

Waterloo Region
HIGH-PERFORMANCE
DEVELOPMENT STANDARDS

PILOT PROGRAM

Guidebook

November 2026

WR COMMUNITY ENERGY · CAMBRIDGE · KITCHENER · THE CITY OF Waterloo · Region of Waterloo · The TOWNSHIP of NORTH DUMFRIES · WELLESLEY · Wilmot · WOOLWICH TOWNSHIP



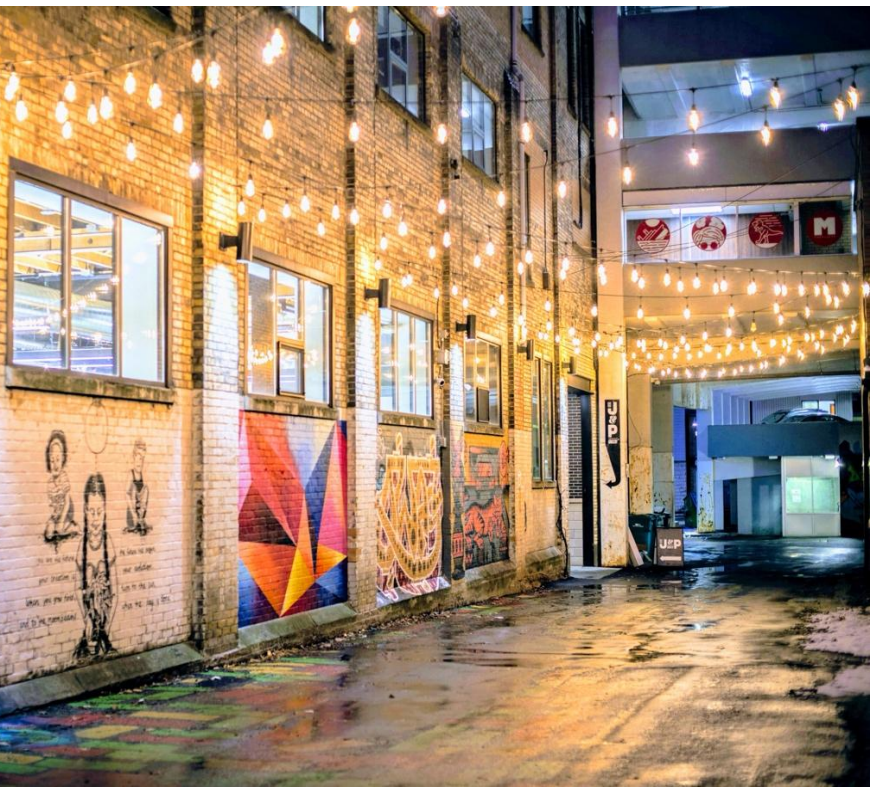
Land Acknowledgement

The Region of Waterloo is situated on the lands within the Haldimand Treaty of 1784, a formally ratified agreement acknowledging six miles on either side of the Grand River as treaty territory belonging to Six Nations of the Grand River.

Waterloo Region serves an area within the traditional territories of the Anishinaabe, Chonnonton, and Haudenosaunee peoples. This territory is within the lands protected by the Dish with One Spoon Wampum. We acknowledge the enduring presence, knowledge and philosophies of Indigenous Peoples.

We acknowledge the continuing accomplishments and contributions Indigenous Peoples make in shaping Waterloo Region.





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Introduction

The High-Performance Development Standards (HPDS) are a suggested set of standards for consideration in new development applications in the Cities of Cambridge, Kitchener, and Waterloo, and the Townships of North Dumfries, Wellesley, Wilmot, and Woolwich. The HPDS embeds future-proofing, affordability, the energy transition, and climate resilience into the standard Planning Application processes.

The HPDS Pilot Program is a collaborative dialogue to test what is achievable, identify opportunities for improvement, and refine the standards to help achieve shared community goals. It is a **voluntary opt-in pilot program**.

This approach, crafted in partnership with WR Community Energy and the HPDS Municipal Working Group, underscores the commitment to enhancing the energy efficiency of future buildings, aligning with the Community Energy Investment Strategy and TransformWR's goal of reducing community greenhouse gas emissions (GHGs). This work follows the direction from the Regional Official Plan, which indicates that "area municipalities will develop a High-Performance Development Standard to be applied to applications for site plan approval and plans of subdivision to address climate change mitigation and energy performance".

The Municipal Working Group is comprised of representatives from all 7 municipalities, the Region of Waterloo, and Kitchener Utilities.

Background

Harmonization and Streamlined Processes

The HPDS is a collaborative project designed to balance environmental, municipal, industry, homeowner, owner, renter, and occupant interests. This standard is the first to be harmonized across local-tier municipalities covered by an upper tier municipality in Ontario. Uniquely and importantly to Waterloo region, the HPDS is also partnering with the local utilities to support benchmarking and reporting. It will not affect whether an application is deemed complete or not. Staff will review the applicant's HPDS materials for alignment with the HPDS and discuss how measures were addressed (or not). Applicants continue to be responsible to meet municipal by-laws and standards of the municipality.

Advancing Regional Sustainability

This intra-regional collaboration aims to reduce complexity for the industry by providing a consistent and predictable framework for the 7 municipalities. Investing in high-performance development prioritizes long-term future-proofing efforts, aligns with regional and local policies, and commitments to social, environmental, and economic well-being. The HPDS will contribute to increased energy efficiency,

productivity and competitiveness across the region by improving overall energy and water performance. The HPDS can also support sustainability in new development by reducing community greenhouse gas (GHG) emissions, adapting to a changing climate, and investing in community energy. The HPDS will collectively advance progress towards the community's climate action target of reducing 80 percent of GHGs by 2050 in our community.

Program Funding

This project is funded in part by the Government of Canada.

Components

The HPDS is broken down into three categories: Built Environment, Natural Environment, and Energy Efficiency, with a total of 14 metrics. For each metric, targets are categorized as Low-Rise Residential, Mid- to High-Rise Residential, Industrial, Commercial, and Institutional uses, which are further outlined below.

Each metric lists its alignment with existing plans, applicable development applications (where in the planning process this metric would apply), targets, and required materials/documentation. The deliverables noted are standard plans or studies typically required as part of the planning application submission process, unless otherwise noted.

Some targets within the HPDS are existing municipal policies, standards, and by-laws. As such, the following differentiates the applicable targets:

Target Type	**Description**
HPDS Target	Applicant shall complete this target at a minimum (and are noted within each metric under Tier 1, 2, or 3) The tiered system provides a clear framework for how performance expectations may evolve over time, while allowing targets to be refined as market conditions and industry experience develop
Existing Standard	Applicant shall complete both the "Existing Standard" and "HPDS Target" Reference is made to the relevant municipal document and section While the HPDS is voluntary, applicants must continue to meet minimum standards of the municipality

Land Uses

The following outlines the common descriptions of applicable land uses across the region:

Land Use	Description
Low-Rise Residential	Applications for residential buildings with 11 units or more (which are the focus of site plan control) and 4 storeys or less while buildings that fall below this range are still encouraged and welcome to participate)
Mid-Rise and High-Rise Residential	Applications for residential buildings that are 5 storeys or more
Industrial	Applications for buildings for industrial uses including industrial operations, construction uses, assembling, manufacturing, warehousing, etc.
Commercial	Applications for buildings that provide a range of retail, office and service commercial uses that serve the daily and weekly needs of residents
Institutional	Applications for buildings that provide institutional uses including community facilities, municipal services, social services, etc.

Applicable Applications and Approvals Process

The HPDS applies to Draft Plan of Subdivision and Site Plan applications. For Zoning By-law Amendment applications, applicants are encouraged to identify through the reports and studies required (through the municipal application requirements) their commitment to aligning their project to the HPDS targets, which will be detailed through subsequent approvals.

Appendix A outlines the relevant approvals process. The process may vary depending on the municipality, please consult with local planning staff.

Categories & Metrics

BUILT ENVIRONMENT	NATURAL ENVIRONMENT	ENERGY EFFICIENCY
Develop safe, inclusive, and future-proofed communities	**Promote mindful resource use and support climate resilience through nature-based solutions**	**Reduce energy demands and GHG emissions while boosting resilience and affordability**
B1. EV Parking and Charging Infrastructure **B2.** Active and Public Transportation **B3.** Exterior Lighting **B4.** Sustainable Roofing	**N1.** Vegetation and Landscaping **N2.** Waste **N3.** Water Efficiency **N4.** Bird Friendly Design **N5.** Stormwater **N6.** Building Resilience and Adaptability	**E1.** Embodied Carbon **E2.** GHG Emissions Reduction **E3.** Airtightness **E4.** Local Energy Generation and Solar Readiness

Importance of HPDS

Affordability

Affordability is a priority for Waterloo region and has informed many of the components for the HPDS. Affordability extends beyond just the initial stages of construction of a project and into the operating costs, maintenance, and upkeep. Building homes, businesses, and community buildings that are efficient is far more cost effective than retrofitting later. Planning for these efficiencies at the start helps residents avoid the financial pressures that lead to housing insecurity.

Emissions Impact

There are two key greenhouse gas (GHG) emission sources in our community that are strongly influenced by how our community grows and develops over time. Buildings are one of the largest contributors to GHGs in the region, representing 46% of total community emissions (2022). Transportation also accounts for 46% of total community emissions (2022). The HPDS demonstrates a commitment to improving the energy performance of new buildings and encourages transportation options that have no or lower GHG emissions, allowing for the future-proofing of our assets, and reducing the need for retrofitting in the future.

Energy Transparency

While consumers can easily compare the efficiency of new appliances and the fuel efficiency of their cars, they do not always have the same information available for their homes. The HPDS helps close the information gap by encouraging design measures and performance metrics that make buildings energy use more visible and predictable for homeowners, owners, renters, occupants, municipalities, and utilities.

Energy Security

As our community continues to grow, there will be rising demands for energy. High-performance developments help reduce the strain on the local grid and enable opportunities for local energy generation. Exploring options to generate energy locally will allow the region to become more self sufficient, reduce reliance on imported energy, and keep energy dollars in our community.

Metric Benefits

The metrics were selected through several years of community and industry engagement to deliver multiple benefits for buildings, residents, occupants, and the broader community. While most metrics have multiple benefits, now and in the future, the primary or the most direct benefit is noted in the Guidebook and is based on current technologies.

Benefit		Description
	Affordability	Reduces operating, maintenance, and utility costs
	Climate Action and GHG Reduction	Reduces GHG emissions and supports the transition to a low-carbon community
	Energy Performance	Improves energy efficiency of the building and overall performance
	Climate Resilience and Future-proofing	Supports buildings and communities to prepare for climate related weather events like extreme heat and flooding
	Water and Resource Stewardship	Improves the management, quality, and reuse of water and resources
	Healthy Ecosystems	Protects biodiversity and natural systems
	Equity, Health, Wellbeing, and Comfort	Supports healthier, safer, and more comfortable environments and lifestyles for residents, occupants, and the broader community

Recognition

All HPDS Pilot Program participants will be recognized as a “Participant” for simply following the process. Participants can also achieve four other levels of recognition based on how many metrics are achieved.

Recognition Level	Description
Participant 	Participated in the HPDS Pilot Program
Bronze 	Completed a minimum of 1 target from each of the categories (for a total of 3 targets)
Silver 	Completed a minimum of 2 targets from each of the categories (for a total of 6 targets)
Gold 	Completed a minimum of 3 targets from each of the categories (for a total of 9 targets)
Energy Innovator 	Completed all the Energy Efficiency targets (for a total of 4 targets)



BUILT ENVIRONMENT

Develop safe, inclusive, and future-proofed communities

B1. EV Parking and Charging Infrastructure

- Support the transition to electric vehicles
- Reduce GHG emissions from vehicles (including personal vehicle(s), save money on fuel costs, and improve air quality
- Support grid modernization opportunities (like vehicle to grid)

Alignment with Existing Plans

- Community Energy Investment Strategy: Increase electrification of local transportation (Goal 3)

Applicable Development Applications and Phase of Development

- Site Plan (Complete Application, Conditions of Approval, and Post-Construction)

Required Materials/Documentation

- Site Plan Drawing
- Parking Floor Plans (for parking within a building)
- Lighting Plan (for electrical details of charging equipment)
- Reporting Commitment Form

Targets

CAMBRIDGE	KITCHENER	WATERLOO	NORTH DUMFRIES	WELLESLEY	WILMOT	WOOLWICH
HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target
TIER 1						
SITE PLAN **Low-Rise, Mid-Rise, and High-Rise Residential** A minimum of 20 percent of total provided parking spaces shall be Designed Electric Vehicle Parking Spaces when 10+ spaces are required on site. If no parking spaces are provided on site, this target is exempt. It is encouraged that the Designed Electric Vehicle Parking Spaces be allocated towards the resident parking spaces rather than visitor spaces. OR						

Demonstrate that 20 percent of parking spaces can be used to charge electric vehicles through energized EV ready infrastructure, installed electric vehicle supply equipment (EVSE), and/or electrical energy management system (EMS).

AND

Complete and submit the Reporting Commitment Form outlining that the owner monitors usage data for the infrastructure for a period of 12 months after occupancy and report on usage rates and any operational issues as part of the post-occupancy review.

Industrial, Commercial, and Institutional

A minimum of 15 percent of total provided parking spaces shall be Designed Electric Vehicle Parking Spaces when 10+ spaces are required on site and a minimum of 2.5 percent of the parking spaces shall be electric vehicle parking spaces. If no parking spaces are provided on site, this target is exempt.

Complete and submit the Reporting Commitment Form outlining that the applicant monitors usage data for the infrastructure for a period of 12 months after occupancy and report on usage rates and any operational issues as part of the post-occupancy review, with the option for staff to recommend adjustments if visitor parking conflicts are observed.

TIER 2

SITE PLAN

Low-Rise Residential and Mid- to High-Rise Residential

A minimum of 50 percent of total provided parking spaces shall be Designed Electric Vehicle Parking Spaces. If no parking spaces are provided on site, this target is exempt. It is encouraged that the Designed Electric Vehicle Parking Spaces be allocated towards the unit spaces rather than visitor spaces.

OR

Demonstrate that 50 percent of parking spaces can be used to charge electric vehicles through energized EV ready infrastructure, installed electric vehicle supply equipment (EVSE), and/or electrical energy management system (EMS).

AND

Complete and submit the Reporting Commitment Form outlining that the owner monitors usage data for the infrastructure for a period of 12 months after occupancy and report on usage rates and any operational issues as part of the post-occupancy review, with the option for staff to recommend adjustments if visitor parking conflicts are observed.

Industrial, Commercial, and Institutional

A minimum of 17.5 percent of total provided parking spaces shall be Designed Electric Vehicle Parking Spaces and a minimum of 2.5 percent of the total parking spaces shall be electric vehicle parking spaces. If no parking spaces are provided on site, this target is exempt.

Complete and submit the Reporting Commitment Form outlining that the applicant monitors usage data for the infrastructure for a period of 12 months after occupancy and report any operational issues as part of the post-occupancy review, with the option for staff to recommend adjustments if visitor parking conflicts are observed.

STAFF REVIEW

Staff will confirm that:

- (Tier 1) The minimum percentage of provided parking spaces are Designed Electric Vehicle Parking Spaces OR that documentation is provided to confirm that energized EV infrastructure will be provided
- (Tier 1 and Tier 2) The Reporting Commitment Form is submitted with the applicable metric checked off
- (Tier 2) The minimum percentage of provided parking spaces are Design Electric Vehicle Parking Spaces

Resources and Details

1. "Designed Electric Vehicle Parking Space" means a parking space designed and constructed to be electric vehicle ready, allowing for the future installation of electronic vehicle supply equipment that conforms to Section 86 of the Electrical Safety Code. The minimum level of charging accepted in Waterloo Region is Level 2.
2. As noted by Natural Resources Canada, Level 2 chargers have an input of 208/240 V, special electrical outlet, 4-10 hours for charging, and a range of 16 km to 50 km (per hour of charging).
3. If any of the values result in a fraction, then the requirement shall be the next lowest number.
4. Reporting Commitment Form

B2. Active and Public Transportation

- Encourage and support sustainable modes of transport and supportive amenities and services across the region to reduce GHG emissions from personal vehicles
- Support affordable alternatives to automobiles and encourage active mobility options for equity, health, and wellness
- Support better air quality

Alignment with Existing Plans

- TransformWR: By 2050, most trips are taken using active transportation, with the support of a robust public transit system (Transformative Change #1)
- Community Energy Investment Strategy: Increase reliance on active transportation and active transportation and transit (Goal 3)

Applicable Development Applications and Phase of Development

- Site Plan (Complete Application and Condition of Approval)

Required Materials/Documentation

- Active and Public Transportation Checklist (For Non-Residential Uses)
- Transportation Impact Study
- Survey (if easements are required)
- Site Plan Drawing (if applicable)
- Floor Plans (to demonstrate the location of shower facilities and bicycle storage)

Targets

CAMBRIDGE	KITCHENER	WATERLOO	NORTH DUMFRIES	WELLESLEY	WILMOT	WOOLWICH
HPDS Target and Existing Standard (OP 6.11.2)	HPDS Target and Existing Standard (ZBL 2019-051 Table 5.5 and Section 5.5, and UDM Complete Streets)	HPDS Target and Existing Standard (UDM 2.5.18 and 2.5.19)	HPDS Target and Existing Standard (OP 3.3.5.5)	HPDS Target and Existing Standard (OP 6.8.8.2)	HPDS Target and Existing Standard (OP 6.7.5.6)	HPDS Target

TIER 1

SITE PLAN

Low-Rise, Mid-Rise, and High-Rise Residential

- Bicycle storage rooms near/at the ground level of the building
    - The spaces shall be located within a secure access and weather protected space within the principal building or in a bicycle locker
- 1 long-term bicycle space per unit for multi-unit residential

Industrial, Commercial, and Institutional

Complete the Active and Public Transportation Checklist to demonstrate that the development incorporates key design and infrastructure measures that support sustainable transportation. Each measure will be evaluated on a yes/no basis. A minimum of 2 measures from Site Access shall be demonstrated on site.

Public Transportation Access

- Provision of transit information (routes, schedules, and fares) in visible and accessible locations

Site Access

- Functional building entrances/amenities oriented to public streets, transit stops, or public spaces
- Shower and change facilities that are accessible to all building occupants
- Secure and convenient tricycle, cargo bike, bike trailer, and e-mobility parking

- Active at-grade uses along street frontages

TIER 2

SITE PLAN

Low-Rise, Mid-Rise, and High-Rise Residential

- Space allocated for a bike share or e-scooter share service on site
- Space allocated for a car share service on site

Industrial, Commercial, and Institutional

Complete the Active and Public Transportation Checklist to demonstrate that the development incorporates key design and infrastructure measures that support sustainable transportation. Each measure will be evaluated on a yes/no basis. The measure from Public Transportation Access and a minimum of 3 measures from Site Access shall be demonstrated on site.

Public Transportation Access

- Provision of transit information (routes, schedules, and fares) in visible and accessible locations

Site Access

- Functional building entrances/amenities oriented to public streets, transit stops, or public spaces
- Shower and change facilities for employees that are accessible to all building occupants
- Secure and convenient bicycle, cargo bike, and e-mobility parking
- Space allocated for a bike share or e-scooter share service on site
- Space allocated for a car share service on site
- Active at-grade uses along street frontages

STAFF REVIEW

Staff will confirm that:

- (Tier 1) Bicycle storage is situated near/at the ground level of parking in the plans
- (Tier 1) A bicycle parking space is provided
- (Tier 1 and 2) The Active and Public Transportation Checklist is completed and demonstrates the required number of design and infrastructure measures
- (Tier 2) Space is allocated for a bike share or e-scooter share service and a care share service

Resources and Details

1. Active and Public Transportation Checklist (For Non-Residential Uses)
2. If easements are required, applicant will need to be registered on title with the boundary defined.
3. For condition of approval, the details internal to the building like bike rack details would be reviewed.

B3. Exterior Lighting

- Introduce energy efficient outdoor lighting that improves visibility, safety
- Reduce light trespass, excessive glare and skyward light pollution
- Support operational energy savings

Alignment with Existing Plans

- TransformWR: Build compact urban and settlement areas that are efficient for energy, services, infrastructure, and transportation, and make existing and new communities "complete communities (Strategy 1.5)

Applicable Development Applications and Phase of Development

- Site Plan (Condition of Approval)

Required Materials/Documentation

- Lighting or Photometric Plan

Targets

CAMBRIDGE	KITCHENER	WATERLOO	NORTH DUMFRIES	WELLESLEY	WILMOT	WOOLWICH
HPDS Target	HPDS Target and Existing Standard (UDM Part C)	HPDS Target and Existing Standard (UDM 4.13.j)	HPDS Target	HPDS Target	HPDS Target	HPDS Target

TIER 1

SITE PLAN

Low-Rise Residential; Mid to High-Rise Residential; and Industrial, Commercial, and Institutional

- All site lighting shall align with DarkSky Five Principles for Responsible Outdoor Lighting. All lights should: have a clear purpose; be directed only to where it's needed; be no brighter than necessary; dimmed down or turned off when not required; and use warmer colour lights where possible
- Light fixtures shall be energy efficient or solar powered LED lighting with motion sensor timers

- Full cutoff luminaries should be used that direct no light above the horizontal plane
- Shields, hoods and other devices to redirect light are incorporated to mitigate light spill onto adjacent properties and environmentally sensitive landscapes
- The use of flat lenses rather than sag or drop lenses. Illumination levels at all property lines shall not exceed 0.5 footcandles
- Employ colourful, warm (3000k max), human-scaled site and architectural accent lighting to enhance safety at night and provide a more pleasant pedestrian experience

TIER 2

SITE PLAN

Low-Rise Residential; Mid- to High-Rise Residential; and Industrial, Commercial, and Institutional

All fixtures shall align with the DarkSky Approved Program and to be certified should: restrict the amount of upward-directed light; avoid glare; avoid over-lighting; utilize dimming and other appropriate lighting controls; and minimize short-wavelength (blueish) light in the nighttime environment.

STAFF REVIEW

Staff will confirm that:

- (Tier 1) Fixtures meet the DarkSky Principles through the manufacturer's specifications
- (Tier 1) Fixtures are energy efficient or solar powered with motion censor timers
- (Tier 1) Full cutoff luminaries are provided
- (Tier 1) Colourful, warm, and human-scaled site and architecture lighting are provided OR has solar powered LED lighting and motion sensor timers
- (Tier 1) The lighting plan notes how the targets have been achieved
- (Tier 2) Fixtures meet the DarkSky Approved Program

Resources and Details

1. Canadian Migration Monitoring Network
2. DarkSky Five Principles for Responsible Outdoor Lighting
3. DarkSky Approved Program

B4. Sustainable Roofing

- Minimize runoff that could affect end use and reduce peak energy demands
- Reduce urban heat and building energy costs
- Help prepare for more frequent and intense climate related weather events
- Support local biodiversity including pollinators

Alignment with Existing Plans

- Community Climate Adaptation Plan for Waterloo Region: Improve community members' resilience to the risks of extreme weather impacts and changing climate conditions (Goal 1: Health and community)
- Community Energy Investment Strategy: Promote construction of high performance and energy self-sufficient buildings (Goal 1)

Applicable Development Applications and Phase of Development

- Site Plan (Condition of Approval)

Required Materials/Documentation

- Site Plan
- Landscape Plan
- Roof Plan
- Irrigation Plan
- Stormwater Management Plan

Targets

CAMBRIDGE	KITCHENER	WATERLOO	NORTH DUMFRIES	WELLESLEY	WILMOT	WOOLWICH
HPDS Target	HPDS Target and Existing Standard (UDM Part A)	HPDS Target and Existing Standard (UDM 2.5 (27))	HPDS Target	HPDS Target	HPDS Target	HPDS Target

TIER 1

SITE PLAN

Low-Rise Residential; Mid- to High-Rise Residential; and Industrial, Commercial, and Institutional

Flat Roof Buildings (slope<2:12)

Install cool roofs with a minimum Solar Reflective Index (SRI) of 78 that cover at least 90 percent of the total roof surface. Amenity space and roof patios shall be included in the total roof surface. This excludes HVAC and other equipment. Buffering shall be provided along the roof edge that perform a maintenance/access function and is composed of high albedo materials and may be included in the total calculation.

OR

Green roofs that cover at least 25 percent of the total roof surface. Amenity space and roof patios shall be included in the total roof surface. Buffering provided along the roof edge that performs a maintenance/access function and is composed of high albedo materials and may be included in the total calculation.

AND

Structural confirmation to confirm snow, rain, and wind (rain load hazard in ASCE/ANSI 7-16 is a 15-minute duration, 100-year Mean Recurrence Interval (MRI) event) storm event loading considering saturated soil weights.

Sloped Roof Buildings (slope>2:12)

Install cool roofs with a minimum Solar Reflective Index (SRI) of 78 that cover at least 90 percent of the total roof surface. Amenity space and roof patios shall be included in the total roof surface. This excludes HVAC and other equipment. Buffering provided along the roof edge that performs a maintenance/access function and is composed of high albedo materials may be included in the total calculation.

Structural confirmation to confirm snow, rain, and wind (rain load hazard in ASCE/ANSI 7-16 is a 15-minute duration, 100-year Mean Recurrence Interval (MRI) event) storm event loading considering saturated soil weights.

STAFF REVIEW

Staff will confirm that:

- (Tier 1 - Flat Roof) The material for the roof is a minimum Solar Reflective Index (SRI) of 78 through the manufacturer's specifications and covers at least 90 percent of the total roof surface OR that green roof covers at least 25 percent of the total roof surface
- (Tier 1 - Sloped Roof) The material for the roof is a minimum Solar Reflective Index (SRI) of 78 through the manufacturer's specifications and covers at least 90 percent of the total roof surface
- (Tier 1 – Sloped Roof) Structural confirmation is provided to confirm snow, rain, and wind capacity

Resources and Details

1. For the landscape plan for a green roof, include water retention capacity low impact development (LID) strategies for rain events, area drains, details for pedestal paving systems (to allow for greater water retention depths), with structural and civil cross-signing with landscape consultants to ensure all loading (snow, water, plantings, soils, site furnishings and amenities, materials, LID strategies used, etc.), roof drainage (sizing and quantities) that is sufficient to accommodate storm events, and a chart with loading and drainage totals and capacities confirmed for design submitted.
2. For the roof plan for a cool roof, include colours, materials, manufacturer information, and SRI information.
3. For the irrigation plan for a green roof, low impact development (LID) strategies must be noted.
4. ASCE/ANSI 7-16 Minimum Design Loads and Associated Criteria for Buildings and Other Structures



NATURAL ENVIRONMENT

Promote mindful resource use and support climate resilience through nature-based solutions

N1. Vegetation and Landscaping

- Minimize the urban heat island effect and risk of soil stacking and compaction
- Support ecosystem diversity, improved air quality, reduced erosion, soil stability, and overland flow and flooding concerns
- Design for resilience so there is no anticipated need for the use of herbicides/pesticides and to encourage water conservation

Alignment with Existing Plans

- Community Climate Adaptation Plan for Waterloo Region: Conserve and protect surface water and groundwater resources from urban runoff pollution (Goal 3, Objective 9)

Applicable Development Applications and Phase of Development

- Site Plan (Condition of Approval)

Required Materials/Documentation

- Landscape Plan
- Tree Management Plan
- ISA Certified Arborist Report
- Grading and Compaction Plan
- Invasive Species Management Plan (where applicable)
- Soils Report (for backfilling)

Targets

CAMBRIDGE	KITCHENER	WATERLOO	NORTH DUMFRIES	WELLESLEY	WILMOT	WOOLWICH
HPDS Target and Existing Standard (ZBL 3.1.1.4.a)	HPDS Target and Existing Standard (ZBL 5.11, 5.22.1 l) and m)), UDM 0.1.3.2 and Part C, and Development Manual A.2.1.9)	HPDS Target and Existing Standard (OP 3.11.1.14 and UDM 2.5.11)	HPDS Target and Existing Standard (OP 3.1.1.1.e) and 6.5.3.3)	HPDS Target and Existing Standard (OP 8.5.1.2 and 8.5.1.3)	HPDS Target and Existing Standard (OP 6.1.1, 8.5.1.3, 8.5.1.4)	HPDS Target and Existing Standard (OP 13.5.3, 19.5.7)
TIER 1						

SITE PLAN
 	
Low-Rise Residential; Mid- to High-Rise Residential; and Industrial, Commercial, and Institutional
 	
Landscaping
• A minimum of 2/3 of the non-roof area of the lot shall be shaded by mature tree canopy
  ○ Preference should be given to planting large canopy tree species
Trees
• 1 tree per every 5 surface parking spaces, distributed within or along the perimeter of the parking area
Buffers
• Vegetated buffers adjacent to natural heritage features shall be 100 percent native species and be maintained in a natural state
  ○ Green roofs will not be considered part of the buffer
• Genetic diversity shall be introduced and no one genus can represent more than 20 percent of the total plantings on a site						

Species

- Use drought tolerant species with root zoning planting strategies, and provide root ball depth watering ports (outside of buffers) and alternate low-impact water sources, no irrigation shall be used

Soil Volume

- Sod/seed planting areas shall have a minimum approved growing medium depth of 150 mm
- Shrub planting areas shall have a minimum topsoil depth of 450 mm
    - Where the soil volume is shrub and tree plantings, it is the growing medium
- Areas accommodating trees shall provide access to 42 m^3 per large stature tree, 30 m^3 of continuous soil per medium stature tree, a minimum 18.5 m^3 per tree for shared volumes for 2 trees, and a minimum of 9.5 m^3 for 3 trees (all depth measurements are taken from base of root ball or container)
- If soil volumes have not been achieved, the canopy calculation for trees in that condition is applied using a similar reduced factor of 75 percent soil volume provided (total projected canopy x 0.75)

TIER 2

SITE PLAN

Low-Rise Residential; Mid- to High-Rise Residential; and Industrial, Commercial, and Institutional

Landscaping

- A minimum of 3/4 of the non-roof area of the lot shall be shaded by mature tree canopy; preference should be given to planting large canopy tree species
- 1 tree per every 4 surface parking spaces, distributed within or along the parking area

STAFF REVIEW

Staff will confirm that:

- (Tier 1 and 2) The minimum non-roof area is shaded by the mature tree canopy
- (Tier 1 and 2) The tree to parking space ratio is met
- (Tier 1) The vegetated buffers are 100 percent native species and no one genus can represent more than 20 percent of the total plantings on site
- (Tier 1) Drought tolerant species are used
- (Tier 1) On the landscape plan, the “full grown” size of the trees should be shown
- (Tier 1) The sod / seed planting and shrub planting areas have the outlined depths
- (Tier 1) The areas accommodating trees meet the outlined soil volumes

Resources and Details

1. Government of Ontario, Tree Atlas, Southwest
2. Vegetated buffer includes, but is not limited to grass, trees, shrubs, and ground covers and shall be calculated as an unencumbered landscape.
3. Where a standard reference is required, the average mature canopy diameter of representative Large Stature Tree (LST) species may be used, unless alternate values are provided by Urban Forestry for specific site conditions, studies, or project requirements.

- Mature tree canopy, based on size class:
- Small tree 7-8 m tall: 2/3 of mature canopy = 5 m (area 19.63 m^2)
- Medium tree 8-11 m tall: 2/3 of mature canopy = 8 m (area 50.27 m^2)
- Large tree 13-18 m tall: 2/3 of mature canopy = 12 m (area 113.10 m^2)

N2. Waste

- Minimize construction waste, end-of-life waste, increase diversion away from landfills, and support appropriate disposal and reuse
- Reduce GHG emissions through encouraging material reuse, composting and diversion from landfills.

Alignment with Existing Plans

- TransformWR: Optimize existing waste management infrastructure and minimizing additional production of waste (Strategy 4.1 and 4.2)

Applicable Development Applications and Phase of Development

- Draft Plan of Subdivision
- Site Plan (Complete Application)

Required Materials/Documentation

- Construction and Demolition Waste Management Plan
- Site Plan Drawing

Targets

CAMBRIDGE	KITCHENER	WATERLOO	NORTH DUMFRIES	WELLESLEY	WILMOT	WOOLWICH
HPDS Target and Existing Standard (OP 5.7.8)	HPDS Target and Existing Standard (UDM Part C Waste and Recycling)	HPDS Target and Existing Standard (UDM 2.5.22 and 2.5.32)	HPDS Target and Existing Standard (OP 3.4.3.1)	HPDS Target	HPDS Target and Existing Standard (OP 6.8.3.1)	HPDS Target

TIER 1

DRAFT PLAN OF SUBDIVISION

Low-Rise Residential, Mid- to High-Rise Residential, Industrial, Commercial, and Institutional

Submit a Construction and Demolition Waste Management Plan that demonstrates the following:

- The reuse and recycling of building/construction materials
- Waste diversion strategies
- The facilities the building/construction materials are being taken to

SITE PLAN

Low-Rise Residential, Mid- to High-Rise Residential, Industrial, Commercial, and Institutional

- The design and location of enclosed on-site waste management facilities, including recycling and composting

Submit a Construction and Demolition Waste Management Plan that demonstrates the following:

- The reuse and recycling of building/construction materials
- Waste diversion strategies
- The storage of materials

STAFF REVIEW

Staff will confirm that:

- (Tier 1) The applicant has outlined plans for the reuse and recycling of building/construction materials, waste diversion strategies, the facilities the materials are being taken to, an on-site waste management facility, and the storage of materials

Resources and Details

1. Similar to LEED BD+C: New Construction v4.1., the Construction and Demolition Waste Management Plan shall outline:

- Identify strategies to reduce the generation of waste during project design and construction
- Establish waste diversion goals for the project by identifying the materials (both structural and non-structural) targeted for diversion
- Describe the diversion strategies planned for the project
- Describe where materials will be taken including expected diversion rates for each material
- All waste generated, including disposal and diversion rates for the project

2. Deep well units and waste storage enclosures must be on a hard surface (concrete pad recommended), as noted in the City of Kitchener Site Plan Engineering Guidelines.

N3. Water Efficiency

- Reduce water consumption and support more efficient use

Alignment with Existing Plans

- Region of Waterloo Efficiency Master Plan (Objectives): To further reduce indoor and outdoor water demand in the residential sector and to further reduce total system per capita demand

Applicable Development Applications and Phase of Development

- Site Plan (Condition of Approval)

Required Materials/Documentation

- Landscape Plan
- Reporting Commitment Form
- Mechanical Drawings

Targets

CAMBRIDGE	KITCHENER	WATERLOO	NORTH DUMFRIES	WELLESLEY	WILMOT	WOOLWICH
HPDS Target	HPDS Target and Existing Standard (UDM Part C 15.0)	HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target
TIER 1						
SITE PLAN **Low-Rise Residential; Mid- to High-Rise Residential; and Industrial, Commercial, and Institutional** Complete and submit the Reporting Commitment Form outlining that the owner/applicant will install WaterSense certified fixtures for toilets, bathroom sink faucets, showerheads, flushing urinals, and flushometer-valve toilets.						

TIER 2

SITE PLAN

Low-Rise Residential; Mid- to High-Rise Residential; and Industrial, Commercial, and Institutional

Complete and submit the Reporting Commitment Form outlining that the owner/applicant will provide private individual water meters on a per unit basis. After the completion of the project, applicant shall submit confirmation.

Include greywater reuse and rainwater harvesting systems (on the mechanical drawings), in accordance with Ontario Building Code Article 7.7.2 and 7.7.3 per EES-WIM-26-010, Water Conservation Policy Recommendations - Special Council - May 28, 2026, Appendix B.

STAFF REVIEW

Staff will confirm that:

- (Tier 1 and Tier 2) The Reporting Commitment Form is submitted with the applicable metric checked off
- (Tier 1) The fixtures are WaterSense certified
- (Tier 2) Confirmation has been submitted for the installation of private individual water meters
- (Tier 2) A greywater reuse and rainwater harvest system is noted on the mechanical drawings

Resources and Details

1. Water Sense
2. Ontario Building Code Article 7.7.2 and 7.7.3
3. EES-WIM-26-010, Water Conservation Policy Recommendations - Special Council - May 28, 2026
4. Reporting Commitment Form

N4. Bird Friendly Design

- Prevent collisions of birds through buildings and site design by making buildings more visible to birds
- Accommodate local and other migratory species' needs (seasonality considerations)

Alignment with Existing Plans

- Community Climate Adaptation Plan for Waterloo Region: Preserve, restore and enhance local biodiversity and the resilience of the natural environment and water resources throughout the region (Table 3)

Applicable Development Applications and Phase of Development

- Site Plan (Condition of Approval)

Required Materials/Documentation

- Elevation Plan
- Lighting or Photometric Plan
- Landscape Plan

Targets

CAMBRIDGE	KITCHENER	WATERLOO	NORTH DUMFRIES	WELLESLEY	WILMOT	WOOLWICH
HPDS Target	HPDS Target and Existing Standard (UDM Part A 01.2.3, 04.3.2, 0.5.3.2, 0.6.2.2, 0.8.2.2, 0.8.3.0, and 0.9.3.5)	HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target

TIER 1

SITE PLAN

Low-Rise Residential; Mid- to High-Rise Residential; and Industrial, Commercial, and Institutional

Align with Canadian Standards Association (CSA) A460:19: Bird Friendly Design Standard for glazing and site design, as noted below. Please refer to the CSA A460:10 for the full standard, the below is a summary highlighting the main components.

Glazing

General

To minimize the risk of bird collisions, treat glazing to a height of 16 m from grade or to the height of the adjacent mature tree canopy, whichever is greater OR if adjacent to green roofs and/or other rooftop vegetation, it shall be applied to a height of 4 m from the surface, whichever is greater:

- A minimum of 90 percent of all glazing material
- All glazing material that creates fly-through conditions
- All glazing material adjacent to natural heritage features

When vision glass is not proposed (e.g. spandrel glass, shadow boxes, and privacy glazing), a full-surface treatment that allows the glazing to be visible, with a maximum of 15 percent reflect light on the first surface may be used.

Visual Markers

Incorporate visual markers to create a visual barrier, including:

- Acid etch visual markers
- UV markers
- Fritted glass
- Film
- Non-film adhesive markers

The visual markers shall:

- Be a minimum of 4 mm in diameter for individual elements or 2 mm wide by 8 mm long for linear elements
- No more than 50 mm between visual markers
- Be high in contrast to the glazing material

- Be on the first (exterior) surface of the glazing

Fly-Through Conditions

To minimize fly-through conditions and black hole (passage effects), the following should be applied to a height up to 16 m:

- Glass corners shall be treated for 5 m in each direction
- Parallel glass elements shall be treated with visual markers
- Glass/balcony guards/guardrails shall be treated

Site Design

Consider the following components:

- Nearby existing bird habitats or known migratory path
- Grade-level building ventilation grates shall have a porosity not greater than 20 mm x 20 mm or 40 mm x 10 mm

TIER 2

SITE PLAN

Low-Rise Residential; Mid- to High-Rise Residential; and Industrial, Commercial, and Institutional

Building Envelope

- A total window surface area of 25-40 percent relative to the entire facade (low window to wall ratio)

Design to Eliminate Fly-Through Conditions

- Reduce glass bridges and walkways, outdoor railings, free-standing glass architectural elements, and building corners where glass walls or windows are perpendicular

Awnings and Overhangs

- Incorporate recessed windows, balconies, and awnings, where appropriate

Exterior Screens, Grilles, Shutters, and Sunshades

- Incorporate unique architectural elements that provide clear visual cues for birds to avoid without impacting views from the interior of the building
- Include decorative facades that wrap entire structures like netting, screens, grilles, shutters, and exterior shades

Creating Visual Markers

Incorporate the following:

- Visual markers spaced at a maximum of 10 cm apart and be high contrast
- Mute reflections in glass
- Ceramic frit and acid-etched patterns, only non-reflective glass should be used in combination with this

Opaque and Translucent Glass

- Select opaque, etched, stained, and frosted glass, or glass block. Patterns should be applied at a 10 cm by 10 cm spacing

UV Glass (or similar products)

- Select glass that provides demonstrable, third party testing results that clearly indicate a significant reduction in bird collisions comparable to acid-etched and/or fritted glass

Low Reflectance Glass

- Utilize lower reflectance glass (less than 15 percent reflectance) in conjunction with visual markers

Mirrored Glass and Large Glass Expanses

- Reduce mirrored glass and large glass expanses throughout the building

Landscape

- Keep trees and shrubs away from reflective glass

STAFF REVIEW

Staff will confirm that:

- The plans comply with the glazing and site requirements, as per the Canadian Standards Association (CSA) A460:19: Bird Friendly Design Standard

Resources and Details

1. Canadian Standards Association (CSA) A460:19

N5. Stormwater

- Support appropriate levels of water retention and drainage
- Support climate resilience with respect to warmer, wetter, and wilder weather

Alignment with Existing Plans

- Community Climate Adaptation Plan for Waterloo Region: Seek opportunities to reduce flood risks by considering Low Impact Development (LID) features, green infrastructure, and building upgrades (Goal 2, Action 5.4)

Applicable Development Applications and Phase of Development

- Draft Plan of Subdivision (Complete Application)
- Site Plan (Complete Application)

Required Materials/Documentation

- Stormwater Management Plan
- Geotechnical Report

Targets

CAMBRIDGE	KITCHENER	WATERLOO	NORTH DUMFRIES	WELLESLEY	WILMOT	WOOLWICH
HPDS Target and Existing Standard (Engineering Standards and Development Manual Section 2.62)	Existing Standard (Integrated Stormwater Management Master Plan, Implementation Plan, Policy Development B and Development Manual)	HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target

TIER 1
DRAFT PLAN OF SUBDIVISON AND SITE PLAN **Low-Rise Residential; Mid- to High-Rise Residential; and Industrial, Commercial, and Institutional** Provide Level 1 (Enhanced) water quality control, equivalent to an 80 percent total suspended solids (TSS) removal efficiency on an average annual basis per the Ontario Stormwater Management Planning and Design Manual. Retain a minimum runoff of 12.5 mm from all surfaces on the site. Retention can be a combination of infiltration, evapotranspiration, and rainwater re-use.
STAFF REVIEW
Staff will confirm that: • Level 1 (Enhanced) water quality control (80 percent) total suspended solids (TSS) removal rate) is demonstrated • A minimum runoff of 12.5 mm is retained

Resources and Details

1. Ontario Stormwater Management Planning and Design Manual
2. Utilize the Green Infrastructure (GI) sizing tool to determine the size of a Best Management Practice (BMP). Interested groups can contact City of Kitchener's Sanitary and Stormwater Utilities Division for the spreadsheet.
3. Kitchener Development Manual
4. Kitchener Integrated Stormwater Management Master Plan, Implementation Plan
5. Provincial LID Design Guidelines
6. Sustainable Technologies Evaluation Program (STEP)

N6. Building Resilience and Adaptability

- Introduce preparedness measures to address future with more frequent and intense climate related weather events

Alignment with Existing Plans

- Community Climate Adaptation Plan for Waterloo Region: Improve community members' resilience to the risks of extreme weather impacts and changing climate conditions (Goal 1: Health and community)
- Community Energy Investment Strategy: Promote construction of high performance and energy self-sufficient buildings (Goal 1)

Applicable Development Applications and Phase of Development

- Site Plan (Condition of Approval)

Required Materials/Documentation

- Energy Study
- Site Plan
- Servicing and Grading Plans

Targets

CAMBRIDGE	KITCHENER	WATERLOO	NORTH DUMFRIES	WELLESLEY	WILMOT	WOOLWICH
HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target
TIER 1						
SITE PLAN **Low-Rise Residential** Align with the Institute for Catastrophic Loss Reduction (ICLR) Basement Flood Resilience Measures for New Construction, "Good resilience", for local considerations, lot grading and drainage, foundation drainage systems, and sewer backwater protection. **Mid- to High-Rise Residential; and Industrial, Commercial, and Institutional** Identify design considerations to increase resiliency, such as increased thermal resistance and adaptable building systems.						

TIER 2

SITE PLAN

Low-Rise Residential

Align with the Institute for Catastrophic Loss Reduction (ICLR) Basement Flood Resilience Measures for New Construction, “Better resilience”, for local considerations, lot grading and drainage, infiltration and overland flood entry points, foundation drainage systems, sump pump systems (where present), laterals, and sewer backwater protection.

Mid- to High-Rise Residential; and Industrial, Commercial, and Institutional

Conduct a risk assessment using the Public Infrastructure Engineering Vulnerability Committee (PIEVC) Protocol or equivalent and assess:

- Likelihood: The probability of a climate hazard occurring
- Consequence: The impact of the hazard on the infrastructure’s performance

Assign risk scores to prioritize areas of concern based on criticality.

TIER 3

Low-Rise Residential

Align with the Institute for Catastrophic Loss Reduction (ICLR) Basement Flood Resilience Measures for New Construction, “Best resilience”, for local considerations, lot grading and drainage, eavestroughs and downspouts, infiltration and overland flood entry points, foundation drainage systems, foundation drainage discharge, sewer connections, and sewer backwater protection.

Mid- to High-Rise Residential; and Industrial, Commercial, and Institutional

Conduct a detailed evaluation of vulnerabilities identified in the risk assessment:

- Assess the project's capacity to withstand identified climate stresses
- Determine failure points or areas requiring intervention
- Provide an implementation strategy that recommends adaptation measures, such as design adjustments to mitigate risks

STAFF REVIEW

Staff will confirm that:

- (Tier 1, 2, and 3) Applicant has submitted the completed ICLR checklist for the selected tier (good, better, or best)
- (Tier 2 and 3) The risk assessment report applies the PIEVC Protocol or equivalent

Resources and Details

1. Institute for Catastrophic Loss Reduction (ICLR)
2. Public Infrastructure Engineering Vulnerability Committee (PIEVC) Protocol



ENERGY EFFICIENCY

Reduce energy demands and GHG emissions while boosting resilience and affordability

E1. Embodied Carbon

- Minimize GHG gas emissions from building materials and construction methods

Alignment with Existing Plans

- TransformWR: Implement tools to support a more informed material selection process (Action 3.2.2).
- Community Energy Investment Strategy: Promote construction of high performance and energy self-sufficient buildings (Goal 1)

Applicable Development Applications and Phase of Development

- Site Plan (Condition of Approval)

Required Materials/Documentation

- Energy Study with Embodied Carbon Assessment

Targets

CAMBRIDGE	KITCHENER	WATERLOO	NORTH DUMFRIES	WELLESLEY	WILMOT	WOOLWICH
HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target
TIER 1						
SITE PLAN **Low-Rise Residential** Conduct a Materials Emissions Assessment on A1-A5 (Product-stage) which includes: enclosure, structure and major finishes, specifically substructure (foundations, subgrade enclosures, slab-on-grades), shell (superstructure, exterior vertical enclosures, exterior horizontal enclosures), and major finishes (cladding, flooring, ceilings, interior wall sheathing). Provide the results from the "review tab" from the MCE2/BEAM tools. **Mid- to High-Rise Residential and Industrial, Commercial, and Institutional** Conduct an Upfront Embodied Emissions Assessment (LCA) for A1-A5 in accordance with Section 3.1 of the Canada Green Building Council's (CaGBC) Zero Carbon Building Design Standard Version 4 guidelines. Report on carbon emissions per gross floor area (GFA) to demonstrate emission intensity.						

TIER 2

SITE PLAN AND CONDITION OF APPROVAL

Low-Rise Residential

Conduct a Materials Emissions Assessment on B1-B5 (Use stage) which includes emissions from material maintenance, repair, and replacement and C1-C4 (End-of-life stage) which includes emissions from demolition, transportation, waste processing, and disposal. Provide the results from the "review tab" from the MCE2/BEAM tools.

Align with Section 4.1 of the CaGBC Zero Carbon Building Standard Version 4 guidelines on embodied carbon intensity which outlines maximum targets based on building type that must not be exceeded.

Include concrete mixes that are at least 10 percent below the Concrete Ontario baselines per mix type.

Mid- to High-Rise Residential and Industrial, Commercial, and Institutional

Conduct an Upfront Embodied Emissions Assessment (LCA) for B1-B5 (Use stage) which includes emissions from material maintenance, repair, and replacement and C1-C4 (End-of-life stage) which includes emissions from demolition, transportation, waste processing, and disposal, in accordance with Section 3.1 of the Canada Green Building Council's (CaGBC) Zero Carbon Building Design Standard Version 4 guidelines. Report on carbon emissions per gross floor area (GFA) to demonstrate emission intensity.

Align with Section 4.1 of the CaGBC Zero Carbon Building Standard Version 4 guidelines on embodied carbon intensity.

Include concrete mixes that are at least 10 percent below the Concrete Ontario baselines per mix type.

STAFF REVIEW

Staff will confirm that:

- (Tier 1 and Tier 2) A Materials Emissions Assessment or Upfront Embodied Emission Assessment is submitted, complete, and the results from MCE^2/BEAM are provided
- (Tier 2) Embodied carbon intensity does not exceed the maximum targets
- (Tier 2) Concrete mixes are noted

Resources and Details

1. Material Carbon Emissions Estimator (MCE^2) or Building Emissions Accounting for Materials (BEAM) are considered acceptable methodologies and tools for low-rise residential.
2. Canada Green Building Council (CaGBC) Zero Carbon Building (ZCB) Design Standard Version 4

E2. GHG Emissions Reduction

- Future-proof buildings and prepare for the clean energy transition
- Address operational carbon emissions from buildings
- Allow for monitoring and assessment to ensure a commitment to planned emission reductions

Alignment with Existing Plans

- TransformWR: Decarbonize building heating and cooling, and water heating, by replacing furnaces and hot water heaters with highly energy efficiency and low carbon equipment or fuel sources (Strategy 3.1)
- Community Energy Investment Strategy: Promote construction of high performance and energy self-sufficient buildings (Goal 1)

Applicable Development Applications and Phase of Development

- Site Plan (Condition of Approval and Post-Construction)

Required Materials/Documentation

- Energy Study with Modelling Report
- Reporting Commitment Form

Targets

CAMBRIDGE	KITCHENER	WATERLOO	NORTH DUMFRIES	WELLESLEY	WILMOT	WOOLWICH
HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target
TIER 1						
SITE PLAN **Low-Rise, Mid- to High-Rise Residential, Industrial, Commercial, and Institutional** NECB-2020 Tier 1 (relative target) + greenhouse gas intensity (GHGI) of 15 kgCO2e/m²/year or GHGI based on energy model in alignment with NECB 2020 (Part 8) requirements and supplementary guidance to localize the standard, if needed. The building owner commits and consents, for 1 year after occupancy, to share building performance data with the municipality.						

TIER 2

SITE PLAN

Low-Rise, Mid- to High-Rise Residential, Industrial, Commercial, and Institutional

GHGI of 10 kgCO2e/m²/year.

The building owner commits and consents, for 1 year after occupancy, to share building performance data with the municipality.

TIER 3

SITE PLAN

Low-Rise, Mid- to High-Rise Residential, Industrial, Commercial, and Institutional

GHGI of 5 kgCO2e/m²/year.

The building owner commits and consents, for 1 year after occupancy, to share building performance data with the municipality.

STAFF REVIEW

Staff will confirm that:

- (Tier 1, 2, and 3) The Energy Study notes the outlined GHGI target
- (Tier 1) The applicant submits the Reporting Commitment Form outlining commitment and consent to sharing performance data

Resources and Details

1. Greenhouse Gas Emissions Intensity (GHGI) is the annual greenhouse gas emissions of a building based on fuel-specific emission factors normalized by the conditioned flood area. GHGI is to be reported in kg eCO_2/m^2.
2. GHGI is assumed to include emissions from electricity.
3. The decreased target for GHGI (from 15 to 10 to 5) for on-site emissions follows a similar trajectory for other municipalities with tiered requirements.
4. If the owner changes before 1 year after occupancy, the owner shall use reasonable efforts to notify the new owner of the commitment and the request to assume it.
5. Reporting Commitment Form
6. National Energy Code of Canada for Buildings (NECB) 2020 (Part 8)

E3. Airtightness

- Reduce air leakage and heat loss through the enclosure of new buildings
- Support lower energy costs
- Maintain thermal comfort for building occupants

Alignment with Existing Plans

- Community Energy Investment Strategy: Promote construction of high performance and energy self-sufficient buildings (Goal 1)

Applicable Development Applications and Phase of Development

- Site Plan (Complete Application and Post-Construction)

Required Materials/Documentation

- Reporting Commitment Form
- Air Leakage Testing Report

Targets

CAMBRIDGE	KITCHENER	WATERLOO	NORTH DUMFRIES	WELLESLEY	WILMOT	WOOLWICH
HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target
TIER 1						
SITE PLAN **Low-Rise Residential** N/A **Mid- to High-Rise Residential and Industrial, Commercial, and Institutional** Include terms of commitment to do the following: • Conduct a guarded test • Note the third-party testing agency • Follow ASTM E3158-18 • Agree to submit the final air leakage testing report						

- Consent to sharing this data with the condo corporation, if applicable, and WR Community Energy and the relevant municipality priority to occupancy

Through the guarded test, quantify the building envelope air leakage rate. The testing target is 2.0 L/s m2 @75Pa (0.4 cfm/ft2 @75Pa). Guarded testing shall include testing a sampling of floors including: podium, base of tower, top of tower, unique floors, and 2 contiguous floors for every 10 floors (to capture slab bypass condition). For more details, please refer to the Resources and Details section below. After the completion of the project, consent to sharing this data with the condominium corporation, if applicable.

TIER 2

Low-Rise Residential

N/A

Mid- to High-Rise Residential and Industrial, Commercial, and Institutional

Submit signed confirmation of contract with air leakage testing firm name, team members, and credentials. Drawings shall include intended line of air leakage (building envelope). Include a short narrative that describes the project's approach to achieving air tightness, proposed testing procedure (i.e. infiltration only or infiltration and exfiltration), with related quality assurance / quality control activities which may include partial building air leakage testing and a representative sampling strategy for selecting parts of the building for "guarded" testing methods where whole building testing is not feasible or possible.

Consent to sharing this data with the condo corporation, if applicable, and WR Community Energy and the relevant municipality prior to occupancy.

STAFF REVIEW

Staff will confirm that:

- (Tier 1) The Reporting Commitment Form is submitted
- (Tier 1 and 2) Consent for data sharing is provided
- (Tier 2) Confirmation of contract is submitted with the requested information along with the project overview

Resources and Details

1. Please refer to the ASTM E3158-18 Standard Test Method for Measuring the Air Leakage Rate of a Large or Multizone Building or City of Toronto Whole Building Air Leakage Testing Protocol.
2. As noted by ENERQUALITY, a whole building test is when the entire building is pressurized or depressurized with all interior partition doors held open to allow for pressure equalization throughout all areas of the building. The result of this testing is an overall average measurement of the airtightness of the building envelope. A guarded (zone) test measures the airtightness of only the exterior air barrier system separating the test zone from the exterior of the building. The test zone may be a specific section of the building, one unit in the building or one floor of the building. The test zone is pressurized or depressurized with all doors between the test zone and the rest of the building closed. The guard zones are those areas of the building surrounding the test zone. The guard zones are pressurized or depressurized to match the pressure of the test zone. The results of this testing are a measurement of the airtightness of only the building enclosure sections pf the test zone.
3. Reporting Commitment Form

E4. Local Energy Generation and Solar Readiness

- Reduce grid demand through on-site action by building owners
- Prepare infrastructure for future solar photovoltaic (PV) systems and encourage market uptake
- Support long-term cost savings for home and building owners
- Opportunity for back-up energy supply in an outage

Alignment with Existing Plans

- TransformWR: Position Waterloo Region as a clean tech, sustainability, renewable energy, and retrofits hub (Strategy 6.2)
  - Change initiative (fuel switching) – estimated emission reduction effect of 361,446 tCO_2e (by the year 2025)
- Community Climate Adaptation Plan for Waterloo Region: Explore opportunities and feasibility of decentralized energy generation, storage, and distribution in Waterloo Region (Goal 4, Action 13.1)
- Community Energy Investment Strategy: Promote construction of high performance and energy self-sufficient buildings; and increase the use of on-site renewable energy in buildings (Goal 1)
  - Optimize use of local resources for energy generation; and assess and support opportunities to develop distributed and integrated energy systems (Goal 2)

Applicable Development Applications and Phase of Development

- Draft Plan of Subdivision (Complete Application)
- Site Plan (Condition of Approval)

Required Materials/Documentation

- Subdivision Plan
- Building Plan
- Roof Plan
- Reporting Commitment Form
- Feasibility Assessment

Targets

CAMBRIDGE	KITCHENER	WATERLOO	NORTH DUMFRIES	WELLESLEY	WILMOT	WOOLWICH
HPDS Target	HPDS Target and Existing Standard (UDM Part A)	HPDS Target	HPDS Target	HPDS Target	HPDS Target	HPDS Target

TIER 1

DRAFT PLAN OF SUBDIVISION

Low-Rise Residential; Mid- to High-Rise Residential; and Industrial, Commercial, and Institutional

Outline district energy or renewable energy feasibility that may include geothermal, solar PV, or community energy generation.

The design layout of the subdivision has considered street layout to maximize solar orientation for both passive design and the installation of rooftop solar.

SITE PLAN

Low-Rise Residential; Mid- to High-Rise Residential; and Industrial, Commercial, and Institutional

All buildings with a pitched roof are designed to be solar ready according to specifications outlined in NRCan's Photovoltaic Ready Guidelines, and buildings with a flat roof are designed to be solar ready, verified by a certified installer by the North American Board of Certified Energy Practitioners (NABCEP) and compliant with NRCan's Solar Ready Guidelines.

Applications for buildings with a rooftop area greater than 50,000 square feet shall conduct a feasibility assessment for the installation of an appropriately-sized solar PV system, conducted by a qualified solar provider or other energy professional, and in consultation with the local distribution company. The assessment may consider options for rooftop, ground, cladding, and/or other systems, and arrangements such as net metering, virtual net metering, self generation, third-party ownership, etc.

Submit the Reporting Commitment Form outlining that the owner will share relevant reports or studies with the condominium board, where applicable, to understand feasibility and potential actions that can be explored.

STAFF REVIEW

Staff will confirm that:

- (Tier 1) Review plans for district energy or renewal energy feasibility
- (Tier 1) Design layout of the subdivision is submitted
- (Tier 1) Confirm specifications for solar-ready comply with the NRCan Photovoltaic Ready Guidelines (for a pitched roof) or the NRCan Solar Ready Guidelines (for a flat roof)
- (Tier 1) Confirm a feasibility assessment is submitted (for rooftop area greater than 50,000 square feet)
- (Tier 1) The Reporting Commitment Form is submitted

Resources and Details

1. NRCan's Photovoltaic Ready Guidelines
2. NRCan's Solar Ready Guidelines
3. Reporting Commitment Form

Building and Roof Plans (prior to permit)

1. On the roof plan, indicate locations of conduit(s), HVAC, and/or other rooftop equipment and highlight locations for potential future solar or thermal systems.
2. If the information is available, building plans should demonstrate structural capacity for solar PVs, show the location designated for future electrical equipment, and be prepared by a qualified professional (e.g. NABCEP, professional engineer, and/or architect).



APPENDICES

Appendix A – HPDS Approvals and Application Process

Waterloo Region
HIGH-PERFORMANCE
DEVELOPMENT STANDARDS

SITE PLAN & DRAFT PLAN OF SUBDIVISION PROCESS

The HPDS is embedded into existing planning approvals process. Staff will review the HPDS checklist for completeness and assign appropriate HPDS related recognition.

1. Submission of Statement of Interest (SOI)

- Applicant shall complete and submit the SOI form to WR Community Energy

2. Application Submission to the Municipality

- Applicant will indicate on their cover letter that they are participating in the Pilot Program
- Applicant will submit the HPDS Checklist and Reporting Commitment Form

3. Review

- Staff will review the materials for completeness
- HPDS materials will be reviewed as part of the typical planning application review and approval process

4. Applicant Feedback

- Applicant shall provide feedback on the HPDS process and metrics to support continued improvement

5. Post-Occupancy Reporting and Recognition

- For the relevant metrics, the applicant will submit post-occupancy information to staff, in accordance with the Reporting Commitment Form
- Reflect on successes, challenges and opportunities with metrics, project design, and construction

WR COMMUNITY ENERGY · CAMBRIDGE · KITCHENER · THE CITY OF Waterloo · Region of Waterloo · The TOWNSHIP of NORTH DUMFRIES · WELLESLEY · Wilmot · WOOLWICH TOWNSHIP

Waterloo Region
HIGH-PERFORMANCE
DEVELOPMENT STANDARDS

RECOGNITION FOR BUILDINGS UNDER CONSTRUCTION

Although the intent of the pilot is to work through the development approvals processes with applicants, developments that are under construction (but not completed) and align with HPDS targets are eligible for recognition.

1. Submission of Checklist

- Applicant shall contact WR Community Energy to ensure project applicability
- Upon confirmation, the applicant shall submit the completed HPDS Checklist

2. Review

- Staff will review the materials for completeness
- HPDS materials will be reviewed as part of the typical planning application review and approval process

3. Applicant Feedback

- Applicant can provide feedback on the HPDS process and metrics to support continued improvement

4. Post-Occupancy Reporting and Recognition

- For the relevant metrics, the applicant will submit post-occupancy information to staff, in accordance with the Reporting Commitment Form
- Reflect on successes, challenges and opportunities with metrics, project design, and construction

Appendix B – Terms

Airtightness measures the degree to which a building prevents air leakage through its envelope

Bicycle Locker means an individual bicycle storage unit that is weather protected, enclosed, tamper and corrosion resistant, anchored into the ground, and has a controlled access system

Cool Roofs reflect the sun's rays and reduces heat build-up from the sun's thermal energy

Designed Electric Vehicle Parking Space is a parking space designed and constructed to be electric vehicle ready, allowing for the future installation of electronic vehicle supply equipment that conforms to Section 86 of the Electrical Safety Code (please note that the minimum level of charging accepted in Waterloo Region is Level 2)

Embodied Carbon is the greenhouse gas emissions associated with the materials and construction processes throughout a building's life cycle

Future-proofing is adapting the community, infrastructure, and economy for future growth and changes

Greenhouse Gas Intensity (GHGI) is the total greenhouse gas emissions associated with operating a building

Green Roof is an extension of an above grade roof, built on top of a human-made structure, that allows vegetation to grow in a growing medium

Mature Tree Canopy is the expected canopy diameter of a tree at maturity (approximately 20-30 years after planting) under typical urban growing conditions

Solar Photovoltaic (PV) converts energy from the sun into electricity

Solar Reflectance Index (SRI) is the measure of a surface's ability to reflect solar heat and is calculated using both the reflectance value and emittance value of the material (e.g. black asphalt has an SRI of 0, a standard white surface is 100, and gray concrete is 35)

Unencumbered Landscape is unobstructed by barriers, structures, or other non-natural features