



Waterloo Region

HIGH-PERFORMANCE
DEVELOPMENT STANDARDS

High-Performance Development Standards

Discussion Draft

December 2024

Introduction

The High-Performance Development Standards (HPDS) are a set of standards planned for new development applications in the Cities of Cambridge, Kitchener, and Waterloo, and the Townships of North Dumfries, Wellesley, Wilmot, and Woolwich. The HPDS embeds the energy transition and climate resilience into the planning approvals process.

This builds on the successes of similar initiatives in other Ontario municipalities, commonly referred to as “green development standards”. It was developed through feedback from local community, industry partners, and municipal staff.

This approach, crafted in partnership with WR Community Energy and the HPDS Municipal Working Group, underscores our commitment to enhancing the energy efficiency of future buildings, aligning with the Region’s ambitious goal of reducing greenhouse gas (GHG) emissions by 80% by 2050.

Overview

This draft represents two years of discussions and research and summarizes an approach to development standards by and for Waterloo Region. It captures the priorities (metrics) and ambitions (targets) of the community and balances the needs of municipal staff, the development community, our utilities, and natural environment. More work is needed, however. This draft should be read as the start of a more detailed conversation. As such, you’ll see that some targets are more defined than others. Clear distinctions have not yet been made between Urban Areas and Rural Settlement Areas and will be done through further consultations and discussions.

Harmonization and Streamlined Processes

The HPDS is an optimistic and collaborative project designed to balance environmental, municipal, industry, and homeowner/renters’ interests. Uniquely and importantly to Waterloo Region, the HPDS is also partnering with the local utilities.

This standard is the first to be harmonized within a region in Ontario. Metrics have been selected from a list of existing standards in Ontario and prioritized by the local community and experts. The targets below (in red) were selected based on the interest of reducing the number of policies without watering down existing environmental protections.

Why are the High-Performance Development Standards Important?

The HPDS can support sustainability in new development by reducing community greenhouse gas 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% of GHG emissions by 2050 in our regional community. There are two key greenhouse gas (GHGs) 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 greenhouse gas emissions (GHGs) in Waterloo Region, representing 45% of total community emissions (2022). Transportation also accounts for 46% of total community emissions (2022). The HPDS demonstrates a commitment to addressing GHGs in new development to reduce the need for future retrofits.

The HPDS aligns with many existing policies and directions in municipal Official Plans, zoning by-laws, development standards, and urban design guidelines. The HPDS will also include new standards that integrate market, policy, and infrastructure investments that are the pillars for the energy transition. It puts key sustainable and energy related standards in one package that considers energy, land use, and environmental planning for widespread adoption and evolution.

Components

The HPDS is broken down into three categories: Built Environment, Natural Environment, and Energy Efficiency and consists of four to five metrics within each, for a total of 14 metrics. For each metric, targets are categorized between Urban Areas and Rural Settlement Areas; Low-Rise Residential, Mid- to High-Rise Residential, and Industrial, Commercial, and Institutional uses.

Tier 1 targets are listed for all metrics below and will be mandatory (where applicable). Tier 2 targets will continue to be developed upon further consultation and discussions.

Each metric lists its alignment with existing climate and energy plans, applicable development applications (where in the planning process this metric would apply), targets, and required materials/documentation (the deliverables noted are existing documents part of the submission process, unless otherwise noted, and apply to both Urban Areas and Rural Settlement Areas).

For Embodied Carbon, GHG Emissions Reduction, and Airtightness, three paths are noted: performance, prescriptive, and alternative compliance. Prescriptive outlines specific steps to achieve the targets, performance allows for flexibility by providing another avenue to achieve the same target, and alternative compliance outlines options not previously stated in prescriptive or performance.

What's Next?

The following standards are proposed based on initial studies, precedents, surveys, and targeted community and development industry feedback, but additional vetting is required. Starting in January 2025, the targets will be analyzed according concerns such as: the financial impact on homebuyers (if at all), implementation process and training, policy harmonization, reporting requirements, and impact on local utilities. As such, targets are subject to change. Draft 2 of the HPDS will be released in 2025 based on engagement through this discussion draft. No decisions will be made from this discussion draft. The final HPDS will be presented to municipal councils in late 2025 or early 2026 for a decision with an effective date in 2026.

Contents

BUILT ENVIRONMENT	NATURAL ENVIRONMENT	ENERGY EFFICIENCY
Develop safe, inclusive, and accessible spaces that address the inequities that serve as barriers to inclusive communities	Recognize the importance of the natural environment and require mindful consumption and resource use to minimize the contributions to GHG emissions	Require energy efficient and resilient developments and structures
B1. EV Parking and Charging Infrastructure B2. Active Transportation B3. Exterior Lighting B4. Refuge Area B5. Sustainable Roofing	N1. Vegetation and Landscaping N2. Waste N3. Water Efficiency N4. Bird Friendly Design N5. Stormwater	E1. Embodied Carbon E2. GHG Emissions Reduction E3. Airtightness E4. Local Energy Generation

BUILT ENVIRONMENT

Develop safe, inclusive, and accessible spaces that address the inequities that serve as barriers to inclusive communities

B1. EV Parking and Charging Infrastructure

- Anticipate future needs for the community and the necessary infrastructure to support the shift towards electric vehicle adoption and align with the Federal Government's timeline for the 2030 Emissions Reduction Plan
- Reduce greenhouse gas emissions from vehicles including personal vehicles

Alignment with Existing Climate and Energy Plans

- TransformWR: Transformative change – estimated reduction of 464,882 tCO₂e (for the year 2025) through electric vehicles
- Community Energy Investment Strategy: Increase electrification of local transportation (Goal 3)

Applicable Development Applications

- Site Plan

Required Materials/Documentation

- Site Plan

Targets

URBAN AREAS

TIER 1 TARGET

Low-Rise Residential

A minimum of **20%** of total provided parking spaces shall be designed to permit the future installation of electric vehicle supply equipment.

If no parking spaces are provided on site, this target is exempt.

Mid- to High-Rise Residential

A minimum of **20%** of parking spaces shall be designed to permit the future installation of electric vehicle supply equipment.

Industrial, Commercial, and Institutional

A minimum of **17.5%** of total provided parking spaces shall be designed to permit the future installation of electric vehicle supply equipment and **2.5%** be electric vehicle spaces.

TIER 2 TARGET

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

TBD

RURAL SETTLEMENT AREAS

TIER 1 TARGET

Low-Rise Residential

N/A

Mid- to High-Rise Residential

A minimum of **15%** of total provided parking spaces shall be designed to permit the future installation of electric vehicle supply equipment.

Industrial, Commercial, and Institutional

A minimum of **15%** of total provided parking spaces shall be designed to permit the future installation of electric vehicle supply equipment and **2.5%** be electric vehicle spaces.

TIER 2 TARGET

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

TBD

B2. Active Transportation

- Encourage and support sustainable modes of transport and supportive amenities and services across the region to reduce greenhouse gas emissions from personal vehicles

Alignment with Existing Climate and Energy Plans

- TransformWR: Transformative change (reduced travel/active transit) – estimated emission reduction effect of 174,980 882 tCO₂e (for the year 2025)
- Community Energy Investment Strategy: Increase reliance on active transportation and active transportation and transit (Goal 3)

Applicable Development Applications

- Draft Plan of Subdivision
- Site Plan
- Zoning By-law Amendment

Required Materials/Documentation

- Planning Justification Report and/or Transportation Impact Study
- Site Plan or Draft Plan of Subdivision

Targets

URBAN AREAS

TIER 1 TARGET

DRAFT PLAN OF SUBDIVISION

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

Demonstrate on the draft plan of subdivision layout and include rationale within the Planning Justification Report and/or Transportation Impact Study how the development mitigates greenhouse gas emissions from vehicles. The document shall outline:

- Walking, cycling, and rolling routes – with a Walk and Bike Score provided
- Wayfinding and signage to walking, cycling, and rolling routes
- E-scooter, cargo bike, and bike parking integrated into public spaces

SITE PLAN AND ZONING BY-LAW AMENDMENT

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

Demonstrate on the site plan and include rationale within the Planning Justification Report and/or Transportation Impact Study (as required) outlining how the development mitigates greenhouse gas emissions from vehicles. The document shall outline:

- Walking, cycling, and rolling routes – with a Walk and Bike Score provided
- Wayfinding and signage to walking, cycling, and rolling routes
- Other site amenities as applicable (e.g. weather-protected, secure E- scooter, cargo bike, and bike parking):
 - At-grade, accessed via automatic doors
 - Where not at-grade, the ability to access a cargo or move-in elevator shall be required

TIER 2 TARGET

DRAFT PLAN OF SUBDIVISION

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

TBD

SITE PLAN AND ZONING BY-LAW AMENDMENT

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

TBD

RURAL SETTLEMENT AREAS

TIER 1 TARGET

DRAFT PLAN OF SUBDIVISION

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

Demonstrate on the draft plan of subdivision layout and include rationale within the Planning Justification Report and/or Transportation Impact Study how the development mitigates greenhouse gas emissions from vehicles. The document shall outline:

- Walking, cycling, and rolling routes – with a Walk and Bike Score provided
- Wayfinding and signage to walking, cycling, and rolling routes
- E-scooter, cargo bike, and bike parking integrated into public spaces

SITE PLAN AND ZONING BY-LAW AMENDMENT

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

Demonstrate on the site plan and include rationale within the Planning Justification Report and/or Transportation Impact Study (as required) outlining how the development mitigates greenhouse gas emissions from vehicles. The document shall outline:

- Walking, cycling, and rolling routes – with a Walk and Bike Score provided
- Wayfinding and signage to walking, cycling, and rolling routes
- Other site amenities as applicable (e.g. weather-protected, secure E- scooter, cargo bike, and bike parking):
 - At-grade, accessed via automatic doors
 - Where not at-grade, the ability to access a cargo or move-in elevator shall be required

TIER 2 TARGET

DRAFT PLAN OF SUBDIVISION

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

TBD

SITE PLAN AND ZONING BY-LAW AMENDMENT

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

TBD

B3. Exterior Lighting

- Introduce energy efficient lighting to minimize light pollution and unnecessary use during periods of inactivity
- Improve visibility and sense of security for site users

Alignment with Existing Climate and Energy 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

- Draft Plan of Subdivision
- Site Plan

Required Materials/Documentation

- Lighting or Photometric Plan

Targets

URBAN AREAS

TIER 1 TARGET

Low-Rise Residential

All site lighting for low-rise residential developments is required to align with a [Dark Sky](#) compliant standard (e.g. Five Principles for Responsible Outdoor Lighting – DarkSky International Association). Lighting shall be energy efficient, located at a point of entry, have a dimmable function, and daylight sensors.

For subdivisions, refer to the applicable municipal development manual for additional street lighting standards, as applicable.

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

All fixtures must be compliant with DarkSky.

TIER 2 TARGET

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

TBD

RURAL SETTLEMENT AREAS

TIER 1 TARGET

Low-Rise Residential

All site lighting for low-rise residential developments is required to align with a [Dark Sky](#) compliant standard (e.g. Five Principles for Responsible Outdoor Lighting – DarkSky International Association). Lighting shall be energy efficient, located at a point of entry, have a dimmable function, and daylight sensors.

For subdivisions, refer to the applicable municipal development manual for additional street lighting standards, as applicable.

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

All fixtures must be compliant with DarkSky.

TIER 2 TARGET

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

TBD

B4. Refuge Area

- Require preparedness measures for residents by addressing a future with more frequent and intense climate related weather events

Alignment with Existing Climate and Energy 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

- Site Plan
- Zoning By-law Amendment

Required Materials/Documentation

- Site Plan
- Floor Plans
- Planning Justification Report (as required for a complete application)

Targets

URBAN AREAS

TIER 1 TARGET

Low-Rise Residential and Industrial, Commercial, and Institutional

N/A

Mid- to High-Rise Residential

Provide a refuge area with heating, cooling, lighting, potable water, and back-up power available. Back-up power must be available for a minimum of 72 hours.

TIER 2 TARGET

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

TBD

RURAL SETTLEMENT AREAS

TIER 1 TARGET

Low-Rise Residential and Industrial, Commercial, and Institutional

N/A

Mid- to High-Rise Residential

Provide a refuge area with heating, cooling, lighting, potable water, and back-up power available. Back-up power must be available for a minimum of **72** hours.

TIER 2 TARGET

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

TBD

B5. Sustainable Roofing

- Minimize surface runoff and reduce peak energy demands
- Address a future with more frequent and intense climate related weather events

Alignment with Existing Climate and Energy 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

- Site Plan

Required Materials/Documentation

- Site Plan
- Landscape Plan (for green roof)

Targets

URBAN AREAS

TIER 1 TARGET

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

For roofs without solar PV, green roofs will be required and must cover at least **25%** of the total roof surface.

OR

Install cool roofs with a minimum Solar Reflective Index (SRI) of 78 that cover at least **90%** of the total roof surface.

TIER 2 TARGET

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

TBD

RURAL SETTLEMENT AREAS

TIER 1 TARGET

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

For roofs without solar PV, green roofs will be required and must cover at least 25% of the total roof surface.

OR

Install cool roofs with a minimum Solar Reflective Index (SRI) of 78 that cover at least 90% of the total roof surface.

TIER 2 TARGET

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

TBD

NATURAL ENVIRONMENT

Recognize the importance of the natural environment and require mindful consumption and resource use to minimize the contributions to GHG emissions.

N1. Vegetation and Landscaping

- Minimize the urban heat island effect and risk of soil stacking/compaction
- Support ecosystem diversity, improved air quality, reduced erosion, soil stability, and overland flow and flooding concerns
- Design for resilience

Alignment with Existing Climate and Energy 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

- Draft Plan of Subdivision
- Site Plan

Required Materials/Documentation

- Landscape Plan
- Tree Management Plan
- Tree Valuation Chart
- Arborist Report
- Site Plan
- Streetscape Plan

Targets

URBAN AREAS

TIER 1 TARGET

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

Municipalities are evaluating a minimum lot area standard for vegetation. Percentages would be determined based on land use and density, encouraging native and drought-tolerant species where appropriate based on microclimate and other site conditions.

Vegetated buffers adjacent to natural heritage features shall be **100%** native species. Genetic diversity must be introduced and no one genus can represent more than **30%** of the total plantings on a site.

TIER 2 TARGET

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

TBD

RURAL SETTLEMENT AREAS

TIER 1 TARGET

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

Municipalities are evaluating a minimum lot area standard for vegetation. Percentages would be determined based on land use and density, encouraging native and drought-tolerant species where appropriate based on microclimate and other site conditions.

Vegetated buffers adjacent to natural heritage features shall be **100%** native species. Genetic diversity must be introduced and no one genus can represent more than **30%** of the total plantings on a site.

TIER 2 TARGET

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

TBD

N2. Waste

- Minimize construction waste, end-of-life waste, and diversion to landfills

Alignment with Existing Climate and Energy Plans

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

Applicable Development Applications

- Draft Plan of Subdivision
- Site Plan

Required Materials/Documentation

- Construction and Demolition Waste Management Plan

Targets

URBAN AREAS

TIER 1 TARGET

Low-Rise Residential and Mid to High-Rise Residential

Prepare a Construction and Demolition Waste Management Plan to divert a minimum of **50%** of construction and demolition materials.

Industrial, Commercial, and Institutional

Prepare a Construction and Demolition Waste Management Plan to divert a minimum of **50%** of construction and demolition materials. The Construction and Demolition Waste Manage Plan must be compliant with [O. Reg. 103-94](#).

TIER 2 TARGET

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

TBD

RURAL SETTLEMENT AREAS

TIER 1 TARGET

Low-Rise Residential and Mid to High-Rise Residential

Prepare a Construction and Demolition Waste Management Plan to divert a minimum of 50% of construction and demolition materials.

Industrial, Commercial, and Institutional

Prepare a Construction and Demolition Waste Management Plan to divert a minimum of 50% of construction and demolition materials. The Construction and Demolition Waste Management Plan must be compliant with [O. Reg. 103-94](#).

TIER 2 TARGET

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

TBD

N3. Water Efficiency

- Reduce water consumption and support more efficient use
- Prioritize water conservation

Alignment with Existing Climate and Energy 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

- Site Plan
- Zoning By-law Amendment

Required Materials/Documentation

- Landscape Plan

Targets

URBAN AREAS

TIER 1 TARGET

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

Reduce water consumption through either efficiencies with in-building fixtures or reducing the need for municipal water for landscaping (e.g. greywater collection or drought friendly species).

TIER 2 TARGET

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

TBD

RURAL SETTLEMENT AREAS

TIER 1 TARGET

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

Reduce water consumption through either efficiencies with in-building fixtures or reducing the need for municipal water for landscaping (e.g. greywater collection or drought friendly species).

TIER 2 TARGET

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

TBD

N4. Bird Friendly Design

- Prevent collisions of birds through buildings and site design
- Design to accommodate local and other migratory species' needs (seasonality considerations)

Alignment with Existing Climate and Energy 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

- Site Plan
- Zoning By-law Amendment

Required Materials/Documentation

- Elevation Plan
- Landscape Plan

Targets

URBAN AREAS

TIER 1 TARGET

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

Align with Canadian Standards Association A460:19: Bird Friendly Design Standard for glazing, permanent structures, and site design.

TIER 2 TARGET

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

TBD

RURAL SETTLEMENT AREAS

TIER 1 TARGET

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

Align with Canadian Standards Association A460:19: Bird Friendly Design Standard for glazing, permanent structures, and site design.

TIER 2 TARGET

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

TBD

N5. Stormwater

- Support appropriate levels of water retention and drainage
- With warmer, wetter and wilder weather, stormwater management is critical in planning for community resilience

Alignment with Existing Climate and Energy 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

- Draft Plan of Subdivision
- Site Plan

Required Materials/Documentation

- Stormwater Management Plan
- Geotechnical Report

Targets

URBAN AREAS

TIER 1 TARGET

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

Municipalities are exploring opportunities to align stormwater management standards.

TIER 2 TARGET

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

TBD

RURAL SETTLEMENT AREAS

TIER 1 TARGET

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

Municipalities are exploring opportunities to align stormwater management standards.

TIER 2 TARGET

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

TBD

ENERGY EFFICIENCY

Require energy efficient and resilient developments and structures.

E1. Embodied Carbon

- Minimize greenhouse gas emissions from building materials

Alignment with Existing Climate and Energy 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

- Site Plan

Required Materials/Documentation

- Embodied Carbon Assessment

Targets

URBAN AREAS

TIER 1 TARGET

Low-Rise Residential

Performance Path: Conduct a materials assessment on A1-A3 (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). Refer to [Section 3.1](#) of the CAGBC's ZCB guidelines.

Prescriptive Path: N/A

Alternative Compliance Path: N/A

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

Performance Path: Conduct a materials and embodied carbon assessment on A1-A5, B1-B5, and C1-C4 which includes: enclosure and structure, specifically substructure (foundations, subgrade enclosures, slab-on-grades) and shell (superstructure, exterior vertical enclosures, exterior horizontal enclosures). Report on carbon emissions per gross floor area (GFA) to demonstrate emission intensity. Refer to [Section 3.1](#) of the CAGBC's ZCB guidelines.

Prescriptive Path: N/A

Alternative Compliance Path: N/A

TIER 2 TARGET

Low-Rise Residential

Performance Path: Progressively moving toward tiered carbon limits.

Prescriptive Path: Progress towards aligning with peer municipality targets (e.g. concrete) related percent reduction in comparison to global warming potential (GWP) provincial industry average baselines.

Alternative Compliance Path: N/A

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

Performance Path: Progressive tiered carbon limits informed by [CaGBC ZCB](#).

Prescriptive Path: Progress towards aligning with minimum compliance and Innovation and Impact performance threshold targets as outlined in the CaGBC ZCB. Material (e.g. concrete) related percent reduction in comparison to global warming potential (GWP) provincial industry average baselines.

Alternative Compliance Path: N/A

RURAL SETTLEMENT AREAS

TIER 1 TARGET

Low-Rise Residential

Performance Path: Conduct a materials assessment on A1-A3 (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). Refer to [Section 3.1](#) of the CAGBC's ZCB guidelines.

Prescriptive Path: N/A

Alternative Compliance Path: N/A

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

Performance Path: Conduct a materials and embodied carbon assessment on A1-A5, B1-B5, and C1-C4 which includes: enclosure and structure, specifically substructure (foundations, subgrade enclosures, slab-on-grades) and shell (superstructure, exterior vertical enclosures, exterior horizontal enclosures). Report on carbon emissions per gross floor area (GFA) to demonstrate emission intensity. Refer to [Section 3.1](#) of the CAGBC's ZCB guidelines.

Prescriptive Path: N/A

Alternative Compliance Path: N/A

TIER 2 TARGET

Low-Rise Residential

Performance Path: Progressively moving toward tiered carbon limits.

Prescriptive Path: Progress towards aligning with peer municipality targets (e.g. concrete) related percent reduction in comparison to GWP provincial industry average baselines.

Alternative Compliance Path: N/A

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

Performance Path: Progressive tiered carbon limits informed by [CAGBC's ZCB](#) guidelines.

Prescriptive Path: Progress towards aligning with minimum compliance and Innovation and Impact performance threshold targets as outlined in ZCB guidelines. Material (e.g. concrete) related percent reduction in comparison to GWP provincial industry average baselines.

Alternative Compliance Path: N/A

E2. GHG Emissions Reductions

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

Alignment with Existing Climate and Energy Plans

- TransformWR: Align with the region's long-term commitment to reducing local GHG emissions by 80%
- Community Energy Investment Strategy: Promote construction of high performance and energy self-sufficient buildings (Goal 1)

Applicable Development Applications

- Site Plan
- Zoning By-law Amendment

Required Materials/Documentation

- Energy Modelling Report

Targets

URBAN AREAS

TIER 1 TARGET

Low-Rise Residential

Performance Path: Greenhouse Gas Intensity (GHGI) based on energy model in alignment with National Energy Code of Canada for Buildings 2020 (NECB-2020). National Building Code 2020, Section 9.36 Energy Efficiency (NBC 9.36-2020), Tier 3 (relative target).

Prescriptive Path: Prescriptive compliance to the Ontario Building Code (OBC) SB-12 and confirmation of low carbon heating equipment* installed.

Alternative Compliance Path: R-2000 - requirements 1,2,3,4. Energy Star for New Homes v 17.1.

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

Performance Path: Greenhouse Gas Intensity (GHGI) based on energy model in alignment with NECB-2020 Schedule 8 requirements + supplementary guidance to localize the standard, if needed. NECB-2020 Tier 1 (relative target) + GHGI** of 15 kgCO₂e/m²/year.

Prescriptive Path: Prescriptive compliance to the OBC SB-10 and confirmation of low carbon heating equipment* installed. Equivalent to NECB-2020 Tier 1 and low carbon heating equipment for 80% of peak heating and domestic hot water needs*.

Alternative Compliance Path: CaGBC Zero Carbon Building – Design Certification.

TIER 2 TARGET

Low-Rise Residential

Performance and Prescriptive Path: Decrease target for GHG percent reduction following the tiered approach to NBC-9.36.

Alternative Compliance Path: Passive House. Canadian Home Builder's Association (CHBA) Net-Zero / Net-Zero Ready Home.

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

Performance Path: Progressively moving toward higher Tiers of minimum performance along the NECB path. Decrease target for GHGI** to 10, then 5, then 0 on-site emissions, following similar trajectory for other municipalities with tiered requirements.

Prescriptive Path: Progress towards 100% low-carbon heating equipment.

Alternative Compliance Path: Continue to work with the CaGBC to confirm alignment of the ZCB with a "next step".

*The term is borrowed from the Caledon Green Development Standards for consistency and will be further developed.

**GHGI metric is assumed to include emissions from electricity.

RURAL SETTLEMENT AREAS

TIER 1 TARGET

Low-Rise Residential

Performance Path: Greenhouse Gas Intensity (GHGI) based on energy model in alignment with National Energy Code of Canada for Buildings 2020 (NECB-2020). National Building Code 2020, Section 9.36 Energy Efficiency (NBC 9.36-2020), Tier 3 (relative target).

Prescriptive Path: Prescriptive compliance to the OBC SB-12 and confirmation of low carbon heating equipment* installed.

Alternative Compliance Path: R-2000 - requirements 1,2,3,4. Energy Star for New Homes v 17.1.

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

Performance Path: Greenhouse Gas Intensity (GHGI) based on energy model in alignment with NECB-2020 Schedule 8 requirements + supplementary guidance to localize the standard, if needed. NECB-2020 Tier 1 (relative target) + GHGI** of 15 kgCO₂e/m²/year.

Prescriptive Path: Prescriptive compliance to the OBC SB-10 and confirmation of low carbon heating equipment* installed. Equivalent to NECB-2020 Tier 1 and low carbon heating equipment for 80% of peak heating and domestic hot water needs*.

Alternative Compliance Path: CaGBC Zero Carbon Building – Design Certification.

TIER 2 TARGET

Low-Rise Residential

Performance and Prescriptive Path: Decrease target for GHG percent reduction following the tiered approach to NBC-9.36.

Alternative Compliance Path: Passive House. Canadian Home Builder's Association (CHBA) Net-Zero / Net-Zero Ready Home.

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

Performance Path: Progressively moving toward higher Tiers of minimum performance along the NECB path. Decrease target for GHGI** to 10, then 5, then 0 on-site emissions, following similar trajectory for other municipalities with tiered requirements.

Prescriptive Path: Progress towards 100% low-carbon heating equipment.

Alternative Compliance Path: Continue to work with the CaGBC to confirm alignment of the ZCB with a "next step".

*The term is borrowed from the Caledon Green Development Standards for consistency.

**GHGI metric is assumed to include emissions from electricity.

E3. Airtightness

- Reduce air leakage and heat loss through the enclosure of a new building
- Maintain appropriate thermal comfort for building occupants

Alignment with Existing Climate and Energy Plans

- TransformWR: Use less energy and use it more efficiently (Approach 1 to reduce GHGs from energy).
- Community Energy Investment Strategy: Promote construction of high performance and energy self-sufficient buildings (Goal 1)

Applicable Development Applications

- Site Plan

Required Materials/Documentation

- TBD

Targets

URBAN AREAS

TIER 1 TARGET

Mid- to High-Rise Residential

Performance Path: Airtightness testing must be completed. The test must demonstrate a target rate of 2.0 air changes per hour (ACH) at 50 pa pressure. It is recommended that, after the NBC/NECB-2025 is released, targets may be adjusted to match that standard.

Prescriptive Path: N/A

Alternative Compliance Path: N/A

TIER 2 TARGET

Mid- to High-Rise Residential

TBD

RURAL SETTLEMENT AREAS

TIER 1 TARGET

Mid- to High-Rise Residential

Performance Path: Airtightness testing must be completed. The test must demonstrate a target rate of 2.0 air changes per hour (ACH) at 50 pa pressure. It is recommended that, after the NBC/NECB-2025 is released, targets may be adjusted to match that standard.

Prescriptive Path: N/A

Alternative Compliance Path: N/A

TIER 2 TARGET

Mid- to High-Rise Residential

TBD

E4. Local Energy Generation

- Reduce grid emissions through on-site action by building owners

Alignment with Existing Climate and Energy Plans

- TransformWR: Position Waterloo Region as a clean tech, sustainability, renewable energy, and retrofits hub (Strategy 6.2)
 - Produce 38% of electricity locally by 2050 (Strategy 6.3)
 - Change initiative (fuel switching) – estimated emission reduction effect of 361,446 tCO₂e (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)
 - Increase reliance on active transportation and transit; and increase electrification of local transportation (Goal 3)

Applicable Development Applications

- Draft Plan of Subdivision
- Site Plan
- Zoning By-law Amendment

Required Materials/Documentation

- Analysis report with additional modelling, and costing and design work

Targets

URBAN AREAS

TIER 1 TARGET

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

Explore local electricity generation, ground-source heat pumps, district energy, and other solutions that consider electrical load reduction, on-site peak electrical load reduction, peak reduction sharing programs, renewable generation, or smart EV charging.

TIER 2 TARGET

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

TBD

RURAL SETTLEMENT AREAS

TIER 1 TARGET

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

Explore local electricity generation, ground-source heat pumps, district energy, and other solutions that consider electrical load reduction, on-site peak electrical load reduction, peak reduction sharing programs, renewable generation, or smart EV charging.

TIER 2 TARGET

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

TBD