Golden Horseshoe; York Region OP 5.6.3 and New Community Guidelines (criterion CC2 refers to 20 residential unites per hectare and 70 residents and jobs per hectare as the required target in new greenfield areas); Emerald Hills Performance Assessment.

Built Environment - Compact Development – Floor area ratio/Floor space index

Rationale: Municipal official plans include land use designations and density schedules that apply to existing urban areas to achieve municipal growth management strategies with attention to placemaking, built form and urban design.

Built Environment - Compact Development – Location efficiency

Rationale: Promote multi-modal transportation choices and reduced vehicle use.

Sources: Emerald Hills Performance Assessment; LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – NPD Credit 3.

Built Environment - Land Use Mix and Diversity - Proximity to amenities

Rationale: Recognize sites with good community connections to services and/or promote services to encourage compact communities and multi-modal transportation options. Recognizes a fine grain mix of uses as promoted in municipal official plans. The metric and targets are adapted from the point scoring system used in LEED ND.

Sources: LEED Canada 2009 for New Construction, SS Credit 2; LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) - SLL Credit 3; VOP 2010 Policy 4.2.2.14 (“To encourage the provision of transit service within 500 metres of at least 90% of residences and the majority of jobs, and consistent with approved YRT service standards and guidelines and within 200 metres of at least 50% of residents in the *urban area*.”)

Built Environment – Site Accessibility – Universal design

Rationale: Improve accessibility for people of diverse abilities.

Built Environment – Green Buildings – Third-party certification

Rationale: Recognize appropriate independent third-party certification systems incorporated into development proposals.

Sources: LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – Green Infrastructure and Buildings (GIB) Prerequisite 1.

Built Environment - Housing Mix - Design for life cycle housing

Rationale: Enable residents from a wide range of economic levels, household sizes, and age groups to live in a community.

Sources: LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – NPD Credit 4; VOP 2010 policy 2.1.3.2.j.

Built Environment – Landscape and Street Tree Planting/Preservation

Rationale: As part of the urban forest, street trees provide a range of ecosystem services including: cleaning air; intercepting rainfall that helps to mediate storm flows; evaporative cooling and summer shade to reduce building cooling loads; wind breaks; and carbon sequestration. As community amenities, street trees promote active transportation by providing a more walkable pedestrian environment.

Sources: LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – NPD Credit 14.

Built Environment - Community Form - Community and neighbourhood scale

Rationale: Focus retail, personal, human and community services within community core areas (neighbourhood centre and mixed-use node) so that people can meet their daily needs within their own communities.

Sources: York Region OP policy 5.6.5, policy 4.4.1, and York Region New Community Guidelines (criterion CC5).

Built Environment – Natural Heritage/Natural Green Space – Proximity/connection to natural heritage/green space

Rationale: The human health and amenity benefits of proximity to nature and green spaces have been documented in peer-reviewed journals (e.g. Sullivan, Kuo and DePooter, 2004; Faber-Taylor and Kuo, 2001).

Sources: VOP 2010 policy 7.3.1.2 c (Neighbourhood Parks should generally be located within a 10-minute walk of the majority of the community served); Sustainable Sites Initiative: Guidelines and Performance Benchmarks, 2009, Credit 6.7.

Built Environment – Parking

Rationale: Encourage active transportation, promote efficient use of developable land, discourage the location of parking in front of buildings in order to support on-street retail and pedestrianization, and minimize the adverse environmental impacts of parking facilities.

Sources: LEED Canada 2009 for New Construction, SS Credit 4.4; LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) - NPD Credit 5.

Built Environment – Pedestrian Connections – Traffic calming

Rationale: Provide walkable streets to encourage active transportation.

Sources: LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – NPD Credit 1; Gilbert and Obrien. 2009. Child- and Youth-Friendly Land-Use And Transport Planning Guidelines for Ontario, Version 2. (http://www.kidsonthemove.ca/uploads/Guidelines%20Ontario%20v2.7.pdf)

Built Environment – Pedestrian Connections – School proximity to transit routes and bikeways

Rationale: Promote walking and cycling to schools and reduce traffic congestion at school sites.

Sources: LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – NPD Credit 15; Forum: School Siting and School Site Design for a Healthy Community, 2012, City of Hamilton Public Health Services.

Built Environment – Pedestrian Connections - Proximity to schools

Rationale: Promote schools as community hubs and support students' health by encouraging walking and bicycling to school.

Sources: LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – NPD Credit 15; Forum: School Siting and School Site Design for a Healthy Community, 2012.

Built Environment - Cultural Heritage Resources – Cultural Heritage Conservation

Rationale: Support municipal Official Plan policies to recognize and conserve cultural heritage resources, including heritage buildings and structures, Cultural Heritage Landscapes, and other cultural heritage resources.

Sources: Cultural Heritage Conservation policies under provincial legislation (i.e. the Ontario Heritage Act, Planning Act and PPS, etc), Standards and Guidelines for Historic Places, municipal Official Plan, municipal bylaws, Municipal Register of Cultural Heritage Resources and/or Municipal Heritage Inventory.

Built Environment – Tree Canopy

Rationale: Enhance the urban forest and provision ecosystem services including: cleaning air; intercepting rainfall that helps to mediate storm flows; evaporative cooling and summer shade to reduce building cooling loads; wind breaks; and carbon sequestration. As community amenities, street trees promote active transportation by providing a more walkable pedestrian environment.

Sources: LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – NPD Credit 14.

Mobility – Site Permeability - Connectivity

Rationale: Encourage walking and transit use.

Source: Toronto Green Standard Tier 1 requirement (Pedestrian Infrastructure).

Mobility - Street Networks/Blocks - Block perimeter/length

Rationale: Blocks of dwelling units with a perimeter less than 550 metres promote connectivity of neighbourhoods, allows pedestrians to choose between a variety of routes to their destination, and should be flexible to accommodate both residential and commercial lot sizes.

Sources: Pickering Sustainable Development Guidelines (criterion 6.6); East Gwillimbury "Thinking Green" Item 3.

Mobility - Street Networks/Blocks – Intersection density

Rationale: Promote well-connected street networks that allow for multiple active transportation routes through the neighbourhood, and reduces traffic through alternative vehicular routes.

Sources: Pickering Sustainable Development Guidelines (criterion 6.5); Neptis Foundation "Shaping the Toronto Region" report (see Figure 35).

References:
Taylor, Z.T and von Nostrand, J. 2008. Shaping the Toronto region past, present and future: an exploration of potential effectiveness of changes to planning policies governing greenfield land development in the Greater Golden Horseshoe. Neptis Foundation. 198 pp

Mobility – Transit Supportive - Distance to public transit

Rationale: Support alternative transportation modes to vehicle use.

Sources: LEED Canada 2009 for New Construction, SS Credit 4.1; Pickering Sustainable Development Guidelines (criterion 6.10).

Mobility – Active Transportation

Rationale: Promote alternative modes of transportation and support public health.

Sources: LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – SLL Credit 4 (Bicycle Network and Storage).

Mobility – Walkability - Promote walkable streets

Rationale: Promote walking and other forms of active transportation by providing safe and comfortable street environments.

Sources: Pickering Sustainable Development Guidelines criterion 7.2; LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – NPD Credit 1 (Walkable Streets).

Natural Environment and Open Space - Parks

Rationale: Support park design policies in municipal official plans.

Sources: Municipal Official Plans; LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – NPD Credit 9 (Access to Civic and Public Square).

Natural Environment and Open Space – Stormwater – Stormwater quantity

Rationale: Implement a treatment-train approach to stormwater management that emphasizes source controls and conveyance controls to promote infiltration, evaporation, and/or re-use of rainwater. The objective is to maintain stream flows and thermal regimes within natural ranges of variation.

Sources: TRCA Stormwater Management Criteria (2012); MOE Stormwater Management Practices Planning and Design Manual; TGS Tier I and Tier II; LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – Green Infrastructure and Buildings Credit 8 (Stormwater Management).

Natural Environment and Open Space – Stormwater – Stormwater quality

Rationale: Protect receiving water bodies from the water quality degradation that may result from development and urbanization (TRCA 2012).

Sources: Stormwater Management Criteria (TRCA 2012) (http://www.sustainabletechnologies.ca/Portals/_Rainbow/Documents/72d1cb7b-eaa6-4582-8e9e-87e668af62d5.pdf); Toronto Green Standard (Stormwater Quality – Stormwater Run-off).

Natural Environment and Open Space – Stormwater – Rainwater re-use

Rationale: Reduce potable water use.

Sources: Toronto Green Standard (Water Efficiency); York Region Official Plan (policy 5.2.32).

Natural Environment and Open Space – Stormwater – Stormwater architecture/features

Rationale: Naturalize stormwater management facilities to enhance the municipal natural heritage system and integrate into the open space system as visually and physically accessible amenities.

Sources: The Sustainable Sites Initiative: Guidelines and Performance Benchmarks, 2009 (Credit 3.7)

Natural Environment and Open Space – Urban Agriculture – Dedicate land for local food production

Rationale: Promote community-based food production and provide alternative passive recreational uses.

Sources: LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – NPD Credit 13.

Natural Environment and Open Space – Natural Heritage System – Natural heritage system enhancements

Rationale: Improve natural heritage system function with respect to wildlife habitat and/or ecological functions, including ecosystem services.

Sources: Municipal natural heritage system plans.

Explanatory Note: Point allocation has not yet been defined for different types natural heritage system enhancements. This metric will be the subject of ongoing research.

Natural Environment and Open Space – Soils and Topography – Restore and enhance soils

Rationale: Limit disturbance of healthy soil to: protect soil horizons and maintain soil structure; support biological communities (above-ground and below-ground); minimize runoff and maximize water holding capacity; improve biological decomposition of pollutants; and moderate peak stream flows and temperatures.

Sources: The Sustainable Sites Initiative: Guidelines and Performance Benchmarks, 2009; Low Impact Development Stormwater Management Planning and Design Guide (CVC and TRCA 2010); Preserving and Restoring Healthy Soil: Best Practices for Urban Construction (TRCA 2012).

References:
The Sustainable Sites Initiative: Guidelines and Performance Benchmarks, 2009 (http://www.sustainablesites.org/report/Guidelines%20and%20Performance%20Benchmarks_2009.pdf)

Infrastructure and Buildings – Energy Conservation – Solar readiness

Rationale: Encourage on-site renewable energy generation and/or solar thermal strategies.

Sources: LEED NC EA Credit 2; York Region Official Plan (policy 5.2.26).

Infrastructure and Buildings - Energy Conservation – Passive solar alignment

Rationale: Promote energy efficiency by creating the conditions for the use of passive solar design as well as solar photovoltaic and/or solar thermal strategies.

Sources: LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – GIB Credit 10.

Infrastructure and Buildings - Energy Conservation – Building energy efficiency

Rationale: Reduce energy use and greenhouse gas emissions with consequent reductions in air, water, and land pollution and adverse environmental effects from energy production and consumption.

Sources: Toronto Green Standard (Minimum Energy Performance); LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – GIB Prerequisite 2 and Credit 2.

Infrastructure and Buildings - Energy Conservation – District energy viability
Rationale: District energy systems can provide more efficient heating and cooling for residential and commercial customers (providing there is density of development). This aids governments in reaching reduction targets for greenhouse gas emissions while also benefitting customers in reduced ongoing energy expenses and reduced one-time first costs for mechanical equipment.

Sources: Canadian District Energy Association (Web site, https://www.cdea.ca/faq/what-are-main-advantages-district-energy); York Region Official Plan (policy 5.6.10 regarding community energy planning); LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – GIB Credit 12.

Infrastructure and Buildings – Potable Water - Reduce Potable Water Used for Irrigation

Rationale: Promote water use efficiency.

Sources: Toronto Green Standard (Water Efficiency); York Region Official Plan (policy 5.2.31); LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – GIB Credit 4; LEED Canada 2009 for New Construction, WE Prerequisite 1.

Infrastructure and Buildings – Potable Water – Water conserving fixtures

Rationale: Promote water use efficiency.

Sources: Toronto Green Standard (Water Efficiency); York Region Official Plan (policy 5.2.21 and 5.2.23); LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – GIB Credit 3; LEED Canada 2009 for New Construction, WE Credit 1.

Infrastructure and Buildings – Lighting - Parking Garage Lighting

Rationale: Reduce energy use while providing safe environments.

Infrastructure and Buildings - Lighting - Reduce light pollution

Rationale: Reduce nighttime glare and light trespass from the building and the site

Sources: Toronto Green Standard (Light Pollution Tier I and Tier II); LEED Canada 2009 for New Construction, SS Credit 8.

Infrastructure and Buildings - Lighting – Energy conserving lighting

Rationale: Reduce energy use while providing safe environments.

Infrastructure and Buildings - Bird-Friendly Design

Rationale: Ensure that design features minimize the risk for migratory bird collisions.

Sources: Toronto Green Standard

Infrastructure and Buildings - Materials and Solid Waste Management - Recycled/Reclaimed Materials

Rationale: Reduce the adverse environmental effects of extracting and processing virgin materials.

Sources: LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – GIB Credit 15 (LEED ND credit 15 refers to a mix of recycled and reclaimed materials exceeding 50% of the mass of new infrastructure); Toronto Green Standard (Use of Recycled Materials); The Sustainable Sites Initiative: Guidelines and Performance Benchmarks – Credit 5.4 and 5.5.

Infrastructure and Buildings - Materials and Solid Waste Management – Solid Waste

Rationale: Promote waste reduction and diversion of materials from landfills.

Sources: LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – GIB Credit 16; Toronto Green Standard (Storage and Collection of Recycling and Organic Waste); City of Vaughan Waste Collection Standards and Waste Collection By-Law 217-210.

Infrastructure and Buildings - Materials and Solid Waste Management- Material re-use and recycled content

Rationale: Reduce demand for new materials and promote diversion of materials from landfills.
Sources: Toronto Green Standard (Reuse of Building Materials); The Sustainable Sites Initiative: Guidelines and Performance Benchmarks – Credit 5.4 and 5.5.

Infrastructure and Buildings - Heat Island – Reduce heat island effects

Rationale: Reduce ambient surface temperatures, and provide shade for human health and comfort.

Sources: Toronto Green Standard (Urban Heat Island Reduction: At Grade and Roof); LEED Canada 2009 for New Construction – SS Credit 7.1 and 7.2; LEED 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths (2011) – GIB Credit 9.

APPENDIX C - Sustainability Metrics Log

The following metrics log attempts to summarize the major revisions to the sustainability metrics based on the private and public sector workshops and feedback.

June 04, 2013 –Revisions from TAT meeting

Log#	Metric	Revisions / Additions / Deletions	Changes applied to:
1	Buildings Design/Certified to Green Standards	Revise Aspirational Target – only applicable to sites with 5 or more buildings	Site Metrics
2	Life Cycle Housing	Revised metric to remove “renters” reference and delete 1 or 2 bedroom reference for Block and Draft metrics	Site, Block and Draft Metrics
3	Connection to Natural Heritage	Revise metric to include a “Visual and physical connection are provided to natural heritage system”	Site, Block and Draft Metrics

May 11, 2013 – Comments and Revisions from BILD Workshop

Log#	Metric	Revisions / Additions / Deletions	Changes applied to:
1	Carpooling and Efficient Vehicle Parking	Minimal and Aspirational metrics to include "and/or"	Site Metrics
2	Park Accessibility	Revise metrics for Recommended Minimum: ~~A minimum of two parks of any type (i.e. urban square, parkette, neighbourhood park, community park, etc...) are included in the development plan.~~ Provide 2 ~~or more~~ road frontages for each urban square, parkette, and neighbourhood park provided and 3 road frontages for each community park provided. Aspirational Metric: ~~More than 2 parks are included in the development plan.~~ Provide 3 or more road frontages for all parks provided.	Site, Block and Draft Metrics
3	Stormwater Quantify	Revise Mandatory Metric: Retain runoff volume from the 5mm rainfall event on site. Provide quantity or flood ~~contol~~ control in accordance with applicable Municipal and ~~TRCA~~ conservation authority requirements.	Site, Block and Draft Metrics
4	Restore and Enhance Soils	Revise Aspirational Metric: Development on highly permeable soils is avoided following TRCA and CVC Low Impact Development Stormwater Management Planningand Design Guide.(2 POINTS) ~~For all areas to be revegetated, restore soils disturbed by previous development and soils disturbed during construction,including restoring micro-topography variation.(2 POINTS)~~ In addition to implementing the	Site, Block and Draft Metrics

		recommendations of the Topsoil Fertility Test, a minimum topsoil depth of 200m is provided across the entire site.(2 POINTS)	
5	General	Overall structure Decided to separate Private and public sector metrics. Developers will only be evaluated based on private sector score.	Site, Block and Draft Metrics

April 22, 2013 – Revisions from Municipal Working Sessions

Log#	Metric	Revisions / Additions / Deletions	Changes applied to:
1	General	Delete Building Metrics. Considered too specific	
2	Persons and Job per hectare	Delete Aspirational target. Mandatory target reworked to include reference to OP. Only applies to Greenfields	Block and Draft Plan
3	Location Efficiency	Revise Recommended Minimum metric to reference existing or planned transit corridors. Only applies to Greenfields	Block and Draft Plan
4	Proximity to Schools	Revised Minimum and Aspirational metrics to include public/private/montessori schools.	Site, Block and Draft Metrics
5	Parks	Decided that park metrics weren't working. Park metrics should be collapsed into an accessibility metric	Site, Block and Draft Metrics
6	Proximity to Amenities	Language revision. "Principle Amenities" changed to "Basic Amenities" and "Basic Amenities" changed to "Lifestyle Amenities". Metric only applies to Greenfields and Intensification	Site, Block and Draft Plan
7	Jobs/Resident	Delete Metric	Site Plan
8	Materials Management	Delete material management metrics (i.e. recycled / reclaimed materials)	Block and Draft Plan
9	Soils and Topography	Revise metric title to "Soils Quantify and Quality"	Site, Block and Draft Plan

November 8, 2012 – Revisions from Municipal Workshop #2

(highlighted cells are proposed metrics that are still under review but haven't been included in the list of draft sustainable performance metrics)

Log#	Metric	Revisions / Additions / Deletions	Changes applied to:
1	Stormwater Quantity	Revise metric • Mandatory target: 5mm event • Minimum target: 15mm event • Aspirational target: 25mm event (to be confirmed/informed by TRCA)	Community and Site Metric
2	Stormwater Temperature	Add metric • To be informed by TRCA	Community and Site Metrics
3	Energy efficiency	Revise metric • Mandatory target: 25% better than MNECB • Minimum target: 35% better than MNECB • Aspirational target: 45% better Additional points awarded up to 75% energy savings	Site/Building metrics
4	Grey water re-use	Add metric • Minimum: grey water readiness (same as rainwater readiness metric) • Aspirational: Grey water re-used on site for low grade functions (toilet flushing, irrigation)	Site/Building Metrics
5	Walkability	• Aspirational: provide pedestrian amenities to further encourage walkable streets. "Pedestrian amenities" include: shelter from rain, wind breaks, shade, seating, etc…	Community and Site Metrics
6	Parking	Add metric • Aspirational (CRI only) Paid parking is included for commercial, retail,	Site/Building metrics

		institutional parking lots	
7	Speed control	Revise metric • Remove reference to speed bumps • Include " use good road design strategies to reduce vehicular speeds. Supplemental measures can also include the traffic calming strategies listed"	Community and Site metrics
8	Cycling Infrastructure	Add metric • Minimum: Adopt dedicated bike lanes on streets with high traffic volume and speeds greater than 40km/hr • Aspirational: Adopt dedicated and protected bike lanes on streets with high traffic volumes and speeds that exceed 40km/hr. Protected bike lane strategies include: Buffered lanes and floating parking (recommended by Portland 2030 bicycle plan, adopted in NYC), bollards or posts (used in Montreal), extruded curbs, raised lanes (preferred in Germany), etc…	Community and Site metrics
9	Speed Control	Renamed metric to traffic calming	Community and Site metrics
10	% Tree canopy	Tree growth extended from 5 years to 10 – based on LEED ND precedent	Community and Site metrics
11	Stormwater re-use	Deleted	Community metrics
12	Existing Building Re-use	Expanded minimum target. Revised thresholds to 5%/10% (min) and 10%/15% Aspirational	Community and Site metrics
13	Passive solar aligment	Revised language	Community metrics
14	Intersection density	Revised targets based on municipal direction	Community metrics
15	Heat Island	Added aspirational metric 90% and 75%	Site metrics
16	Road Design Standard	Add metric: (Min) Municipality to carry out a Municipal Road Design Standard review to identify any potential sustainability opportunities	Community and Site Metrics
17	Public Transit Accessibility	Add metric: (Min) Municipality to carry out a Public	Community and Site metrics

		Transit Study to identify potential integration of public transit opportunities within the site	
18	School Accessibility	Add metric: (Min) Municipality to carry out a School Accessibility Study identify the potential opportunities to improve access to schools and synergies with active and public transit.	Community and Site metrics

Oct 26, 2012 – Revisions from Municipal feedback

Log#	Metric	Revisions / Additions / Deletions	Changes applied to:
1	Compact Development	• Removed reference to FSI • Revised to reflect Municipal OP	Community and Site Metric
2	Location Efficiency	Minimum target revised to: Greenfield Applications: • 2x the average density along transit corridors (within 200m from transit) All other Applications: • Height and/or density conforms to the minimum or maximum targets established in the applicable Municipal Official Plan	Community Metrics
3	Proximity to amenities	Added site specific metric • (Minimum) If the amenities are not within the distance specified above and the site is designated as mix use, the mix of population and employment uses achieves 2:1 ratio on the site (Aspirational) If the amenities are not within the distance specified above and the site is designated as mix use, the mix of population and employment uses includes major office space, an anchor commercial/retail tenant or a minimum of 3 stories of employment uses.	Site Metrics
4	Soil Quality	Revised metric • Provide a minimum soil volume of 30m3 per tree. The soil volumes should be based on a minimum soil depth of 0.8m and a maximum of 1.2m of high quality soil above a well drained sub soil or drainage layer. Ensure that groups of trees planted in hardscape can share soil volume, for	Site Metrics

		example, through the use of continuous soil planters. The use of soil cells is also encouraged	
5	Proximity to natural green space	Minimum target revised. Aspirational metric maintained. • Visual connections (such as public access blocks, single loaded roads) are provided to the natural heritage system and parks.	Site Metrics
6	Bicycle Parking	Revised Metric • Removed additional visitor parking requirements and provide a minimum of 5%/10 of bike parking at grade for visitors (MURBs) • Added reference to shower for CRI	Site Metrics
7	Parking Allocation	Removed prescriptive parking allocation. Replaced with % of total area	Site Metrics
8	Parking Designation	• Revised metric to include minimum # of spots and compact cars are exempt from target	Site Metrics
9	Safe routes to schools	Deleted metric	Community and Site Metrics
10	Proximity to natural green space	Minimum target revised. Aspirational metric maintained. • Visual connections (such as public access blocks, single loaded roads) are provided to the natural heritage system and parks.	Site Metrics
11	Connectivity	Revised Metric Minimum: Connect buildings on the site to off-site pedestrian paths, surface transit stops, parking areas (car and bike) or other destinations (schools) Aspirational: Provide amenities and street furniture (benches, additional bike parking, landscaping) along connections provided on the site and between the site and adjacent destinations	Site Metrics

12	Stormwater Quantity	Revised based on municipal feedback. 5mm and 15mm retention	Site Metrics
13	Stormwater Quality	Metric revised 80%/100% of Total Suspended Solids (TSS) removed from a 25mm rainfall event. Strategies should include low impact development measures such as: Stormwater ponds, oil-grit separators, bioswales, filters, treatment train approach, etc…	Site Metrics
14	Rainwater Re-use	Does not apply to single family homes	Site Metrics
15	Stormwater Features	Target moved to minimum	Site Metrics
16	Existing building reuse	Added metric At least 5% reused content in building materials and landscaping materials (hardscaping such as paving or walkways) is provided. At least 15% recycled content in building materials and landscaping materials (hardscaping such as paving or walkways).	Site Metrics
17	Solid Waste	Minimum target added. Storage and collection areas for recycling and organic waste are within or attached to the building. Aspirational target under review	Site Metrics
18	Shade/Comfort	Revised indicator to Tree Planting/reservation	Site Metrics

19	Maintain healthy trees	Added metric (Minimum) Arborist Report provided that identifies and evaluates where on-site healthy mature trees will be protected or removed. Where healthy mature trees must be removed, new trees are provided on site to compensate for the lost canopy coverage of the trees removed (Aspirational) Healthy mature trees greater than 20 cm. DBH preserved in situ on site. Smaller healthy trees (less than 20 cm. DBH) transplanted.	Site Metrics
20	Bird friendly	Revised minimum target Treat glass with a density pattern between 10-28cm for the first 12m of the building above grade. Where a greenroof is constructed with adjacent glass surfaces, ensure the glass is treated 12m above greenroof surface Bird friendly design strategies include: window fritt, films, decals, grills, louvers, internal screens, awnings, overhangs, artwork, etc	Site Metrics
21	Reduced Parking Footprint	Removed reference to parking spot allocation. Replaced with: (Minimum) Use no more than 20% of the total development area for all new off-street surface parking facilities, with no surface parking lot greater than 2 acres (Aspirational) Locate all new off-street surface parking at the site or rear of buildings	Site Metrics

Oct 12, 2012 – Revisions from TAT Conference call

Log#	Metric	Revisions / Additions / Deletions	Changes applied to:
1	Building Certification	• Deleted minimum target as it can't be required at site plan approval. • Aspiration target maintained	Site Metrics
2	Exposure to Second Hand Smoke	• Moved minimum target to aspirational (as it can't be required at site plan approval)	Site Metrics
3	Parks	• Removed reference to "Public" Parks as the indicator should be applied to accessible parks. • "Accessible" definition to be included in Glossary • "10-15 min" reference revised to "800m to 1200m"	Community and Site Metrics
4	Rainwater Re-use	• "Grey water" reference deleted in minimum target	Community and Site Metrics
5	Stormwater Amenities	• Indicator name created confusion. Changed to Stormwater Architecture/Features	Site Metrics
6	Bird Friendly Design	• Removed City of Toronto reference. Bird Friendly Design Guidelines to be defined in the Glossary	Site Metrics

Metrics to be added:

- Stormwater Temperature – Aspirational Target. **TRCA** to inform target.
- Maintain/Preserve Healthy & Mature Trees – Minimum Target. **Halsall and Michelle** to inform target.

Metrics to be revised / expanded with Input from Team:

Community and Site Metrics

- Compact Development – FSI may not be the appropriate metric to inform density. **Michelle** to review with Richmond Hill team.
- Proximity to Natural Green Space – **Michelle** to gather additional feedback as metric benefit/applicability was questioned during the workshop.
- Parking Allocation – **Municipal teams** to circulate parking metrics/targets and ensure appropriateness for each development type
- Exposure to Second Hand Smoke – **Tony** to discuss corridor pressurization requirements under current building code
- Safe routes to schools – **Tony** to review and reevaluate metric/targets
- Cultural/Heritage – **Mike** to circulate metrics with appropriate Brampton staff to help inform metrics/targets
- Site Permeability – **Halsall/TPP** to inform appropriate targets (reference LEED/best practices)
- Walkability – Expand metrics to include pedestrian buffers, etc… (LEED ND references). **TPP** to inform
- Stormwater Quality & Quantity – **Tony** to gain feedback from TRCA. Needs to consider the various soil types/capacities
- Energy Efficiency – **Tony** to follow up with building official. What, if anything, can we advocate for the minimum energy performance?
- Solid Waste – Designate area for waste stream separation (Multi-use residential and Commercial). **Halsall** to inform.

Community Specific Metrics

- Intersection Density – **Halsall** to reference Neptus figures
- Restore and Enhance Soils – **Halsall** to include details within targets
- Enhance Biodiversity – **Tony** to help define "Enhance" and minimum/aspirational targets
- Site dedicated to Parking/car infrastructure – **Halsall/TPP** to inform (based on Emmerald Hills metrics)

October 9, 2012 – Revisions from Municipal Workshop #1

Log#	Metric	Revisions / Additions / Deletions	Changes applied to:
1	Proximity to Amenities	• Amenities split between basic and principal. • Amenity provided for both categories. • Principal amenities will carry a higher point allocation	Community and Site Metrics

2	Building Certification	• % of buildings (no longer number of buildings) • Minimum target – designed to green standard • Aspirational target – certified to green standard	Site Metrics
3	Universal Design	• "or equivalent" added for Universal Design standard • ANSI A117 Standard to be defined in Glossary • Aspirational target – increased to 30% (previous version, aspirational and minimum target were equal)	Site Metrics
4	Universal Design – Access	• "emergency exits" added to minimum target • Aspirational target – 100% of all entries/exits	Site Metrics
5	Housing Unit Mix	• Metric revised to include all housing mixes • Points will be allocated depending on % and diversity of housing mix (point allocation TBD)	Community and Site Metrics
6	% Tree Canopy	• Minimum and Aspirational target increased from 20% and 40% to 50% and 75% • Time period of 5 years added • Drought tolerant and native added	Community and Site Metrics
7	Soil Quality	• Metric added. Precedent based on LEED ND	Site Metrics
8	Pesticide Use	• Removed metric. Considered a maintenance requirement, not related to design	Site Metrics

9	Speed Control	• Removed reference to speed limit • Replaced with traffic calming strategies • Traffic calming strategies defined in Glossary	Community and Site Metrics
10	School Proximity to Transit and bikeways	• Metric added • Minimum and Aspirational target set based on workshop #1 feedback	Community and Site Metrics
11	Safe Routes to Schools	• Metric added	Community and Site Metrics
12	Parks	• Relabeled as “Public Parks” • Distance changed to 400m walk (from 5min walk) • Parkette distance reduced to 200m • “Open Space” added to Urban Square	Community and Site Metrics
13	Stormwater	• Metrics simplified to focus on: Quality, Quantity, Re-Use, Amenities (site metrics only) • Precedents based on TGS TIER II	Community and Site Metrics
14	Local Food Production Dedicate Land	• Garden space moved to Minimum target • Aspirational target – Dedicate rooftop space for food production (Site metrics only) •	Community and Site Metrics
15	Local Food Distribution	• “Non-Permanent” added • “Designate land” added	Community and Site Metrics
16	Solar Readiness	• “100% of all” added	Site Metrics
17	District Energy	• “Consider connecting to a district energy system (if applicable”) added	Site Metrics
18	Fixture Efficiency	• Relabeled to “Water Conserving Fixtures”	Site Metrics
19	Land Use Separation	• Removed	Community and Site Metrics
20	Efficient Lighting Fixtures	• Relabeled “Energy Conserving Lighting”	Site Metrics

Additional Site Metrics that were requested but haven't been included:

- Preserve / Enhance Wildlife Habitat
- Preserve / Enhance Wildlife Corridors
- Mental Health Amenities
- Design buildings to reflect community character
- Connection/Integration with existing land use/community
- Maintain existing healthy trees
- Bike paths leading to destination

Additional Community Metrics that were requested but haven't been included:

- Embodied Energy

Metrics that require further work/expansion

- Walkability
    - Intersection safety
    - Buffer between pedestrians and vehicles
- Cultural / Heritage Site
- Proximity to Green Space