



Building Green - User Guide

Pickering Integrated Sustainable Design Standards

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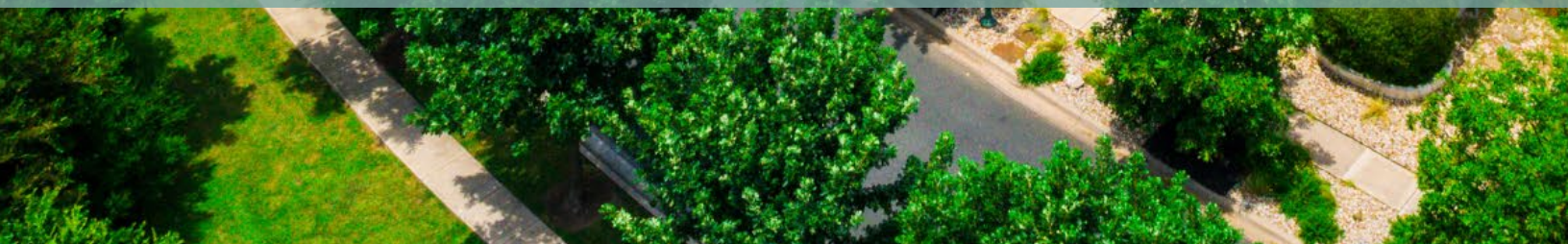


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Vision for a Sustainable Pickering



Vision for a Sustainable Pickering

The Pickering Integrated Sustainable Design Standards (ISDS) are born out of the City of Pickering's commitment to becoming one of the most sustainable cities in Canada. Sustainable Place-Making is a corporate priority for the City that aims to improve the long-term social, environmental, economic and cultural health of the community.

As Durham Region is slated for significant growth, Pickering is required to accommodate both residential and non-residential development. The ISDS support the City's commitment to mitigating the impact of development on climate change, while adapting to a changing environment and growing community.

The ISDS is a tool to assist the City in implementing and achieving its sustainable community vision through the development approval process. Green development practices have evolved and it is important that the City's ISDS reflect innovative green best practices and technology of today. The ISDS also reflects the work being done by both the City and Region of Durham to address climate change, support urban forests, pollinators, waste reduction, water conservation, energy efficiency, and protection of greenspaces.

Additional information on the Pickering Integrated Sustainable Design Standards is found at pickering.ca/standards.

Pickering Integrated Sustainable Design Standards

The ISDS were created to evaluate the sustainable performance of new development in the City of Pickering. The ISDS support many existing policies, which already include various components of sustainable design including the City of Pickering Official Plan, Integrated Transportation Master Plan, Stormwater Management Design Guidelines, the City's Boulevard Tree Planting Standards, Age Friendly Community Plan and many more. The ISDS applies to new applications submitted as of January 1, 2023 for Draft Plan of Subdivisions and Site Plans.

Our ISDS are organized under 7 key principles that showcase environmental, social and economic sustainability, together with innovative green practices and technologies.



Education

Educating homeowners about the use and maintenance of sustainable building features and sustainable lifestyle practices.



Energy & Resilience

Designing and constructing resilient, energy efficient buildings and encouraging on-site renewable energy systems.



Neighbourhood

Creating accessible and safe places to live for all.



Land Use & Nature

Protecting, conserving and enhancing the natural environment.



Transportation

Providing opportunities for sustainable modes of transportation.



Waste Management

Providing opportunities to recycle and divert materials in order to reduce waste.



Water

Using water efficiently and supporting sustainable stormwater management practices.

ISDS Overview

The ISDS defines a set of performance criteria for all new development in the City of Pickering. These standards apply to all new Draft Plan of Subdivision and Site Plan applications submitted to the City under the *Planning Act*. The ISDS are applicable to the following development types:

Low-Rise Residential:

Residential developments less than four storeys with a minimum of five dwelling units.

Mid to High-Rise Residential and Non-Residential:

Residential developments four storeys and above and all industrial, commercial and institutional developments.

Renovation and expansions to existing buildings are not required to meet the ISDS requirements but are encouraged to implement relevant sections of the ISDS where possible. The ISDS Checklists complement the sustainability policy requirements in the Pickering Official Plan.

As indicated, the ISDS is applicable to all new development in the City of Pickering and will replace the 2007 Sustainable Development Guidelines. However, it is not applicable to lands that already have an approved Plan of Subdivision or Site Plan.

Development applications/approval processes in Seaton, which have been initiated are still subject to the 2011 Seaton Sustainable Place-Making Guidelines (Seaton Guidelines). Most of the Seaton lands already have an approved Plan of Subdivision. The ISDS will only be applicable to those remaining areas that haven't been subject to either a Plan of Subdivision or Site Plan application.

However, the development community in Seaton is encouraged to build to sustainable building performance criteria, whether by following the ISDS, or the enhanced benchmarks in the Seaton Sustainable Place-Making Guidelines to reflect the best practices of today.

Performance Tiers

ISDS checklists have both mandatory and optional performance criteria for new development. There are two levels of achievement for the ISDS: Tier 1 and Tier 2.

Tier 1: the mandatory minimum level of achievement required

Tier 2: an optional, higher level of achievement

Development features and the corresponding performance measure for each of the 7 principles are listed throughout the checklists. All Performance Measures require commentary on how the Performance Criteria will be met. The checklists specify the required plan(s), drawings, or report(s) for the applicant to demonstrate how the performance criteria will be achieved.

Exemptions from specific measures in the ISDS may be granted on a case-by-case basis at the discretion of the City. Exemptions will be determined through the application review process. Where the applicant is unable to meet a mandatory Tier 1 requirement, they may propose an alternative sustainable development solution that either achieves equal to or above the benefits of the required measure, to the satisfaction of the Director, City Development.

Process for Completing the Checklist

1. Select the Appropriate Checklist to Complete from the City's website

Low-Rise Residential or Mid to High-Rise Residential & Non-Residential.

2. Confirm Tier 1 (Mandatory) and Tier 2 (Optional) Performance Measures

Check off the 'Met' box in Tier 1 and/or Tier 2 columns to indicate whether the Performance Criteria has been met for each Performance Measure.

3. Documentation

Use the Documentation column to review what specific documentation (e.g. plans, reports, drawings, etc.) is required. Where the Performance Criteria is demonstrated within a report, provide the specific page number reference.

4. Comments

Provide a detailed explanation as to how each measure is being met under the 'Comments' column. Further details regarding how a Performance Measure is to be implemented by the project may be requested or required at the discretion of the City.

5. Submit/Resubmit the Completed Checklist and Sustainability Report to the City

Submit/Resubmit the appropriate Application Information Form and ISDS Checklist to the City. The submission of a Sustainability Report demonstrating how the proposal is consistent with the ISDS Checklist is also required.

The City will evaluate the submission, conduct peer review(s) if necessary, and complete an assessment of the application. As part of the City's overall development application review, details of the ISDS will be included in reports to Council about the application.

Draft Plan of Subdivision Agreements and Site Plan Agreements will contain specific conditions relating to the implementation of the ISDS measures that an applicant has committed to undertake in their approved checklist. The Director, City Development has discretion to consider an alternative to a mandatory Tier 1 Performance Criteria, where appropriate.

Preparing a Sustainability Report

As part of the development application submission, the Applicant is required to submit the ISDS Checklist and a Sustainability Report. The intent of the Sustainability Report is to provide an overview of the Applicant's sustainability measures and how that commitment will be achieved. The following components should be included in the Sustainability Report:

- 1. Executive Summary:** Overview of the project and Tier 1 (Mandatory) and Tier 2 (Optional) commitments.
- 2. Purpose of the Application:** Detailed description of the project.
- 3. Sustainability Overview:** Summary of project's sustainability vision and objectives.
- 4. Innovation:** If applicable, provide an overview of any innovative performance measures being pursued by the project.
- 5. Mandatory Performance Criteria:** Provide details on all of the Tier 1 Performance Criteria and related documentation.
- 6. Optional Performance Criteria:** Where a Tier 2 is being pursued, provide details about the Performance Criteria selected and related documentation.

Review Process

Step 1. Pre-Consultation Meeting



The Applicant will fill out and submit the Mandatory Pre-Consultation Request Form, together with the associated fee. The Applicant's team will come prepared to the Pre-Consultation meeting, having reviewed the ISDS Checklist and must be prepared to speak to any planned sustainability features of the proposal (as per the City's Pre-Consultation Request Form).



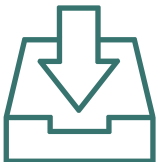
Step 2. Application Preparation



Following the Pre-Consultation Meeting, the Applicant will revise the proposal or reports based on staff feedback and direction. Applicants will complete the relevant ISDS Checklist to identify which Performance Criteria will be achieved and how they will be met. The Applicant will prepare a Sustainability Report. The Applicant must also indicate the drawings, plans, or reports that demonstrate criteria compliance.



Step 3. Application Submission



The Applicant must submit a completed version of the applicable ISDS Checklist and a Sustainability Report as part of the Complete Application Submission package to the City. The City Development staff will ensure that the complete ISDS Checklist and Sustainability Report are submitted at the initial application submission before it is processed.



Step 4. Technical Review



City Development staff will circulate the ISDS Checklist and Sustainability Report to the applicable City departments and main point of contact within each department as part of the development review process. Comments on the application and the ISDS Checklist will be provided by the applicable commenting person(s) to City Development. These comments will be provided to the Applicant to be addressed.

Step 5. Application Revisions and Resubmission



The Applicant will revise and resubmit plans, reports, and other materials, as may be required, based on agency comments through the overall evaluation of the development application. If revisions are proposed to the development plan, a revised ISDS Checklist and Sustainability Report may be required to be included in the resubmission. To ease the review process, Applicants should indicate how the revised Checklist addresses feedback in the “Applicant Comments” column.



Step 6. Report to Council



Where required, City Development reports to Council will address the ISDS Performance Criteria, committed to by the Applicant in their development application.



Step 7. Agreements



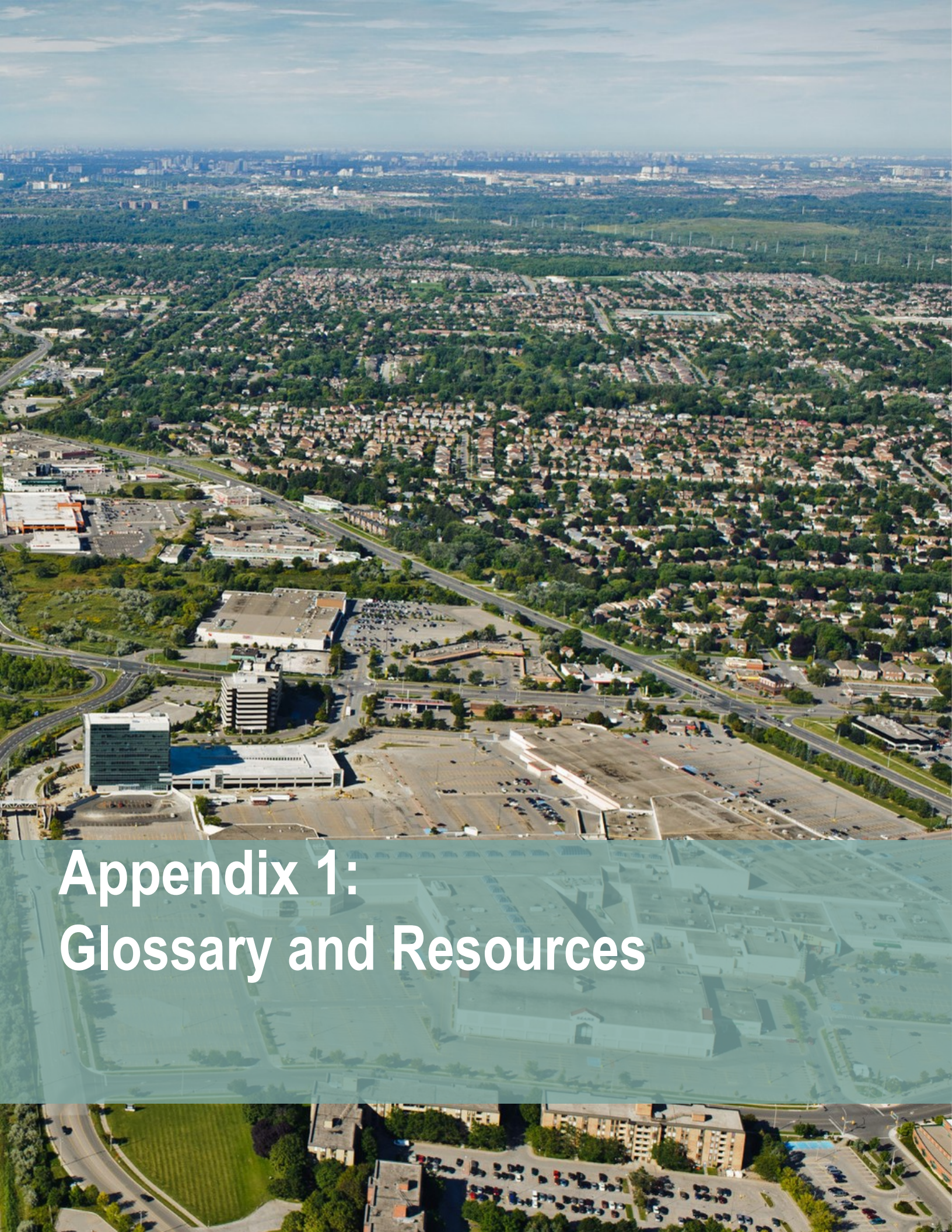
If Council approves the development application, either subdivision or site plan agreements and/or final plans will contain specific conditions for meeting the ISDS measures, that an Applicant, committed to undertaking in their approved Checklist.



Step 8. Implementation



As development proceeds, the Applicant will implement the approved ISDS Performance Criteria commitments. Staff may attend the site during construction to verify installation. Letters of Credit may be required to ensure completion of the approved development works. A Post Construction and Verification Checklist is required to be completed prior to releasing Letters of Credit.



Appendix 1: Glossary and Resources

Accessibility for Ontarians with Disabilities Act (AODA)

Recognizing the history of discrimination against persons with disabilities in Ontario, the purpose of this Act is to benefit all Ontarians by:

- a. Developing, implementing and enforcing accessibility standards in order to achieve accessibility for Ontarians with disabilities with respect to goods, services, facilities, accommodation, employment, buildings, structures and premises on or before January 1, 2025; and
- b. Providing for the involvement of persons with disabilities, of the Government of Ontario, and of representatives of industries and of various sectors of the economy in the development of the accessibility standards.

For more information, visit the *Accessibility for Ontarians with Disabilities Act* [website](#).

Available Roof Area

Available roof space is considered roof space that is not otherwise occupied by mechanical and electrical equipment.

Bird-Friendly Building Design Standard

FLAP Canada has released CSA A460:19 Bird-Friendly Building Design Standard that outlines specific measures that can be taken to make new and existing structures safe for birds.

For more information, visit the FLAP Canada [website](#).

Caliper

Caliper size refers to the diameter measurement of a tree's trunk at breast height.

CHBA Net Zero Home

Net zero homes are defined as homes that produce as much clean energy as they consume annually, using on-site renewable energy systems.

For more information, visit the CHBA Net Zero Home [website](#).

City of Pickering Official Plan

An Official Plan is a statutory document that sets out policy directions for land use planning matters regarding long-term growth and development in a municipality.

For more information visit the City of Pickering Official Plan [webpage](#).

City of Pickering's Tree Compensation Requirements

Existing tree size cm diameter breast height (DBH)	Ratio
15 cm to 29 cm	1:1
30 cm to 49 cm	2:1
50 cm to 74 cm	3:1
75 cm or greater	4:1

For more information, visit the City of Pickering Tree Compensation [webpage](#).

City of Pickering Tree Inventory Report and Preservation Plan

A Tree Inventory Report and Preservation Plan documents all trees on the development site, and those on adjoining lands, that may be affected by the proposed construction activities and proposes preservation protection measures.

City of Pickering Stormwater Management Design Guidelines

The guidelines provide the technical tools and guidelines necessary to comply with the City's stormwater management (SWM) requirements and infrastructure design standards. For more information, City of Pickering Storm Water Management Guidelines [webpage](#).

City of Pickering Street Lighting Requirements

The City of Pickering has requirements for street lighting systems along different road categories within urban Pickering.

For more information, contact the City of Pickering Engineering Services.

Common Outdoor Amenity Area

An outdoor area located at grade on the same lot as the development, and intended exclusively for the passive and recreation needs of the residents and may include common landscape gardens, sitting areas, outdoor fitness elements and similar facilities intended for recreational purposes.

Crime Prevention Through Environmental Design (CPTED)

CPTED is a proactive design philosophy built around a core set of principles, based on the belief that the proper design and effective use of the built environment can lead to a reduction in the fear and incidence of crime, as well as an improvement in the quality of life.

For more information, visit the CPTED Canada [website](#) and the CPTED Ontario [website](#).

CTC Source Protection Plan

The Approved Source Protection Plan: CTC Source Protection Region is a policy document developed under the Clean Water Act, 2006, to protect existing and future municipal drinking water sources, and which applies to all three Source Protection Areas in the CTC (Credit Valley-Toronto and Region-Central Lake Ontario) Source Protection Region.

Dark Sky Compliant

Dark Sky compliant outdoor lighting fixtures are certified by the International Dark-Sky Association Fixture Seal of Approval program. This program provides objective, third-party certification for lighting that minimizes glare, reduces light trespass and doesn't pollute the night sky.

For more information, visit the Dark Sky Compliant [website](#).

Durham Community Energy Plan

The Durham Community Energy Plan (DCEP) was developed to accelerate the transition to a clean energy economy in Durham while simultaneously achieving multiple economic, environmental and social benefits.

For more information, visit the Region of Durham [website](#).

Durham Region Official Plan

The Durham Region Official Plan contains policies and maps, which guide the type and location of land uses in the Region to 2031. Land use categories are displayed on the maps, while the policies describe the Region's goals for these categories, and the type of information the Region requires to evaluate land uses changes.

For more information, visit the Region of Durham [website](#).

Durham Region Climate Resilience Standard for New Houses

The Durham Region Climate Resilience Standard for New Houses is aimed at increasing the resilience of new low-rise residential buildings to current and future extreme weather conditions.

For more information, refer to the Resilience Standard for New Houses [website](#).

Electric Vehicle Charging Infrastructure Plan

Electric Vehicle Charging Infrastructure Plan consists of electrical drawings and electrical load calculations indicating the EV charging infrastructure and sufficient capacity. Also, electrical single-line drawing(s) and electrical room layout with equipment schedule indicating sufficient space for current and future equipment (e.g. future additional transformer) are required.

Electric Vehicle Energy Management Systems (EVEMS)

A means used to control electric vehicle supply equipment loads through the process of connecting, disconnecting, increasing, or reducing electric power to the loads and consisting of any of the following: a monitor(s), communications equipment, a controller(s), a timer(s), and other applicable device(s).

Electric Vehicle Ready

A parking space that has an energized electrical outlet, rated at 5.7 kW or greater continuous load, installed at the time of construction that is capable of charging an EV when a charging station is installed in the future.

Electric Vehicle Supply Equipment (EVSE)

An installed a multi-coupler charging station serving adjoining parking spaces (2 or 4 spaces with a common corner), capable of delivering a minimum 7.6 kW per coupler during single-vehicle charging, and 3.8 kW per coupler during simultaneous multi-vehicle charging.

The use of dynamic load management systems is acceptable to limit peak simultaneous charging loads as part of a demand response strategy.

Electric Vehicle Rough-in

A resident parking space that:

- a. has a minimum 21 mm trade-size conduit with pull-string, installed at the time of construction to allow for the later installation of EV charging station(s), terminating at
 - i. the resident electrical panel with space for one full-module double-pole breaker and sufficient load capacity for a 5.7 kW charger, or
 - ii. a dedicated common electrical panelboard, with space for one full-module double-pole breaker per charging station. For buildings up to 20 resident parking spaces, the panelboard and supply conductors shall be rated minimum 200 amp 240 V/1-phase or 208 V/3-phase. For buildings with more than 20 resident parking spaces, the panelboard, switchboard, and transformer shall be sized at minimum to accommodate the greater of a 38.4 kW load, or 5% of parking spaces multiplied by 3.8 kW/space; or
- b. has a single conduit with pull-string, from the common point of adjoining parking spaces (2 or 4 spaces with a common corner) to an electrical panelboard complying with a. ii., for future installation of a multi-coupler charging station, with conduit trade size sufficient to accommodate conductors delivering a minimum 3.8 kW per parking space.

Energy Performance Emissions

TEUI, TEDI, and GHGI are used to set performance-based energy and emissions targets. Descriptions provided below chart.

	TEUI (kWh/m ² /yr)		TEDI (kWh/m ² /yr)		GHGI (kg CO ₂ e/m ² /yr)	
	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2
MURB (≥4 storeys)	135	100	50	30	15	10
MURB (< 4 storeys)	130	100	40	25	15	10
Commercial Office	130	100	30	22	15	8
Commercial Retail	120	90	40	25	10	5
Mixed Use Buildings	Calculated using an area weighted average of the performance targets from the other building types above					

Total Energy Use Intensity (TEUI)

The sum of all energy consumed on site annually (e.g. electricity, natural gas, district heat), including all process energy, per unit of modelled floor area. Measured in kWh/m²/year.

Heating: The annual heat input required to offset heat loss from a building's envelope and ventilation, after accounting for all passive heat gains and losses, per unit of modelled floor area. Measured in kWh/m²/year.

Thermal Energy Demand Intensity (TEDI)

The annual heating delivered to the building for space conditioning and conditioning of ventilation air. Measured with modelling software, this is the amount of heating energy delivered to the project that is outputted from all types of heating equipment, per unit of Modelled Floor Area. Heating equipment includes electric, gas, hot water, or DX heating coils of central air systems (e.g. make-up air units, air handling units, etc.), terminal equipment (e.g. baseboards, fan coils, heat pumps, reheat coils, etc.), or any other equipment used for the purposes of space conditioning and ventilation. The heating output of any heating equipment whose source of heat is not directly provided by a utility (electricity, gas, or district) must still be counted towards the TEDI. For example, hot water or heat pump heating sources that are derived from a waste heat source or a renewable energy source do not contribute to a reduction in TEDI, as per the above definition.

GHG Emission Intensity (GHGI)

The annual greenhouse gas emissions resulting directly from fuel consumed on site (e.g. natural gas) or indirectly from purchased energy (e.g. electricity), per unit of modelled floor area. Measured in kg CO₂e/m²/ year.

Energy Recovery Ventilation

Energy recovery ventilation (ERV) is the energy recovery process in Heating, Ventilating and Air Conditioning (HVAC) systems that exchanges the sensible and latent heat energy between the normally exhausted air of a building or conditioned space and incoming outdoor ventilation air.

Energy Star®

A program that provides certification to buildings and consumer products that meet certain standards of energy efficiency

For more information, visit the Energy Star [website](#).

Greywater Ready

A 'greywater ready' system includes separate piping to permit the future discharge and reuse of water in waste conveyance from a clothes washer, bathtub, showers, and bathroom/restroom wash basins for non-potable purposes.

Home Energy Rating System (HERS)

The industry index standard by which a home's energy efficiency is measured. It's also the nationally recognized system for inspecting and calculating a home's energy performance.

For more information, visit the Home Energy Rating System (HERS) [website](#).

Home Energy Rating System H2O

HERSH2O is a system for rating whole-house water efficiency that includes both indoor and outdoor uses. The rating is determined by comparing the home that is being rated with a "Reference Home" that is representative of construction practices (plumbing products and practices).

For more information, visit the Home Energy Rating System (HERS) [website](#).

Home Energy Management System (HEMS)

HEMS is a combination of hard and software components that work together to efficiently manage the energy usage of a home.

Keeping Our Cool: Managing Urban Heat Islands in Durham Region

This report examines urban heat islands in the context of risks and concerns for Durham Region. The first half of the report provides an overview including definitions, causes, impacts, and measures that can lessen urban heat island effects. The second half of the report contains a set of surface temperature maps for each of the eight local area municipalities in Durham Region. The maps show areas with high surface temperatures – locations most at risk to the impacts of urban heat islands.

For more information, see the Region of Durham [website](#).

Key Hydrologic Feature

Includes wetlands, permanent and intermittent streams, kettle lakes, seepage areas and springs, Lake Ontario, and the Lake Ontario Shoreline.

For more information, see the [City of Pickering Official Plan](#).

Key Natural Heritage Feature

Includes the significant habitat of endangered species, threatened species and special concern species, fish habitat, wetlands, Areas of Natural and Scientific Interest, significant woodlands, significant valleylands, significant wildlife habitat, sand barrens, savannah and tallgrass prairies, and altars.

For more information, see the [City of Pickering Official Plan](#).

Landscape Plan Guidelines for Site Plan and Subdivision Developments

The Landscape Plan Guidelines provide a Checklist of typical information required to be included on a landscape plan, as well as design criteria and standards for proposed landscape works within new and existing developments.

Low Impact Stormwater Management Planning and Design Guidelines

Low Impact Development (LID) deals with stormwater by mimicking natural water cycles. It increases the infiltration of stormwater into the soil, where it can be filtered and/or absorbed by plants. LID is a lower-cost alternative to conventional grey infrastructure and provides a number of ecological, economic and social benefits. Toronto and Region Conservation Authority (TRCA) developed LID Stormwater Management Planning and Design Guidelines in partnership with the Credit Valley Conservation Authority (CVC) and the Sustainable Technologies Evaluation Program (Step) Wiki tool in partnership with both CVC and Lake Simcoe Region Conservation Authority.

For more information, visit the Toronto and Region Conservation Authority [website](#).

Native Plant Species

A plant that originated and is indigenous to a specific region.

For more information on trees and shrubs native to Ontario, visit the Ontario Native Plant [website](#).

Ontario Building Code (OBC)

A regulation under the Building Code Act that establishes detailed technical and administrative requirements as well as minimum standards for building construction.

For more information, visit the Ontario Building Code [website](#).

Peak Shaving Devices

Peak shaving devices reduce the amount of energy purchased from the utility company during peak demand hours. Options include reducing consumption by turning off non-essential equipment during peak hours and installing automated thermostats to help reduce consumption. Installing solar and battery solutions can assist with reducing demand.

Renewable Energy

Renewable energy is derived from natural processes that are replenished at a rate that is equal or faster than the rate at which they are consumed. There are various forms of renewable energy, deriving directly or indirectly from the sun, or from heat generated deep within the earth. They include energy generated from solar, wind, biomass, geexchange, hydro power and ocean resources, solid biomass, biogas and liquid biofuels.

Resident Education Information Package

The resident information package should include the following:

1. Waste collection and disposal services;
2. Resident role as a steward to the natural environment including, natural landscaping, litter & illegal dumping, responsible pet ownership;
3. Access to sustainable transportation options; and
4. Energy and Water conservation measures and other sustainability features specific to the project that impact or could be of interest to the resident as deemed by the applicant.

Although not required, the applicant may wish to include information pertaining to nearby parks, greenspaces or trails, and contact information for other agencies (i.e. Toronto and Region Conservation Authority).

For items 1 – 3 refer to the City of Pickering [website](#).

Solar Ready

Solar ready refers to the design and installation of elements in preparation for the installation of a future solar system. Design considerations and modifications include the following elements: roof space, rooftop equipment and wind loads, solar domestic hot water systems and solar PV conduits, plumbing connections to an existing hot water heater, an electrical outlet, mechanical room floor space and mechanical / electrical room wall space. It requires the installation of a conduit from roof to electrical room and appropriate electrical service entrance.

For more information, refer to Natural Resources Canada Solar Ready Guidelines.

Solar Reflectance Index (SRI)

A composite measure that combines surface's solar reflectance and emittance. Essentially, the SRI is an indicator of how well a surface reflects (reflectance) and releases absorbed solar radiation (emittance). The lower the SRI, the hotter a material is likely to become in the sunlight.

Storey

Storey means that portion of a building other than a basement, cellar, or attic, included between the surface of any floor, and the surface of the floor, roof deck or ridge next above it.

The *Planning Act* (Ontario)

The *Planning Act* is provincial legislation that sets out the ground rules for land use planning in Ontario. It describes how land uses may be controlled, and who may control them.

For more information, visit the Ministry of Ontario – *Planning Act* [webpage](#).

TRCA Draft Guideline for Determining Ecosystem Compensation

The Draft Guideline for Determining Ecosystem Compensation presents an approach for replacing natural features lost through the development and/or infrastructure planning processes after the decision to compensate has been made.

For more information, TRCA Draft Guideline for Determining Ecosystem Compensation [webpage](#).

WaterSense®

An Environmental Protection Agency (EPA) program designed to encourage water efficiency through the use of a special label on consumer products.

For more information, visit the WaterSense® [website](#).

For any questions on the Pickering Integrated Sustainable Design Standards User Guide please contact the City's Sustainability staff at citydev@pickering.ca.

Alternate formats available upon request at 905.683.7575 or customercare@pickering.ca

