

Community Energy Plan Draft Terms of Reference

IN SUPPORT OF SECONDARY PLANS IN THE PROMENADE MALL
REDEVELOPMENT

CLIENT: City of Vaughan

Date

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1.0 Introduction

buildABILITY Corporation has been retained by the City of Vaughan to complete a Community Energy Plan (the Plan) for the Promenade Mall Secondary Plan Area in the City of Vaughan, herein referred to as the 'study area'.

The Secondary Plan Area occupies a strategic position in the City of Vaughan Urban Structure as one of the City's intensification areas. The Secondary Plan Area is identified as a "Primary Centre" in Vaughan Official Plan (VOP) 2010. This section will include the introductory topics and content to necessary to understand the background, physical context of the study area, and the purpose of a Sustainability Plan for the Area.

The Community Energy Plan (CEP) is organized into six parts. The first part introduces the Secondary Plan area and its surrounding context. The second part outlines the background and policy context that influence this CEP. The third part describes the vision and guiding principles. The fourth part of this report will describe the energy demand profile for the City of Vaughan and the Secondary Plan Area. The fifth part of this Plan will describe the energy use scenarios of the Secondary Plan Area, in accordance to three targets: OBC compliance, 15% better model, and 50% better model.

1.1 The Purpose

The purpose of this Plan is to help the City of Vaughan to develop qualitative, targeted strategies to reduce energy consumption and carbon emissions for the Promenade Mall lands, in support of a transition to a low carbon future. A CEP is intended to plan for the energy needs of a development site, and accounts for the expected energy use of all proposed buildings within the development site. A CEP is an opportunity to consider energy efficient, resilient, and low carbon strategies. For a transition into a low carbon future, net zero energy should not be the policy target. Net zero emissions is ultimate objective. Energy reduction as part of a zero emissions strategy to enhance affordability should be reflected in municipal policy.

This CEP will attempt to develop a quantitative understanding of the community's energy use and carbon emissions (the inventory) and systematically identify ways (using target thresholds and scenarios) to reduce emissions. This report will also describe planned implementation and monitoring.

1.2 Location & Description of Promenade Mall Secondary Plan Area

This section will describe the physical location of the Promenade Mall Secondary Plan Area. The applicable lands are located under the jurisdictions of York Region, and the City of Vaughan. The site is approximately 95 acres in size.¹ The Promenade Mall Secondary Plan Study Area ("Secondary Plan Area") is generally located in Part of Lots 4 and 5, Concession 2 in the City of Vaughan, and within the established community of Thornhill. The Secondary Plan Area is bounded by Centre Street to the north, Bathurst Street to the east, Clark Avenue West to the south and New Westminster Drive on the west. Figure 1 below depicts the study area as it stands in 2019.

Figure 1: Secondary Plan study area is shown below²



1.2.1 Existing Land Use

The built form of the Secondary Plan Area is primarily mid-rise mixed use, high and mid-rise residential in the form of condominiums and townhouses, and institutional in the form of a library and secondary school. Directly north of the study area, there are The Area can be described as having a central area surrounded by a private ring road, Promenade Circle. The parcels of land between the outer limit of Promenade Circle and the boundary of the Secondary Plan Area are divided into four quadrants by private roads. These private roads provide access to Promenade Circle (the ring road) from Centre Street to the north, New Westminster Drive to the west, Bathurst Street to the east, and Clark Avenue West to the south.

The plan area includes the Promenade Mall, a regional shopping scale shopping centre, additional commercial uses to the northeast and east of the mall, and the associated at-grade parking.³ Further uses within the study area include high-rise residential at the northwest and southeast corners of the site, community facilities including Bathurst Clark Resource Library, a woodlot, Pierre Elliott Trudeau Park, and the YRT bus terminal.⁴ Directly adjacent to Pierre Elliott Trudeau Park and the existing woodlot is St. Elizabeth Catholic High School.

1.2.2 Existing Transportation context

A key concern for the redevelopment of the Secondary Plan Area is how to become less auto-centric and more transit and pedestrian oriented, in accordance with provincial, regional, and local policy directions. Transportation is a key component of any Sustainability Plan, as it contributes to greenhouse gas emissions. For a detailed analysis of the background and existing transportation context, please refer to the 'Background Transportation Discussion Paper' by HDR Inc.

Road and Street Network

Bathurst Street is a north-south Regional road, classified as a major arterial with right-of-way width of up to 45 metres.⁵ Bathurst Street provides access to Highway 407 and 7, approximately 2 kilometres north of the Study Area. Pedestrian sidewalks and transit stops are provided on both sides of the street.

Centre Street is an east-west Regional Road classified as a major arterial, with right-of-way width of up to 45 metres.⁶ Centre Street provides access to Highway 7 to the west, and Yonge

Street to the east. New Westminster Drive and Clark Avenue West are Major Collector roads with planned right-of-way widths of 26 metres.⁷

Promenade Circle is a four-lane private road which provides access to the Promenade Mall. It has multiple egress points to the mall's surface parking areas. There are marked crosswalks providing pedestrian access to the nearby residential buildings on the outside of Promenade Circle, and four controlled intersections at the north, east, south and west.

A well-connected network provides more access to all modes of travel, is more pedestrian friendly, and supports transit-oriented development.⁸ The transportation background study conducted by HDR Inc. indicates that the existing intersection density and link-node ratio for active transportation in the Secondary Plan area scores low when compared to other urban centres scores.⁹ Improving connectivity in the core of the site, especially for active modes of transportation, will be an important focus of the future planning framework for the study.

Existing Transit network

The area is generally well served by transit. The Promenade Terminal is located at the northern end of the subject site and services several transit systems: VIVA, York Region Transit (YRT), and Toronto Transit Commission (TTC). Routes include:

- YRT
 - 77 Highway 7 bus
 - 88 Bathurst bus
 - 23 Thornhill Woods bus
 - 3 Thornhill bus
- TTC – 160 Bathurst bus
- Viva
 - VIVA Orange bus
 - VIVA Purple bus

According to the Transportation background study by HDR Inc., peak period frequencies for all routes range between every 15 and 35 minutes, with most routes operating with headways greater than 20 minutes during off-peak hours.¹⁰

There are dedicated bus rapidways are currently used by Viva services on most of Highway 7 and will soon be operational on Bathurst Street and Centre Street within the study area, with stations at Taiga, Disera-Promenade, and Atkinson.

Bicycle and Pedestrian network

There are no dedicated cycling facilities within the study area. Streets that are designated as shared roadways have no pavement markings or physical barriers for cyclists. There are also a number of pathways throughout the study area that could be used by cyclists, but do not have adequate signage, wayfinding, or connectivity to the Secondary Plan area.¹¹ The Bathurst Street and Centre Street vivaNext project will introduce raised bike lanes on Bathurst Street north of Centre Street and on Centre Street West of Bathurst Street.¹²

The objectives, policies and recommended actions in this plan will address improvements to the pedestrian and cycling experience in the Secondary Plan area.

1.2.3 Current Development Applications

There are currently two active development applications within the Secondary Plan Area.

The first development application is located on the Promenade Mall lands. The Owner of the lands has submitted Official Plan and Zoning By-law Amendments applications (files OP.18.013 and Z.18.020 respectively).

The second development application has been filed within the northeast quadrant of the Secondary Plan Area. The subject lands with respect to file OP.16.006 extend from North Promenade and Promenade Circle to the west to the private driveway which separates the existing multi-unit retail commercial development from the existing LCBO site to the south within the Secondary Plan Area. The applicant has filed an appeal to the LPAT of their site-specific Official Plan Amendment application (case # PL111184).

1.2.4 Current Development Applications Surrounding the Secondary Plan Area

There are several development applications currently active in the surrounding area of the Secondary Plan Area. The applications include:

- 7890 Bathurst Street: OPA, ZBA, Site Development and Condominium Applications for 2 residential apartment towers (12 and 25 storeys) linked by a 6-storey podium with ground floor retail

- 784 Centre Street: ZBA and Site Development Application for 2 apartment buildings (19 and 22 storeys, 468 units)
- Northwest corner of Bathurst Street and Beverly Glen Boulevard: OPA and ZBA to permit 4 residential apartment buildings (6, 12, 15 and 25 storeys, 797 units) with ground floor commercial
- Clark Avenue south of the site: ZBA, Site Development and Condominium Applications for 84 townhouse units

2.0 Planning Policy context

Part 2.0 in the CEP will describe the policy context that informs the content of the Plan. This Part will include descriptions on applicable sustainability goals, policies and targets in Provincial, Regional and Municipal policy documents.

2.1 Provincial Policies

This section will describe the applicable Provincial policies that affect development in the Study area.

2.1.1 The Planning Act and Provincial Policy Statement

The most direct control by the Province with regards to land use planning and policy is through the Planning Act, which defines municipal authority in land use planning matters. The Provincial Policy Statement (PPS) 2005, issued under the Planning Act, requires the development of efficient and cost-effective developments and land use patterns in support of public transit as well as the protection of natural heritage features and areas.¹³ The Planning Act requires that any decisions relating to planning matters to be consistent with policy statements issued under the Act. Specific policies under the PPS, mainly in section 1.8 that address energy conservation, air quality and climate change will be described.

2.1.2 Growth Plan for the Greater Golden Horseshoe

The Growth Plan for the Greater Golden Horseshoe (Growth Plan) is a provincial plan that provides a framework for implementing the Province's vision for building strong, prosperous communities within the Greater Golden Horseshoe.¹⁴ Section 1.2.1 of the Growth Plan includes guiding principles that address climate change and incorporating approaches to reduce greenhouse gas emissions.

The Province of Ontario released an update to the Growth Plan as part of a broader Provincial Coordinated Review for the Greater Golden Horseshoe which came into effect on July 1, 2017. The new Growth Plan updates the previous Growth Plan (2006) with policies to plan for and direct long-term growth and development up to 2041 in the Greater Golden Horseshoe (GGH).

Specific policies that address aspects of sustainability, such as active transportation, water management and the built environment will be described in this section.

The Growth Plan places a long-term emphasis on intensification and redevelopment of existing urban areas to increase compact urban form and slow urban expansion, particularly in proximity to transit.¹⁵ The Growth Plan is premised on the principles of building compact, vibrant and complete communities, developing a strong and competitive economy, protection and wise use of natural resources, and optimizing use of existing and new infrastructure to support growth in a compact, efficient form. Municipal official plans within the Greater Golden Horseshoe must conform with the Growth Plan.

York Region and the City of Vaughan will be required to develop a strategy to achieve the minimum intensification target of 60% of all residential development annually within the 'built boundary'. Particularly, Schedule 5 of the Growth Plan (2017) identifies Centre Street and Bathurst Street as Priority Transit Corridors. The Major Transit Stations Area (MTSA) policies are applicable as York Region in consultation with City of Vaughan has identified three potential stations, with two situated along Centre Street and one along Bathurst Street within close proximity of the Secondary Plan Area. The delineated limits of the MTSA are currently being determined by York Region.

MTSAs along priority transit corridors (Light Rail or bus rapid transit) will now be required to be planned for a minimum density of 160 residents and jobs combined per hectare. The Promenade Mall Secondary Plan area will be transit supportive, while also supporting active transportation such as walking and cycling with planned infrastructure to support the policies of the Growth Plan, 2017.

2.1.3 Made-in-Ontario Environment Plan

In November 2018, the Province of Ontario released the new 'Made-in-Ontario Environment Plan,' (Environmental Plan) which replaced the previous 'Climate Change Action Plan.' The Environment Plan emphasizes the importance of building climate change resilience in local communities, businesses, Indigenous communities, and the public.

2.2 Regional Policies

This section will describe the applicable Regional policies that affect development in the Secondary Plan area.

2.2.1 York Region Official Plan

The York Region Official Plan (ROP) sets a new standard for the development of York Region's communities, and presents a co-ordinated and integrated approach to growth management and infrastructure delivery.¹⁶ As the upper tier planning document, the City of Vaughan's planning documents must conform to the goals, objectives and policies of the ROP.¹⁷ The ROP provides the framework for the overall planning structure for the Region, including specific guidance and policies for the urban structure and regionally significant areas. Section 1.2 of the ROP states that, "Sustainability is the lens through which York Region formulates, enhances and implements policy."¹⁸

Key elements of the ROP includes city building focused on green building, community design that includes sustainable buildings and water and energy management, and zero carbon and waste production.¹⁹

Section 3.2 of the ROP includes policies that address reducing vehicle emissions, and greenhouse gas emission targets. The ROP requires local municipalities to develop community energy plans for new communities. Section 5 of the ROP includes targets for new buildings with regard to energy efficiency and conservation.

2.2.4 York Region Transportation Master Plan (TMP)

The York Region Transportation Master Plan (YRTMP) July 2016 sets out the infrastructure and policy requirements to enable the Region to build and maintain additional transit infrastructure, roads infrastructure and a system of sidewalks and trains to further enable active transportation. The YRTMP provides a 25-year outlook support growth and address York Region's Mobility Needs to 2041 and Beyond. Specific policies within the TMP, as they relate to mobility networks, active transportation, energy use, and carbon emissions will be described in this section.

2.3 Municipal Policies

This section will describe the applicable municipal policies that affect development in the Secondary Plan area.

2.3.1 Vaughan Official Plan (2010)

The Vaughan Official Plan (VOP) addresses all elements of effective, sustainable, and successful city-building, while managing projected growth to 2031.²⁰ The VOP provides guidance for the physical development of the municipality while taking into consideration important social, economic and environmental issues and objectives.²¹ Goal 7 in the VOP states that the City of Vaughan established the concept of sustainability as a key city-wide objective, which is embedded in all aspects of the VOP.²²

Policy 8.1.1.1 addresses resource and energy conservation, requiring the maximization of efficiency and minimization of resource and energy consumption. Specific policies are included in the VOP (section 9) that emphasize the importance of sustainable energy and resource use.

Other policies that address aspects of energy efficiency and carbon emissions will be described in this section.

2.3.2 Official Plan Amendment 210 (OPA 210) The Thornhill Town Centre Plan

Official Plan Amendment 210 (OPA 210) identified the Thornhill Town Centre and provides for the development of Thornhill, based on twelve residential neighbourhoods and a Town Centre. OPA 210 continues to be the policy framework guiding development in Thornhill. The policies in OPA 210, is amended by OPA 671, which designates the Promenade Mall Secondary Plan area as "Town Centre Commercial/Retail Core" with a "Special Policy Area" overlay. This designation permits the existing commercial uses to continue and also permits "new development". New development shall occur in a manner which is consistent with the "mixed-use" and "urban design" principles of OPA 671.

OPA 671 has several principles and objectives that pertain to energy consumption, located in section 2.4, 2.6, 2.7, and 2.9.

2.3.3 Community Sustainability Plan (Green Directions Vaughan)

Green Directions Vaughan, approved in 2009 by Vaughan Council, is Vaughan's Community Sustainability and Environmental Master Plan. The Plan is currently undergoing an update, pending approval in December 2019. This Sustainability Plan will reference the 2019 Draft version.

The Plan is meant to guide and measure sustainability in Vaughan through a series of action plans, addressing environmental, cultural, social, and economic values.

The Plan is divided into goals, objectives, and actions. Objectives and actions which have a direct impact on the Promenade Mall area are listed below:

- Objective 1.2: To promote the reduction of community greenhouse gas emissions in the City of Vaughan.
 - Action 1.2.1.
- Objective 1.3: To support enhanced standards of stormwater management and water conservation at City facilities, and work with others to care for Vaughan’s watersheds.
 - Action 1.3.3
 - Action 1.3.4
 - Action 1.3.5
 - Action 1.3.6
- Objective 1.4: To reduce the amount of waste generated in City owned facilities and by Vaughan citizens, business and institutions, and procure sustainable products for the City’s use.
 - Action 1.4.5
- Objective 2.1: To ensure a climate resilient City and build capacity for local action on climate change.
 - Action 2.1.2
- Objective 2.2: To develop Vaughan as a complete community with maximum greenspace and urban form that supports our expected population growth.
 - Action 2.2.1
 - Action 2.2.3
- Objective 2.3: To create a city with sustainable built form that is compact, resilient and designed to promote citizen health.
 - Action 2.3.2
 - Action 2.3.3
 - Action 2.3.5
- Objective 3.1: To develop and sustain a network of sidewalks, paths and trails that supports all modes of non-vehicular transportation.
- Objective 3.2: To develop and sustain a network of roads that supports efficient and accessible public and private transit.
- Objective 3.3: Reduce single occupant vehicle (SOV) trips by supporting active transportation, car pooling and public transit.
 - Action 3.3.2
- Objective 4.1: To foster a city with strong social cohesion, an engaging arts scene, and a clear sense of its culture and heritage.

- Action 4.1.4
- Objective 4.2: Ensure that the City attracts businesses and investment that will result in well-paying jobs for citizens, and contributes to a green, low carbon economy for ongoing economic growth.
- Objective 4.3: Improve community well-being through support of local food, the Agricultural System and the Agri-Food Network.
 - Action 4.3.3
- Objective 5.1: To share sustainable best practices and strengthen community engagement.

2.3.4 Vaughan Municipal Energy Plan (2016)

In early 2014, the City of Vaughan approved its first Community Climate Action Plan (CCAP) focused on the reduction of community greenhouse gas (GHG) emissions. The Municipal Energy Plan 2016 (MEP) builds on and replaces the CCAP, and supports the implementation of Green Directions Vaughan.²³ The MEP is a comprehensive long-term plan designed to improve energy efficiency, reduce energy use and mitigate climate-changing greenhouse gas emissions.²⁴

The MEP takes a holistic approach to energy planning at the community level, taking into account energy generation and transmission infrastructure, land use planning, economic development and overall education on energy issues by the community at large.²⁵ The MEP establishes GHG emissions reductions, and outlines actions that could help achieve them. The GHG targets set by the MEP is 22% per capita reduction from the 2013 business-as-usual projection to 2031.²⁶

City of Vaughan Climate Emergency Declaration

On June 4th, 2019, the Mayor and Members of Council unanimously pass a Members' Resolution to declare a climate emergency in the City of Vaughan.²⁷ The Declaration includes a new target for GHG emissions reductions: to reduce per capita GHG emissions from the 2013 level of 5 tCO₂e per person to between 2 to 3 tonnes tCO₂e per person by 2030.²⁸ This reflects a percentage reduction of 58%.

2.3.5 City-wide Urban Design Guidelines

The City of Vaughan's City-wide Urban Design Guidelines approved by Vaughan Council in 2018 "provide performance-based direction for building and site design." The guidelines apply performance standards for site design, landscape, and all buildings types, except single detached, semi-detached, duplex and triplex housing.

2.3.6 Transportation Master Plan 2013 and Update

The City of Vaughan Transportation Master Plan (“A New Path”- 2012) sets out the transportation vision for A New Path and principles themed around sustainability for transforming transportation.

2.4 Other Reference Documents to consider

In addition to the policy documents described above, several other documents will be referenced that affect this Community Energy Plan.

2.4.1 Vaughan Vision 2020

The City of Vaughan’s strategic plan, Vaughan Vision 2020, will be referenced. In particular, the strategic goals that relate to transportation and mobility, city building, and environmental stewardship:

- Service levels consistent with citizen needs
 - Lead and promote environmental sustainability

2.4.2 The Planning and Design Rationale Volumes 1 and 2, and Comprehensive Development Plan

The Planning and Design Rationale (Volumes 1 and 2), was prepared by Bousfields Inc., in support of a development application by the Promenade Limited Partnership (PLP). This application is to amend the VOP and zoning by-law 1-88 to permit PLP to proceed with Phase 1 redevelopment of the Mall, in advance of a Secondary Plan. Policy 10.1.1.13 in the VOP permits staff to process development applications prior to the approval of a Secondary Plan, subject to Council direction and identification of necessary supporting studies by staff. A requirement for the Area is the development of a Comprehensive Development Plan (CDP). The Planning and Design Rationale establishes the basis and policy context for, and includes, the development of the Comprehensive Development Plan (CDP).

Phase 1 of the redevelopment is expected to transform a portion of the CDP area into a complete, mixed-use neighbourhood. Phase 1 creates:

- Increased interconnectivity through the introduction of a new fine-grain High Street;
- New and extended indoor/outdoor pedestrian spaces that will help to define future development blocks and improve transit, cycling, pedestrian and vehicular circulation and connectivity through the Site;

- Improved linkages to surrounding neighbourhoods;
- Walkable development blocks with active street frontages; and
- Open green space which contributes to a more attractive public realm.

Several transportation demand management measures will also be integrated into Phase 1, including:

- Pedestrian sidewalks along the new High Street;
- Streeting widening along Promenade Circle to allow for on-street cycling infrastructure;
- Paid non-residential parking;
- A transit information centre;
- Transit shelters;
- Car-share parking;
- Bike-share;
- Bicycle repair stations; and
- Electrical vehicle charging stations.

2.4.3 Promenade Mall Secondary Plan background studies

The background studies which accompany the Promenade Mall Secondary Plan will also be referenced. These include:

- Scoped community facilities study
- Case studies and best practices
- Commercial use assessment
- Population and employment estimates

Background Transportation discussion paper

3.0 The Vision

This part of the CEP will describe the vision for Promenade Mall Secondary Plan Area. The vision is informed by the input from a variety of stakeholders through a public consultation process. This vision is accompanied by several background studies and assessments, and is the basis for the set of development principles and objectives described in the latter part of this section.

4.0 Energy Use and Carbon Emissions Inventory

This section will establish the energy use profile for the City of Vaughan, as described in the Municipal Energy Plan. Subsequently, the energy use profile of the Secondary Plan Area will be established. Establishing the energy use profiles is an important step before any estimations or assumptions about the energy use can be made for proposed developments.

Energy use is affected by a number of factors such as a building's occupancy, how a building is constructed, and the type of activities that take place within a building.

4.1 City of Vaughan Community Profile

The section is reserved for a description of the City of Vaughan's demographics, as it relates to and affects energy use and carbon emissions. Vaughan's Municipal Energy Plan establishes the City of Vaughan's community profile, using 2013 as the baseline year. This CEP will follow the baseline established by the MEP.

4.1.1. City of Vaughan Energy Use and Greenhouse Gas Emissions

This section will present the City of Vaughan's current energy use the associated greenhouse gas emissions. The total energy use by the City of Vaughan in 2013 amounted to 36 million GJ, or 115 GJ on a per-capita basis.²⁹

At 152 GJ per household, Vaughan energy use per home is higher than both the Canadian (105 GJ/household) and Ontario (107 GJ/household) energy consumption.³⁰ Energy use by sector indicates that the residential (37%) and commercial (29%) sectors are together responsible for around 67% of the energy use in Vaughan.³¹

4.2 Secondary Plan Area Profile

This section will contain information that describes the demographic breakdown, land use, building types, and building uses within the Secondary Plan Area. Subsequently, the current

energy use and demand for the Secondary Plan Area will be established. This part of the CEP process is called establishing the baseline model. Energy consumption data from the City of Vaughan and utility providers will be used.

4.2.1. Building Inventory

This section will contain a detailed inventory list of the buildings located in the Secondary Plan Area. A sample table is provided below.

| Address | Type | Year Built | GFA (Sq. Meter) | # Res Units |
|----------------------------------|-------------------------------|-------------------|------------------------|--------------------|
| 60 Promenade Cir | Library/literary institutions | 1994 | 3,092 | |
| 88 Promenade Cir | Residential condo unit | 2009 | 20,714 | 203 |
| 7420 Bathurst St | Residential condo unit | 1986 | 21,794 | 199 |
| 7440 Bathurst St | Residential condo unit | 1987 | 23,273 | 200 |
| 7460 Bathurst St | Residential condo unit | 1987 | 22,324 | 198 |
| 745 New Westminister Dr | Residential condo unit | 2001 | 9,979 | 121 |
| 735 New Westminister Dr | Residential condo unit | 1995 | 12,483 | 98 |
| 120 Promenade Circle | Residential condo unit | 1989 | 24,131 | 201 |
| 110 Promenade Circle | Residential condo unit | 1993 | 24,086 | 201 |
| 100 Promenade Circle | Residential condo unit | 2006 | 16,188 | 168 |
| 525 New Westminister Road | School | 1989 | 22,037 | |
| 7700 Bathurst St | Neighbourhood Shopping | 1989 | 7,396 | |
| 1 Promenade Circle | Regional Shopping | 1986 | 65,430 | |

4.2.2. Establishing energy demands

The baseline scenario, for this CEP, is the current energy consumption of the Secondary Plan Area. The majority of the Secondary Plan Area is occupied by existing buildings, and therefore have corresponding consumption numbers that will be used for this. The proposed developments for Secondary Plan Area will not be included in establishing the baseline scenario.

This section will contain information on the overall energy use intensity, gas use, electricity use, and total greenhouse gas emissions.

4.2.2.1. Assumptions

This sub-section will list all assumptions used to determine the energy consumption numbers in the subsequent sections.

4.2.3. Building Energy Use

The energy use of buildings in the Secondary Plan Area will be presented in this section of the CEP. Energy use of buildings will be separated by sector (residential, institutional, commercial, industrial etc.), and building type (low, mid, and high rise residential, mixed-use etc.).

4.2.4. Greenhouse Gas emissions

This section will contain information on the greenhouse gas emissions associated with energy use in the Secondary Plan Area.

5.0 Targets and Scenarios

Energy use and emissions scenarios must be explored in order to facilitate effective and viable targets for future reductions in energy use and greenhouse gas (GHG) emissions. Each scenario will be accompanied by recommendations and strategies that could help to achieve the building energy use and GHG emissions of the scenario. This section of the report will be dedicated to the proposed energy use scenarios of the Secondary Plan Area. The proposed profiles are as follows:

- 1. Compliance with Ontario Building Code (OBC):** This scenario represents the Secondary Plan Area, if the proposed development applications described in Section 1.2.2. are built to the current (2012) version of the OBC. The energy consumption and GHG emission rates of existing buildings in the Area will not be adjusted.
- 2. Improvement over OBC by 15%:** This scenario represents the Secondary Plan Area, if the proposed development applications are built to an incremental improvement of 15%, compared to the current OBC requirements for energy efficiency. A 15% improvement in energy efficiency compared to the OBC is the equivalent of the Energy Star for New Homes Standard, and Tier 1 of the Toronto Green Standard. The energy consumption and GHG emission rates of existing buildings in the Area will not be adjusted.
- 3. Net Zero Ready (Improvement over OBC by 50% or 2050 Goal):** This scenario represents the Secondary Plan Area, if the proposed development applications (as described in Section 1.2.2) are built to an aspirational goal of 50% energy use improvement over the current OBC requirements for energy efficiency. This scenario represents the aspirational goal of reaching near net zero carbon.

5.1 Building archetypes

The implications of the proposed scenarios to building designs and specifications will be presented in this Section of the CEP. Building archetypes are intended to represent one (of many) design specifications that could be used to achieve the scenario. This CEP will establish building archetypes for each proposed building type in the Secondary Plan Area. Building archetypes will be developed for the following uses:

- High rise residential
- Hotel
- Office

- Retail

5.2 Building Energy Use and GHG emissions projections – Scenario 1 OBC 2019

This Section will contain tables which presents the overall energy intensity, gas use, electricity use and total GHG emissions for Scenario 1.

5.3 Building Energy Use and GHG emissions projections – Scenario 2 Improvement over OBC by 15%

This Section will contain tables which presents the overall energy intensity, gas use, electricity use and total GHG emissions for Scenario 2.

5.4 Building Energy Use and GHG emissions projections – Scenario 3 Net Zero Ready

This Section will contain tables which presents the overall energy intensity, gas use, electricity use and total GHG emissions for Scenario 3.

6.0 Plan Implementation and Monitoring

This section will contain suggested recommendations and strategies that could be considered in future policy documents, to achieve the desired energy use scenario. The plan may include may including options may include options for community energy technologies, and community energy systems, in addition to retrofit strategies for existing buildings

Plan implementation will be monitored through draft plan approvals and building permit approvals. Ongoing monitoring would happen at various stages. At draft plan, carbon emissions and energy consumption will be further estimated with enhanced precision. Detailed energy and emissions modelling would be part of the building permitting process. Final monitoring of building performance is achieved through utility bills.

Community energy technologies, and community energy systems, in addition to retrofit strategies for existing buildings that have been adopted will all be identified as part of plan implementation and monitoring.

7.0 Conclusions and Summary

This section will provide a summary of the targets and scenarios in Section 5, and the recommended strategies that could help to reach each scenario.

Appendices

Appendix A

Appendix A – TBD

Appendix B – TBD

Appendix B

Appendix C – TBD

Appendix C

Appendix D – TBD

Appendix D

Endnotes:

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- ¹ City of Vaughan, "Promenade Mall Secondary Plan," accessed July 2019, https://www.vaughan.ca/projects/policy_planning_projects/Pages/Promenade-Mall-Secondary-Plan.aspx
- ² City of Vaughan, "Promenade Mall Secondary Plan,"
- ³ City of Vaughan, "Promenade Mall Secondary Plan,"
- ⁴ City of Vaughan, "Promenade Mall Secondary Plan,"
- ⁵ Bousfields Inc., *Planning and Urban Design Rationale Volume 1 – Urban Design Brief, 1 Promenade Circle and 180 Promenade Circle*, (June 2018), s 2.5 p 15
- ⁶ Bousfields Inc., *Planning and Urban Design Rationale Volume 1 – Urban Design Brief, 1 Promenade Circle and 180 Promenade Circle*, (June 2018), s 2.5 p 15
- ⁷ Bousfields Inc., *Planning and Urban Design Rationale Volume 1 – Urban Design Brief, 1 Promenade Circle and 180 Promenade Circle*, (June 2018), s 2.5 p 15
- ⁸ HDR Inc, *Background Transportation Discussion Paper (Work in Progress Draft)*, (September 2019) v 0
- ⁹ HDR Inc, *Background Transportation Discussion Paper (Work in Progress Draft)*, (September 2019) v 0
- ¹⁰ HDR Inc, *Background Transportation Discussion Paper (Work in Progress Draft)*, (September 2019) v 0
- ¹¹ *ibid*
- ¹² *ibid*
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