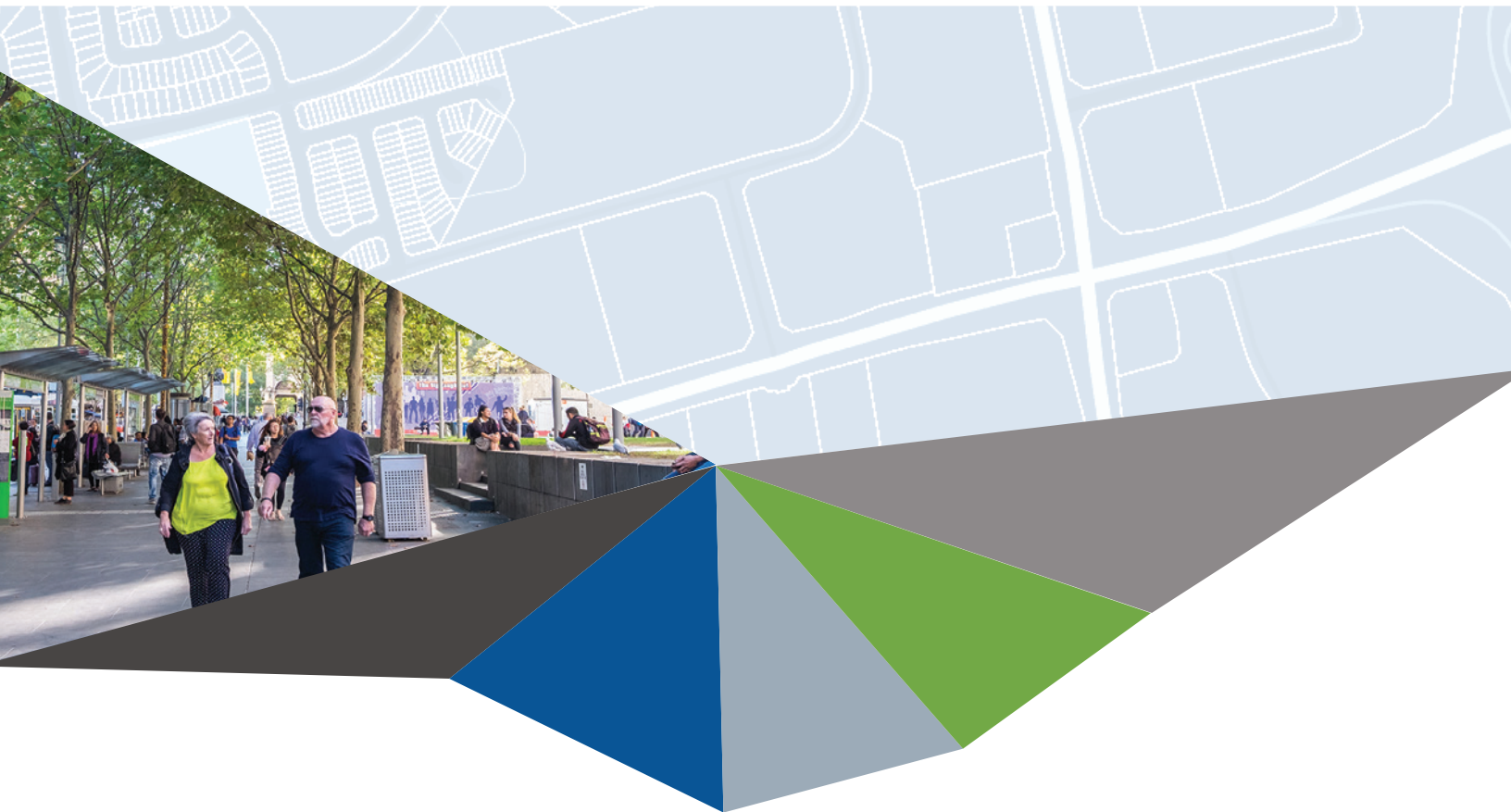


SUSTAINABILITY ANALYSIS

APPENDIX 3

October 29, 2018





**WESTON ROAD AND HIGHWAY 7
SUSTAINABILITY ANALYSIS**

Prepared in support of the Weston
Road and Highway 7 Secondary
Plan - Phase 1

October 12, 2018

**URBAN
EQUATION**



NORTHVIEW BLVD.

CON 5
LOT 6

HWY. 7

WESTON RD.

LOT 5

Image of the Weston Road and Highway 7 Secondary Plan Area in 1990 (Source: The King's Highway)

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1.0 DEFINING SUSTAINABILITY

The City of Vaughan has committed to pursuing a sustainable future for the municipality, as outlined in the Vaughan Official Plan, Municipal Energy Plan, and Green Directions Vaughan (GDV). This Sustainability Analysis is informed by these documents, which together establish the principles of sustainability that are used in the development of other plans and master plans to achieve a healthy natural environment, vibrant communities and a strong economy.

1.1 Why Plan for Sustainability in the Weston Road and Highway 7 Secondary Plan Area?

There is mounting research which suggests that Canadian lifestyles require four planet's worth of resources. Our patterns of behaviour are unsustainable, particularly in the context of a changing climate. In order to reverse course, cities are increasingly relied on to develop and implement sustainability strategies that consider its streets, buildings, open spaces, and people. When all elements of a community are designed sustainably, the gains become exponential, outweighing the sum of its parts.

The City has a desire to ensure that the Secondary Plan area evolves and develops into a model for sustainable development, beginning with Phase 1 of the project. Accordingly, incorporating sustainability policies, principles, goals, strategies, and tools into Phase 1 of Weston 7 Secondary Plan is paramount to the development of the Secondary Plan.

1.2 What is Sustainable Development?

Sustainable development incorporates decision-making and action that ensures a healthy environment, vibrant communities and economic vitality for current and future generations. Sustainable development ensures that a community's current resource needs are satisfied without impacting the availability of resources for future generations. As per the Vaughan Official Plan, this translates into minimizing the use of energy and resources at both the community and building scale by focusing on resource efficiency targets.

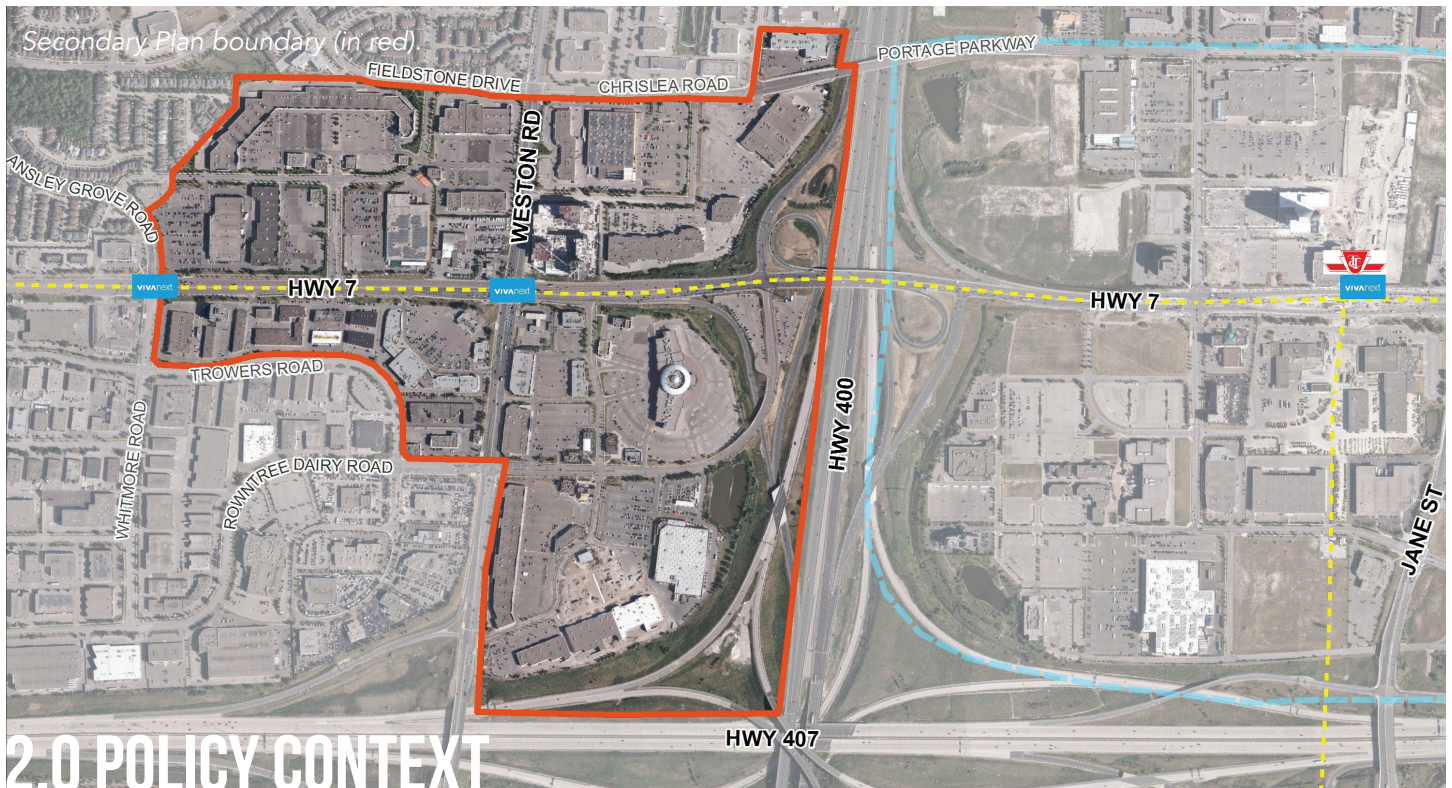
1.3 About this Sustainability Analysis Memo

This sustainability analysis memo provides the necessary background information to further refine the Secondary Plan's sustainability policies in subsequent phases of this project. Section 2.0 provides a robust analysis of provincial, regional, and municipal policies, plans, and strategies, which inform the vision, guiding principles, and strategies of section 3.0. These guidelines will be used to analyze the preliminary land-use scenarios developed in this phase of work. The policies and tools recommended in section 4.0 have been developed to help the City improve the delivery of green infrastructure, green building design, and climate change adaptation.

1.4 The Plan Area

The Weston Road and Highway 7 Secondary Plan Area ("Plan Area") is located on approximately 126 hectares (311 acres) of land in Ward 3. The Plan Area is bounded to the north by Chrislea Road/Fieldstone Drive/Portage Parkway (includes parcel on northeast corner of Chrislea Road and Portage Parkway) and the western terminus of Wildflower Gate. The Plan Area is generally bound by Ansley Grove Road/Whitmore Road until Wings Road to the west, as well as Rowntree Dairy Road, and Weston Road. Highway 407 and Highway 400 form its boundaries to the south and east, respectively.

The Plan Area is composed primarily of retail commercial uses, with some office and employment uses at the westerly portion of the Plan Area. There are several big box retail stores, as well as retail strip plazas and stand-alone commercial uses, with extensive surface parking areas along the Highway 7 frontage throughout the Plan Area. There are also two high-rise mixed use condominium apartment towers at the northeast corner of Weston Road and Highway 7. Surrounding land uses that abut the Plan Area include an established low-rise residential community to the northwest, manufacturing and other employment uses to the southwest, Highway 407 to the immediate south and Highway 400 to the east.



The imperative to plan sustainably within the Plan Area is established in a suite of provincial, regional, and municipal policy documents and plans. This section provides an overview of the relevant policies, strategies, and directions, categorized by theme, that have informed the vision, guiding principles, and preliminary policies and tools recommendations.

2.1 Provincial Context

Provincial Policy Statement

Energy and Carbon

The overarching suite of provincial policy documents codify the importance of reducing carbon emissions. Section 1.8 of the Provincial Policy Statement (PPS) includes policy direction for energy conservation, air quality, and climate change. Specifically, policy 1.8.1 directs planning authorities to promote energy efficiency and improved air quality through land use and development patterns that seek to improve the mix of employment and housing choices to shorten commute journeys, and promote compact forms of development.

Transportation

In addition to advancing a definition of transportation demand management (TDM), the PPS directs for efficient use of existing and planned transportation system infrastructure, including the use of TDM strategies. In addition, it encourages the provision of transportation systems which are safe, energy efficient, and facilitate the movement of people. To this end, it promotes land use patterns, densities, and mixes of uses that minimize the length and number of vehicle trips and supports current and future use of transit and active transportation.

Water

The PPS promotes stormwater management techniques including low impact development and maximizing the extent and function of vegetative and pervious surfaces (1.6.6.7), including promoting green infrastructure (1.6.2).

Built Form

The importance of built form to the province's economic prosperity is noted in section 1.7 *Long-Term Economic Prosperity*. Policy 1.7.1 (d) encourages municipalities to support long-term economic prosperity by promoting well-designed built form to define and protect a sense of place. Policy 1.8.1 (a) codifies the relationship between built form and climate change mitigation, noting that it supports broader ambitions to achieve energy conservation and efficiency, improved air quality, reduced greenhouse gas emissions, and climate change adaptation.

The Growth Plan for the Greater Golden Horseshoe (2017)

Energy and Carbon

The importance of carbon reduction is signified by its inclusion in the Guiding Principles (section 1.2.1) of the Growth Plan for the Greater Golden Horseshoe (2017):

Integrate climate change considerations into planning and managing growth such as planning for more resilient communities and infrastructure – that are adaptive to the impacts of a changing climate – and moving towards low-carbon communities, with the long-term goal of net-zero communities, by incorporating approaches to reduce greenhouse gas emissions.

Moreover, the Growth Plan directs municipalities to develop policies in their official plans to identify actions that will reduce greenhouse gas emissions and develop climate change adaptation goals aligned with the Ontario Climate Change Action Plan.

Transportation

The Growth Plan provides specific policy direction as it relates to TDM. Section 3.2.2, Transportation – General, requires municipalities to develop and implement TDM policies in official plans or other planning documents and programs. The purpose of these policies, per 3.2.2.4, is to reduce trip distance and time, increase the modal share of alternatives to the automobile, prioritize active transportation, transit, and goods movement over single-occupant automobiles, and expand infrastructure to support active transportation.

Water

The Growth Plan for the Greater Golden Horseshoe contains policies that, among other things, provide direction for managing and supporting growth. The importance of stormwater management is highlighted in the preamble to chapter 3, where it is stated that:

Climate change poses a serious challenge for maintaining existing infrastructure and planning for new infrastructure, however, vulnerability assessments can help to identify risks and options for enhancing resilience. Similarly, comprehensive stormwater management planning, including the use of appropriate low impact development and green infrastructure, can increase the resiliency of our communities.

Accordingly, the Growth Plan advances a number of policies to address stormwater management, including the integration of green infrastructure and low impact development (2.2.1.4), and the incorporation of an integrated treatment approach to minimize stormwater flows and reliance on stormwater ponds, including appropriate low impact development and green infrastructure (3.2.7.2).

Built Form

Designing compact communities through built form is a primary focus of the Growth Plan. In the preamble to section 2, *Where and How to Grow*, the Growth Plan links climate change mitigation to built form, noting that it can minimize land consumption and contribute to the creation of complete communities. Compact, complete communities, it notes, help to reduce greenhouse gas emissions and enhance resilience to the impacts of climate change. The Growth Plan also highlights the importance of compact built form as it relates to intensification efforts, noting that it contributes to ensuring the viability of transit and connecting people to homes, jobs, and other aspects of daily living for people of all ages. Compact built form is required under policy 2.2.1, which calls on municipalities to support the development of complete communities with high quality compact built form.

Ontario's Climate Change Strategy (2016)

Energy and Carbon

Ontario has set a long-term goal: reduce greenhouse gas emissions by 80 percent below 1990 levels by 2050. To help mark progress and keep on track, the Climate Change Strategy sets out two mid-term targets: 15 percent below 1990 levels by 2020, and 37 percent below 1990 levels by 2030. The Strategy, which informs the Five-Year Climate Change Action Plan, includes language around reducing emissions from new and existing buildings; building green infrastructure to restore ecosystems, reduce atmospheric carbon, and protect and expand carbon sinks; and developing data and metrics to measure the GHG impacts of projects and programs, including progress towards GHG reduction targets.

Transportation

The Climate Change Strategy establishes the reduction of greenhouse gas emissions as an important factor in transportation and land use planning initiatives. It encourages smart design in long-term decision-making to help Ontario move towards net-zero emission communities. This includes integrated transit planning to maximize GHG reductions and ensure transit-supportive land use planning.

Land-use

The Climate Change Strategy advocates integrating climate change adaptation considerations into infrastructure decision-making. The Province has committed to guiding infrastructure decision-making and investments so that these decisions properly consider the potential impacts of a changing climate. It also highlights the importance of aligning climate change objectives with agriculture and natural systems.

Ontario's Five-Year Climate Change Action Plan (2016-2020)

Energy and Carbon

A more granular set of efficiency moves is laid out in Ontario's Five Year Climate Change Action Plan (2016-2020), which advances an overall carbon reduction target of 80% by the year 2050. The Action Plan includes direction on an array of sectors, including buildings and homes and land use planning. The action items for the former include improving energy efficiency in multi-tenant residential buildings, setting lower-carbon standards for new buildings, and promoting low-carbon energy supplies and producers.

Transportation

The Climate Change Action Plan envisages Ontario as a North American leader in low-carbon and zero-emission transportation, with specific policies directed at increasing the availability and use of lower-carbon fuel, the use of electric vehicles, and the use of low-carbon trucks and buses. It also supports cycling and walking, and the accelerated construction of GO Regional Express Rail. Moreover, the Plan advocates for reducing single-passenger vehicle trips, principally by calling on the Province to provide grants to municipalities and large private employers to implement TDMs.

Land-use

The Climate Change Action Plan recognizes the intrinsic links between land use planning and sustainability. Specifically, it supports the development of low-carbon communities through strengthening climate change policies in the municipal land-use planning process; supporting municipal and other stakeholder climate action; and reducing congestion and improving economic productivity.

Waste

The Plan provides actions that focus on moving Ontario towards a circular economy that diverts all waste, noting the inherent connections between greenhouse gas and the waste sector. As part of the zero waste strategy, the Province is seeking to increase recycling in the industrial, commercial, and institutional sectors, and reduce the amount of organic materials going into landfills (40 percent diverted by 2025, and 60 percent by 2035).

Long-Term Energy Plan (2013)

In 2013, the Provincial Government advanced its vision for a conservation-first mentality to offset almost all of the growth in electricity demand to 2032 by using programs and improved codes and standards through the Long-Term Energy Plan. By 2025, 20,000 MW of renewable energy will be online, representing about half of Ontario's installed capacity. Ontario will phase in wind, solar and bioenergy over a longer period than contemplated in the 2010 LTEP, with 10,700 MW online by 2021. Ontario will add to the hydroelectricity target, increasing the province's portfolio to 9,300 MW by 2025. Recognizing that bioenergy facilities can provide flexible power supply and support local jobs in forestry and agriculture, Ontario will include opportunities to procure additional bioenergy as part of the new competitive process. Additionally, the government will include storage technologies in its procurement process, starting with 50 MW and assessing additional engagement on an ongoing basis.

Ontario Climate Change and Health Toolkit

The Ontario Climate Change and Health Toolkit was developed to respond to the public health challenges associated with the province's changing climate. Through the inclusion of

guidelines to address health vulnerability and adaptation, the Toolkit seeks to support an adaptive and resilient public health system that anticipates, addresses, and mitigates the emerging risks and impacts of climate change. The intended users of the Toolkit include Ontario's public health units, with the understanding that hospitals and health care facilities are often significant sources of greenhouse gas emissions.

Ministry of the Environment and Climate Change (MOECC) Low Impact Development Storm Water Management Guidance Manual

The Low Impact Development Stormwater Guidance Manual was developed to complement the 2003 Stormwater Management Planning and Design Manual, with a particular focus on source and conveyance controls. The goals of the Manual include ensuring the application of a consistently derived, geographically specific volume control target across the province; providing a scientifically based approach for sizing stormwater practices; and facilitating greater consistency and integration of stormwater management among the province's cities. The Manual advances a series of principles to reach this end, including:

- Maintaining pre-development water balance;
- Regarding rainwater as a resource to be managed as close to the source area as possible;
- Controlling and returning 90% of rainfall volumes to natural hydrologic pathways;
- Reducing runoff volume at the source;
- Capturing and treating runoff with an efficiency of greater than 90% of the annual average rainfall volume; and
- Applying LID best management practices.

2.2 Regional Context

York Region Official Plan (2010)

The York Region Official Plan (YROP) is predicated on sustainability, noting in section 1.2 that sustainability is the lens through which the Region formulates, enhances, and implements policy. The YROP supports and encourages city building focused on green building, community design that includes sustainable buildings and water and energy management, and zero carbon and waste production. To this end, it highlights the importance of adopting progressively higher standards in energy and water efficiency, renewable energy systems, and waste reduction.

This language is codified in section 3.2, where policies include reducing vehicle emissions, establishing greenhouse gas reduction targets for the Region, developing clear air initiatives, and identifying links between climate change, community planning, and public health. Specific to energy, the YROP also requires that local municipalities develop community energy plans for new community areas to reduce community energy demands, optimize passive solar gains through design, maximize active transportation and transit, and make use of renewable, on-site generation and district energy options including, but not limited to, solar, wind, water, biomass, and geothermal energy (5.6.10).

The YROP encourages a number of energy efficiency and conservation targets for new buildings in order to achieve its vision of a sustainable region (5.2.21):

- a. Grade-related (3 storeys or less) residential buildings achieve a performance level that is equal to a rating of 83 or more when evaluated in accordance with Natural Resources Canada's EnerGuide for New Houses: Administrative and Technical Procedures.

York Region Sustainability Strategy: Towards a Sustainable Region

- b. Mid- and high-rise residential (4 storeys and greater) and non-residential buildings be designed to achieve 40 percent greater efficiency than the Model National Energy Code for Buildings, 1997.
- c. Industrial buildings (not including industrial processes) be designed to achieve 25 percent greater energy efficiency than the Model National Energy Code for Buildings, 1997.

It also advocates for all new buildings to include, where feasible, on-site renewable or alternative energy systems to produce at least 25 percent of the total building energy use (5.2.28). The same policy notes that where on-site renewable energy systems are not feasible, consideration should be given to purchasing grid-source renewable energy.

In addition to policies concerning energy, carbon, and transportation, the YROP also includes progressive language around waste management and diversion. Chiefly, it advocates for the near zero waste ideal, with policies directed at incorporating three-stream waste collection (7.4.9), eliminating the disposal of unprocessed waste in landfills by 2020 (7.4.2.c), and encouraging the Province to require waste reduction programs in the industrial, commercial, and institutional sectors.

York Region's Sustainability Strategy: Towards a Sustainable Region, provides a long-term framework for making sustainable decisions about municipal responsibilities that fully evaluate economic, environmental and community considerations. This "triple bottom line approach" is used to evaluate key emerging trends facing York Region, including:

- An aging and diverse society;
- An urbanizing region defined by vibrant centres;
- The impact of the built environment on social cohesion among and within communities;
- Climate change, energy conservation and renewable sources of energy; and
- Societal health issues such as obesity, mental illnesses, and cardiovascular and respiratory diseases.

2.3 Municipal Context

Vaughan Official Plan (2010)

Vaughan's Official Plan sets forward a vision that will shape the City and guide its transformation into a vibrant, beautiful, and sustainable city. The policies advanced in the Official Plan are rooted in principles of minimized energy use, water consumption, and solid waste generation, alternative transportation choices, and protection of the natural environment.

Transportation

The Official Plan endorses transformation in Vaughan's modal split, predicated on the understanding that land use and transportation are inextricably linked. The Official Plan includes policies that support this transformation, including the development of a transportation network that allows for a range of active transportation options (4.1.1.1) and prioritizing public transit and active transportation in the expansion of Vaughan's transportation network (4.1.1.2, 4.1.1.3, and 4.1.1.6).

Green Building

The Official Plan codifies the intrinsic linkages between economic growth and sustainability, with policies related to supporting growth and transformation of Vaughan's development and construction industry as a model for emerging green building technologies and sustainable practices (5.1.1.3.f) and establishing Vaughan as a leader in the green economy (5.2.1.3).

Local and Sustainable Food

The Official Plan notes the importance of agricultural industry in the Greater Golden Horseshoe economy, and the suite of plans in place to protect its viability. It calls on urban agricultural activities to support and enhance the economic potential of agriculture by generating local economic benefits and providing increased food security and sustainable sources of local food (5.2.8.1 and 7.1.1.4).

Community Services and Facilities

Community infrastructure is understood in the Official Plan as an essential component of the City's desire to maintain a healthy, livable, and sustainable city. Parks are a critical piece of this infrastructure, and per policy 7.3.2.4 should incorporate principles of sustainable design, including natural heritage enhancement, naturalized stormwater management features, use of native plant species, and low maintenance and energy efficient facilities and landscapes. Housing is also considered by section 7; policy 7.5.1.1 encourages and supports the provision of a full range of housing options to ensure Vaughan is healthy, sustainable, and vibrant.

Municipal Services, Utilities, and Infrastructure

Resource and energy conservation is a critical component of Vaughan's sustainable vision. Policy 8.1.1.1 enshrines its importance, requiring the maximization of efficiency and minimization of resource and energy consumption by way of the efficient provision of utilizes and services. It also requires the City to support and encourage measures to conserve water and energy resources. While the Official Plan does not set energy targets, it does include policies which encourage community energy plans that identify energy targets, in addition to clarifying Vaughan's energy consumption, identifying opportunities and targets for on-site energy generation and district energy systems, the provision of development standards and design guidelines to maximize energy efficiency, and supporting smart electrical meters and innovating energy storage technologies (8.5.1.2, 8.5.1.5, and 8.5.1.7). More broadly, the Official Plan requires the implementation of the climate change actions housed in Green Directions Vaughan to establish a long-term target of carbon neutrality for municipal facilities, infrastructure, and operations (3.7.2.1).

Green Directions Vaughan (2009)

The importance of sustainable energy and resource use is also advanced in section 9.1.3, Sustainable Development. Policies in this section call on the development of standards to provide a high-level of energy efficiency, maximized solar gains, on-site renewable energy systems, future installation of electric vehicles, water efficient landscaping, maximized permeable services, green roofs, and construction waste reduction and landfill diversion (9.1.3.1). This policy direction has been implemented as the Sustainability Performance Metrics and recently approved (May 2018) for full implementation in the development review process.

Built Form

The Vaughan Official Plan links compact built form patterns to air quality improvements and climate change mitigation. Policy 3.7.1.4 supports reductions in travel emissions through planning for a compact pattern of urban growth that is designed to support pedestrian, cyclist, and transit use. Section 3.7.2, *Responding to Climate Change*, reinforces the need for compact urban growth, particularly due to its role in supporting energy efficient transportation options to reduce greenhouse gas emissions.

The Community Sustainability and Environmental Master Plan, also known as Green Directions Vaughan (GDV 2009) functions as the City's sustainability plan and influences virtually all aspects of the City's operational and regulatory activities, including the growth management strategy. The intent of GDV 2009 is to establish the principles of sustainability, which will then be used in the development of other plans and master plans to achieve a healthy natural environment, vibrant communities and a strong economy. The recommended actions advanced by GDV, structured around six key goals, encompass the entire sphere of municipal responsibility, including operational and regulatory functions:

1. To significantly reduce the use of natural resources and the amount of waste generated;
2. To ensure sustainable development and redevelopment;
3. To ensure that Vaughan is a City that is easy to get around with a low environmental impact;
4. To create a vibrant community where citizens, businesses and visitors thrive;
5. To demonstrate leadership in advocacy and education on sustainability issues; and
6. To ensure a supportive system for the implementation of Green Directions.

GDV 2009 is built upon the vision set out in Vaughan Vision 2020, which envisages a city of choice that promotes diversity, innovation and opportunity for all citizens, fostering a vibrant community life that is inclusive, progressive, environmentally responsible and sustainable. In addition, it draws from the strategic direction to preserve, protect and enhance Vaughan's natural and built environment through responsible leadership and innovative policies, practices and education. In order to meet this end, action plans and objectives have been developed for the six goals previously outlined (note: goal 6 is not relevant to this sustainability analysis). The following goals and objectives represent those that are relevant to the Plan Area.

Goal 1: Significantly reduce the use of natural resources and the amount of waste generated

Objective 1.1: To reduce greenhouse gas emissions and move towards carbon neutrality for the City of Vaughan's facilities and infrastructure

Objective 1.2: To promote reduction of greenhouse gas emissions in the City of Vaughan

Objective 1.3: To support enhanced standards of stormwater management at the City and work with others to care for Vaughan's watersheds

Objective 1.6: To continue to reduce the amount of waste generated by Vaughan citizens, businesses and institutions.

Goal 2: To ensure sustainable development and redevelopment

Objective 2.2: To develop Vaughan as a City with maximum greenspace and an urban form that supports our expected population growth

Objective 2.3: To create a City with sustainable built form

Goal 3: To ensure that Vaughan is a city that is easy to get around with a low environmental impact

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

Goal 4: To create a vibrant community where citizens, business and visitors thrive

Objective 4.1: To foster a city with strong social cohesion, an engaging arts scene, and a clear sense of its culture and heritage

Goal 5: To be leaders in advocacy and education on sustainability issues

Objective 5.1: To share sustainable best practices and ideas between and among municipal staff and the community.

Green Directions Vaughan (2018 Draft Update) Municipal Energy Plan

The revision of Green Directions Vaughan is recognized as a specific initiative in the Term of Council Priority, "To continue to cultivate an environmentally sustainable City". Although only in draft form, we understand GDV 2018 will advance a number of important changes to the existing document, including new and/or revised objectives and actions related to climate change adaptation (resilient infrastructure, human health, and ecosystem resilience); urban agriculture, green infrastructure (comprehensive green asset management framework), complete streets (mobility options and connections), energy efficiency, and renewable energy (municipal energy plan). These proposed changes have been captured in the key themes outlined in section 3.0.

The Vaughan Municipal Energy Plan (MEP) employs 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. The MEP retains the overarching vision and environmental ethic from Green Directions Vaughan (GDV).

The MEP establishes a greenhouse gas (GHG) reduction target that aligns with the unique features of the Vaughan community, and is based on a business-as-usual scenario of 2,097CO₂e in 2031. The GHG emissions target advanced by the MEP is a 22% per capita reduction from the 2013 BAU projection to 2031 (equivalent to an absolute growth in GHG emissions of 3.8% above the 2013 baseline). Achieving a 22% reduction in GHG emissions will result in a total GHG reduction of 459,900 tonnes/year, translating to total GHG emissions of approximately 1,637 ktCO₂e for the community as a whole by 2031.

In order to successfully meet these targets, the MEP outlines a number of actions and "opportunities at home", including encouraging new residential and commercial buildings to be designed, built, and operated using energy more efficiently; achieving an EnerGuide rating of 80 and be more efficient than buildings built before 2012; advancing a smart community energy system; and implementing active transportation and Transportation Demand Management initiatives.

Vaughan Sustainability Performance Metrics

The Sustainability Performance Metrics program (the Metrics), implemented as part of the review of development applications, meets a specific objective of Green Directions Vaughan to create a City with a sustainable built form. The City of Vaughan, in collaboration with the City of Brampton and the Town of Richmond Hill, created the Metrics as a tool to achieve healthy, complete, sustainable communities. The program is organized into four categories: Built Environment, Mobility, Natural Environment and Open Space, and Infrastructure and Buildings. Each category contains a set of performance indicators that have corresponding quantitative metrics to calculate the sustainability scores for development proposals. The program can also function as a guidance document for secondary plans and other land use planning projects.

As part of Phase 1 of the Weston Road and Highway 7 Secondary Plan project, the Metrics will be used to assess the draft land use scenarios to determine how sustainable each respective scenario performs. The development of the planning framework's vision and guiding principles will, in large part, help define which metrics are most important, helping to guide this activity. At a minimum, the following metrics should be considered paramount when assessing the land use scenarios.

Built Form

- Land Use Diversity Mix: Proximity to Basic Amenities
- Land Use Diversity Mix: Proximity to Lifestyle Amenities
- Green Building - Third Party Green Standards
- Site Accessibility - Universal Design
- Housing Unit Mix - Design for Life Cycle Housing
- Landscape and Street Tree Planting/ Preservation
- Parking - Bicycle Parking
- Pedestrian Connections - Traffic Calming
- % of Tree Canopy Within Proximity to Building/Pedestrian Infrastructure

Mobility

- Site Permeability - Connectivity
- Transit Supportive - Distance to Public Transit
- Active Transportation - Proximity to Cycle Network
- Walkability - Pedestrian Amenities

Natural Environment and Open Space

- Stormwater - Stormwater Quantity and Quality
- Stormwater - Rainwater Re-use
- Stormwater - Stormwater Architecture/ Features
- Urban Agriculture

Infrastructure and Buildings

- Energy Conservation - Solar Readiness
- Energy Conservation - Passive Solar Alignment
- Energy Conservation - Building Energy Efficiency - Multifamily, Commercial, Residential
- Energy Conservation - Energy Management
- Potable Water - Reduce Potable Water Used for Irrigation
- Lighting - Reduce Light Pollution
- Bird Safe Design
- Materials and Solid Waste Management - Solid Waste
- Materials and Solid Waste Management - Material Re-used and Recycled Content
- Heat Island - Reduced Heat Island Effect from the Built Form - Non-Roof and Roof

Aerial view of the Plan Area.

3.0 SUSTAINABILITY VISION, GUIDING PRINCIPLES, AND STRATEGIES

The sustainability vision, guiding principles, and strategies for the Plan Area are informed by existing municipal policies and plans; the phase 1 team meetings held on May 11th and June 6th; and the round table workshop held June 13th.

Considering the previous Policy Context review, and discussions with the City and project team, a number of key directions have emerged, informing the vision, guiding principles, and strategies outlined in this section. Importantly, these elements will be critical to the future analysis of master plan scenarios developed in subsequent phases of this project.

3.1 Sustainability Vision

The following vision for the Plan Area situates sustainability at the core of the community:

The Plan Area will become a model of pragmatic sustainability, leveraging its location and established uses, to establish a new “green-roots” norm for this type of development in Vaughan.

3.2 Guiding Principles and Strategies

By way of work done to date, the key themes that emerged include sustainable water management, energy efficiency, climate change adaptation, sustainable transportation, a strong local economy, and sustainable waste management. The following guiding principles and strategies have been developed to ensure the Weston Road and Highway 7 Secondary Plan achieves the vision outlined in section 3.1 in accordance with these themes.



Key Themes

- Sustainable Water Management
- Energy Efficiency
- Resiliency
- Sustainable Transportation
- Local Economy and Equity
- Sustainable Waste Management



Key Theme
Sustainable Water
Management
(SWM)

Sustainable water management reduces strain on freshwater bodies, water pollution, local flooding, and negative human and wildlife health impacts.



Guiding Principle

Develop the site to become a model for sustainable stormwater management that supports climate change adaptation.



Strategies

- Incorporate low impact development measures such as bioswales, cisterns, blue-green infrastructure, etc. in landscaping features and street design to minimize the volume of stormwater leaving the site, the export of pollutants, the chance of urban flooding, and flood flows in urban areas, rivers, and streams.
- Reduce potable water use in landscaping.
- Reduce potable water use in buildings using low flow/flush water fixtures and cisterns to capture rainwater and stormwater.



Supporting Policy Sections

- Provincial Policy Statement
 - Sections 1.6 and 2.2
- Growth Plan
 - Section 3.2.7
- York Region Official Plan
 - Sections 1.2, 1.3, 5.6, and 7.1
- Vaughan Official Plan
 - Sections 3.3, 3.6, 7.3, 8.1, and 9.1
- Green Directions Vaughan
 - Objective 1.3



Key Theme
Energy Efficiency
(EE)

Achieving an energy efficiency community can reduce air, water, and land pollution and environmental damage from energy production and consumption.



Guiding Principle

Develop the site to maximize energy efficiency and reduce greenhouse gas emissions, with a long-term goal of achieving carbon neutrality.



Strategies

- Incorporate passive solar principles¹ in block and building design and orientation.
- Purchase, and install energy efficient traffic lights, street lights, and water and wastewater pumps.
- Promote high-performance buildings that minimize carbon impacts throughout their life-cycle.
- Conduct an Energy and Carbon Feasibility Study to determine which technologies should be pursued to reduce energy use and carbon emissions, both at the building and site scales.
- Encourage green roofs² wherever possible to reduce run-off, capture heat, and extend usable open space.
- Incorporate building electricity sub-meters for all office tenants and residential suites.
- Explore the feasibility of solar PV and storage.



Supporting Policy Sections

- Provincial Policy Statement
 - Sections 1.6, 1.7, and 1.8
- Growth Plan
 - Section 1.2.1
- York Region Official Plan
 - Sections 3.2, 5.2, and 7.5
- Vaughan Official Plan
 - Sections 3.7, 8.5, and 9.1
- Green Directions Vaughan
 - Objectives 1.1 and 2.3
- Vaughan Municipal Energy Plan
 - Actions 6.1 and 6.2

¹ Passive solar design refers to the use of the sun's energy for the heating and cooling of living spaces by exposure to the sun. Design principles include leveraging local climate conditions to inform window placement and size, window glazing types, thermal insulation, thermal mass, and shading. Buildings should be oriented according to local sun path and the prevailing level of insolation.

² Green roofs can either be extensive or intensive. Extensive green roofs have shallower soil depths, lower weight loads, and require less maintenance and irrigation than intensive green roofs. For this reason, they tend to have less organic matter and limited plant species options.



Key Theme

Resiliency
(R)

Resilient cities can bounce back from, and mitigate against, shock events caused by climate change, while promoting positive health outcomes.



Guiding Principle

Develop the site by designing and managing infrastructure to strengthen resiliency against the impacts of climate change.



Strategies

- Apply bird-safe design standards (as per the City-Wide Urban Design Guidelines) and pollinator-friendly measures to enhance ecosystem resiliency.
- Design and manage green spaces to act as climate-resilient infrastructure by promoting positive mental and physical health³, mitigating climate change⁴, and contributing to stormwater management⁵.
- Incorporate resilient infrastructure and smart city technology into site design, including wireless mesh networks, real-time data tracking, and centralized control of street lighting, to enhance resiliency.
- Incorporate emergency response measures in buildings, including areas of refuge and emergency backup generators.



Supporting Policy Sections

- Provincial Policy Statement
 - Sections 1.0 and 1.3
- Growth Plan
 - Sections 2.2 and 4.2
- York Region Official Plan
 - Sections 3.1 and 3.2

³ Green spaces, including parks, should provide space for recreation, walking trails, running tracks, and sporting infrastructure (e.g. soccer and basketball nets) to promote physical activity. Increasing the tree canopy can also introduce positive health outcomes through shade provision and air pollution reduction.

⁴ Landscaping elements, including trees and plantings mitigate climate change through carbon sequestration.

⁵ Green spaces should include an increased tree canopy, which would perform a stormwater management function, and where feasible include low impact development measures.



Key Theme
Sustainable
Transportation
(ST)

Shifting behaviour from private automobile use to transit and active transportation reduces carbon emissions and air pollution, and promotes positive health outcomes.



Guiding Principle

Develop the site to become a model of low carbon mobility.



Strategies

- Host community EV charging stations.
- Promote, develop, and implement car and bike share programs to enhance sustainable transportation options.
- Incorporate cycling and pedestrian infrastructure to ensure safe access and movement into and across the site.
- Incorporate a finer grained street network to improve conditions for all transportation modes.
- Design weather-protected outdoor transit waiting areas.
- Advance the applicable objectives of the Pedestrian and Cycling Master Plan.
- Incorporate continuous sidewalks or equivalent all-weather routes for walking on both sides of the circulation network.
- Provide bicycle parking spaces equivalent to the expected number of commuter and customer/visitor bicycles related to commercial and office uses.
- Provide bicycle parking for all residential building occupants.



Supporting Policy Sections

- Provincial Policy Statement
 - Sections 1.1, 1.5, 1.6, 1.7, and 1.8
- Growth Plan
 - Section 3.2
- York Region Official Plan
 - Sections 3.2, 7.1, and 7.2
- Vaughan Official Plan
 - Sections 3.7, 4.1, 4.2, 5.1, 8.5, and 9.1
- Green Directions Vaughan
 - Objectives 2.3, 3.1, 3.2, and 3.3
- Vaughan Municipal Energy Plan
 - Action 6.3



Key Theme
Local Economy
and Equity
(LEE)

Equitable communities promote positive economic and social outcomes, leading to greater civic participation and a stronger sense of community.



Guiding Principle

Develop the site to support equitable places to live and work to enhance local prosperity.



Strategies

- Consider shared office spaces, flexible entrances, incubator spaces, flexible lease terms, and micro-retail options.
- Explore the feasibility of co-location and community hubs to provide multiple services in one location.
- Incorporate live-work spaces, particularly on major transit routes.



Supporting Policy Sections

- Provincial Policy Statement
 - Section 1.5
- Growth Plan
 - Section 2.2
- York Region Official Plan
 - Section 3.5
- Vaughan Official Plan
 - Sections 2.1, 5.1, and 7.6
- Green Directions Vaughan
 - Objective 4.1



Key Theme
Sustainable Solid
Waste Management
(SSWM)

Sustainable solid waste management reduces strain on landfills, methane release, and demand for virgin materials, while increasing environmental awareness.



Guiding Principle

Develop the site to maximize waste diversion to achieve long-term near zero waste production.



Strategies

- Incorporate three-stream waste collection infrastructure in new multi-unit residential and office buildings (as mandated by City standards).
- Develop a construction waste management plan to eliminate the disposal of unprocessed waste in landfills.
- Reduce the amount of organic waste disposed in landfills through composting infrastructure.
- Provide convenient and accessible waste disposal and/or recycling sites for highly toxic or other materials that are not accepted within traditional waste streams.
- Investigate eco-industrial networks to maximize opportunities for reuse of industrial by-products and waste.



Supporting Policy Sections

- Provincial Policy Statement
 - Sections 1.6
- Growth Plan
 - Section 4.2
- York Region Official Plan
 - Section 7.4
- Vaughan Official Plan
 - Sections 8.1, 8.6, and 9.1
- Green Directions Vaughan
 - Objectives 1.6 and 2.3



In order to achieve the intent of the guiding principles of section 3.2, the following policies and tools could be considered to support the implementation of sustainability measures.








In our experience, an absence of policies and tools that strongly support sustainability objectives will trigger limited investment in sustainability by the land owner and development communities. However, with the proper policies and tools in place, the development community can be moved towards more sustainable outcomes. This section outlines a suite of possible policies and tools organized into three categories: green infrastructure, green building, and climate change adaptation and resiliency. Where appropriate, those policies corresponding to the Key Themes presented in section 3 have been annotated with the relevant Key Theme icon.

These policies and tools should only be considered informative at this point in the process, whereby they will be further refined and informed by the direction ultimately taken for the Plan Area.

4.1 Green Infrastructure

Green infrastructure refers to an approach to water management that replicates, restores, and protects natural site hydrology processes at the scale of a community. Low Impact Development measures are captured by the term green infrastructure and are generally designed at the site or building level. The following preliminary policy and tool recommendations have been developed to assist with the implementation of green infrastructure within the Plan Area.

Preliminary Policy Recommendations

-  All development in the Weston Road and Highway 7 Secondary Plan Area will have regard for the guidelines advanced in both the Toronto and Region Conservation Authority's Low Impact Development Stormwater Management Planning and Design Guide (2010) and the City of Vaughan's Stormwater Management Master Plan (SWM).
-  All development applications will require a functional servicing and stormwater management report (SWM).
-  Future development shall incorporate green infrastructure elements into site plan design, which may include:
 - Low Impact Development measures;
 - A treatment train approach to stormwater management; and
 - Maximizing the extent and function of vegetative and pervious surfaces.
-  Bio-swales, permeable paving, significant tree plantings and landscaping for all on street and at-grade parking will be encouraged as a means to address stormwater management, reduce urban heat island effects, improve energy efficiency, and connect people to green spaces in the Plan Area.
-  The design of streets will have regard for the needs of other elements such as stormwater management features and street trees.
-  Green roofs are encouraged to be provided where feasible to reduce the urban heat island effect, treat rainwater, and provide wildlife and habitat linkages.
-  Green roofs are encouraged to be provided where feasible to reduce the urban heat island effect, treat rainwater, and provide wildlife and habitat linkages.

Preliminary Tool Recommendations

- Consider a higher mandatory threshold for green infrastructure by augmenting the existing Vaughan Sustainability Performance Metrics.

Resources

- Toronto and Region Conservation Authority's Low Impact Development Stormwater Management Planning and Design Guide (2010).
- The City of Vaughan's Stormwater Management Master Plan.
- Ecohealth Ontario's Greenspace and Ecohealth Toolkit.

4.2 Green Buildings

Buildings account for a significant amount of community carbon emissions and energy use. However, when designed to green standards, the environmental impact of buildings can be mitigated. The following preliminary policy and tool recommendations will help provide guidance and direction for future development, ensuring that green techniques are considered in building design.

Preliminary Policy Recommendations

- Achieve high standards of environmental sustainability by encouraging green buildings.
- Building and block design shall, where possible, maximize solar gains, including:
 - Design and orientation such that one axis is within 15 degrees of geographical east-west, and the east-west lengths of those blocks are at least as long as the north-south lengths.
- Where possible, buildings should produce their own energy (e.g. solar panels) and strive to create a “net-zero” neighbourhood.
- Promote high-performance buildings that are designed to minimize carbon impacts throughout their lifecycle.

Preliminary Tool Recommendations






- Consider augmenting the existing Vaughan Sustainability Performance Metrics as it relates to the Secondary Plan to:
 - Mandate a higher Building Energy Efficiency score (i.e. 35% energy savings relative to a Model National Energy Code of Canada for Buildings (MNECB) 1997 compliant reference building.
 - Mandate an Energy Management Strategy
- Mandatory evaluation of available green building incentive programs (e.g. Savings by Design, High Performance New Construction, Sustainable Development Through LEED, etc.) for all Site Plans and Plans of Subdivision.
- Municipal Energy Plan.
- Energy and Carbon Feasibility Study.
- Life-Cycle Costing Analysis.



4.3 Climate Change Adaptation and Resiliency

It is critical to plan proactively for climate change, which is anticipated to cause changes to wildlife habitat and natural heritage, more extreme weather events, decreased water levels, and increased infrastructure issues related to electricity supply. Climate change adaptation in the Plan Area should focus on three key elements: resilient infrastructure, human health, and ecosystem resilience. The following preliminary policy and tool recommendations consider all three of these elements.

Preliminary Policy Recommendations

-  • All multi-unit residential buildings shall include an area of refuge, including amenity spaces, to provide minimum levels of heating, cooling, lighting, and power during power outages and other extreme weather events;
-  • Consider the installation of natural gas backup generators to provide an on-site demand response strategy, either for individual buildings or linked on a community level.
-   • Landscape design should incorporate a variety of natural, drought tolerant species that can withstand natural system changes generated by extreme weather events and pests.
-  • Evaluate opportunities to improve pollinator habitat and butterfly habitat, such as through a pollinator-friendly planting strategy.

Preliminary Tool Recommendations

- Consider the inclusion of mandatory climate change adaptation requirements within the Vaughan Sustainability Performance Metrics.

Resources

- United States Green Building Council RELi Resilience Standard.
- Ecohealth Ontario's Greenspace and Ecohealth Toolkit.



Example of a green roof.



5.0 SUSTAINABLE TECHNOLOGIES AND MEASURES

The policies and tools outlined in section 4.0 will encourage and spur land owners and developers to invest in sustainable technologies and measures within the Plan Area. This section offers a number of possible technologies and measures that could be contemplated to achieve the vision and guiding principles that will be developed in the subsequent work in Phase 1.

Actual or specific technologies and measures will need to be refined based on the emerging land use scenarios. What actually gets implemented on site very much depends on the land use scenarios and sustainability vision and goals for the project.

All of the following technologies and measures have been used in suburban contexts, in and around the GTA, and could all be suitable for the Plan Area pending land use scenarios and goals. Not only are they commonly used in the area, but are often a requirement or a strategy to meet third party certification programs (e.g. LEED).

It is also important to note that these technologies and measures are not “one size fits all.” In some cases, the feasibility of technologies will depend on building archetypes (i.e. green roofs are more sensible on mid- and high-rise buildings than townhouses). Determining the suitability of each technology and measure presented, and others that might be explored in future phases of work, will require feasibility studies.



Feasibility studies assess the viability of different sustainability technologies and measures. The feasibility studies should be undertaken to demonstrate that particular technologies, chosen based on the targets set out, are financially attainable, important to allaying concern within the development community. As part of the feasibility study scope, tools to incentivize implementation should be explored, including section 37 funds, community improvement plan incentives, and street network improvements. Finally, where legally applicable, Secondary Plan policies can be developed to require certain technologies and measures be implemented to satisfy the targets set out in the feasibility studies.

5.1 Green Infrastructure Technologies and Measures



Green Roofs

Green roofs promote building efficiency, reduce heat island effect, and add insulation value to buildings. They also help regulate stormwater runoff and remove total suspended solids.



Rainwater Harvesting

Harvesting rainwater, using rain barrels and underground cisterns, allows for reuse, particularly for irrigation and toilet flushing, thereby decreasing the use of potable water.



Permeable Pavers

Permeable pavers can receive runoff from parking lot areas, driveways, rooftops, and other impervious surfaces, which then infiltrate into underlying native soil.



Rain Gardens

Rain Gardens can be utilized to store, treat, and infiltrate stormwater runoff on a temporary basis. Bio-retention cells are typically incorporated into landscaping.



Bioswales

Bioswales, which help to reduce stormwater runoff, peak flows, and remove pollutants, can be incorporated into landscaping or alongside roads in the form of grass channels.



Filter Strips

Filter, or buffer, strips are land areas of planted vegetation are best suited for treating stormwater runoff from parking lots, roads, and roof downspouts.

5.2 Green Infrastructure Precedents



Docks Green Victoria, BC

A brownfield located on a former industrial site in Victoria's Inner Harbour was revitalized into a model sustainable community with exemplary energy performance, on-site renewable energy sources, on-site wastewater treatment, and a wide array of green building materials. Docks Green earned the international distinction of being one of 16 Clinton Climate Initiative Climate Positive developments, and is a new benchmark for triple bottom line achievement.

Key Green Infrastructure Technology

Developers built a membrane bioreactor package wastewater treatment facility that treats all wastewater on-site and then reuses the treated water for toilets and landscape irrigation, creating an anticipated reduction of 65% over baseline water usage.

Key Planning + Implementation Strategies

Public amenities and environmental benefits were part of the sale agreement negotiated between the city and developers in exchange for a reduced price of \$8.5 million for the land.



Greenwich Millennium Village London, UK

Greenwich Millennium Village is a mixed-use, brownfield redevelopment on the waterside that is well-served by transit, with strict parking regulations and a layout that limits through car traffic.

Key Green Infrastructure Technology

Site-wide rainwater harvesting is used to feed water into the local ecology park lake. The ecology park, covering 0.2 km², includes two lakes and a thriving wildlife population. There is a village square, landscaped courtyards, and garden squares are located through-out the residential areas.

Key Planning + Implementation Strategies

Planning conditions were used to require a range of sustainability targets during the life of the project. This included a 30% reduction in water use within 10 years from implementation.

5.3 Green Building Technologies and Measures



Solar PV Systems

Solar PV systems are rooftop mounted solar collectors for thermal energy. They are typically used to offset heating of domestic hot water loads in residential buildings.



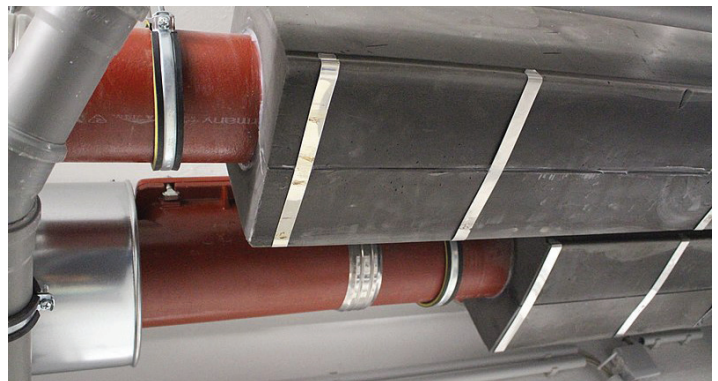
Community Energy Systems

Community energy technologies refer to the local production of energy, either electrical or thermal, as alternative methods to meet a building's energy demands.



Ground Source Heat Pumps (Geothermal)

A ground source heat pump (GSHP) works by utilizing the stable temperatures of the ground to reject heat in the summer and extract heat from in the winter.



Wastewater Heat Recovery

A wastewater heat recovery system uses a heat exchanger to draw heat from waste water pipes from a building to offset heating loads.



Wind

While more common at a utility scale, wind turbines can be situated in an urban setting to generate renewable electricity locally. Size requirements may limit applicability.



Spectrally Selective Glazing

Glazing which tints in response to solar radiation, sun position, or weather conditions, reducing glare and solar gain within the building.

5.4 Green Building Precedents



Hammarby Sjöstad Stockholm, Sweden

Previously a run-down, polluted and unsafe industrial and residential area, Hammarby Sjöstad is now one of the world's most successful urban renewal districts.

Key Green Building Technology

All apartments are connected to the district heating system and the household waste supplies fuel for the district heating plant. In 900 of the apartments, biogas stoves have been installed. Some apartments also have solar hot water.

Key Planning + Implementation Strategies

Integrating the environmental program into the planning process and ensuring the inclusion of all stakeholders was a key component in getting technical solutions in place. The planning process also provided new platforms for discussing local environmental goals.

Using a systems perspective helped Hammarby Sjöstad achieve its environmental goals by linking district heating, sewage treatment, biogas production, and waste management into an integrated system.



South East False Creek Vancouver, BC

Southeast False Creek (SEFC) was designed as a mixed-use community with the 2010 Olympic Village at its core.

Key Green Building Technology

All projects are required to use the SEFC Neighbourhood Energy Utility, which reclaims waste heat from the sewer system and uses it to warm coolant water via a heat exchanger. In the Olympic Village, the warmed water then circulates through buildings' innovative radiant capillary mat heating system.

Key Planning + Implementation Strategies

City Council decided the first SEFC study, which replicated the developer-friendly status quo of existing neighbourhoods, did not meet their goals and developed a Policy Statement for SEFC to generate a set of performance targets. This led to four major environmental studies to support a preliminary Official Development Plan (ODP): SEFC Urban Agriculture Study, SEFC Energy Options Study, SEFC Water and Waste Management Plan, and the SEFC Transportation Study. Two additional studies assessed the potential for applying LEED building designations to the SEFC project, and reviewed the four main environmental studies to combine their recommendations in a meaningful way for the Official Development Plan and Urban Design Guidelines for SEFC. Key indicators were developed to put this vision into Ten Principles of Sustainable Development and five categories of Performance Targets.

5.5 Climate Change Adaptation and Resiliency Technologies and Measures



Backup Generators

Backup generators are designed to provide power to non-life safety requirements over a period of at least 72 hours in the case of extreme weather events.



Increased Tree Canopy

Trees, located both within open spaces and street rights-of-way, perform important stormwater management functions while sequestering carbon.



Areas of Refuge

Designated areas of refuge within buildings, including common amenity rooms, provide for minimum levels of heating, cooling, lighting and power during power outages.



Community Reception Centres

Community Reception Centres may provide added support to residents displaced from their homes in power outages or extreme weather events.



Promote Biodiversity

Provide high quality and varied landscapes to promote biodiversity and facilitate continuation of ecosystem functions and services during and after climatic shock events.



Drought Tolerant Species

Planting drought tolerant species helps to reduce the need for irrigation and fertilizers, while having the ability to withstand long periods without precipitation.

5.6 Climate Change Adaptation Precedents



Zibi Ottawa, Ontario

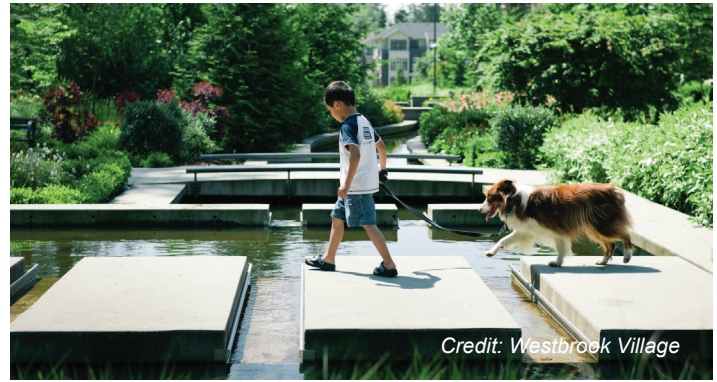
Located on both sides of the Ottawa River, Zibi is transforming a neglected brownfield industrial site into a world-class, mixed-use community. This award-winning master plan has been endorsed as the only One Planet Living community in Canada, making Zibi one of the world's greenest communities. It is estimated to create 500 new permanent jobs and maintain a 90 percent walkability score.

Key Climate Change Adaptation Technology

Connect building occupants with the outdoors, reinforce circadian rhythms, and introduce daylight to promote occupants' comfort, well-being, and productivity by improving indoor air quality.

Key Planning + Implementation Strategies

To gain alignment around sustainability and development principles, Urban Equation facilitated several working sessions with a wide group of stakeholders, including First Nations and various government groups. The site plan application was well received by both Ottawa and Gatineau City Planning departments and was approved unanimously by both City Councils in record time.



Westbrook Village Vancouver, BC

Westbrook Village was designed in 2005 to be a compact and complete community and to bring to life a thriving sustainable neighbourhood on the University of British Columbia (UBC) campus. The community provides high density living with connections to nature, with diverse housing that supports a range of needs with an emphasis on work-study housing, 20% rental units, and family units.

Key Climate Change Adaptation Technology

UBC required native species augmented by other drought tolerant species to preserve the integrity of the historical ecosystem and provide habitat. Any viable mature trees had to be replaced at a ratio of 1:1. Community garden plots are provided so that everyone who wants to garden can grow their own food.

Key Planning + Implementation Strategies

The Design Vision Supplement required social spaces with interaction and play to be included in the design of outdoor spaces.

Entrance into the Plan Area plaza.



6.0 CONCLUSIONS AND NEXT STEPS

This report advances a sustainability framework consisting of a vision, guiding principles, strategies, and preliminary policy and tool recommendations. Together, these components offer guidance for future decision-making to ensure the Weston Road and Highway 7 Secondary Plan becomes a model of sustainability and resiliency.

This report is a reflection of the significant work already completed by the City of Vaughan, including the Vaughan Official Plan, the Municipal Energy Plan, Green Directions Vaughan, and the Sustainability Performance Metrics program. Together, this suite of documents signals the City's commitment to achieving deep sustainability - from water and waste management, to reduced energy and carbon emissions.

In our experience, achieving deep sustainability requires early planning that evolves throughout the development process - from design and construction, to operations and maintenance. Setting up a solid foundation, as established in this report, is paramount to reaching this end.

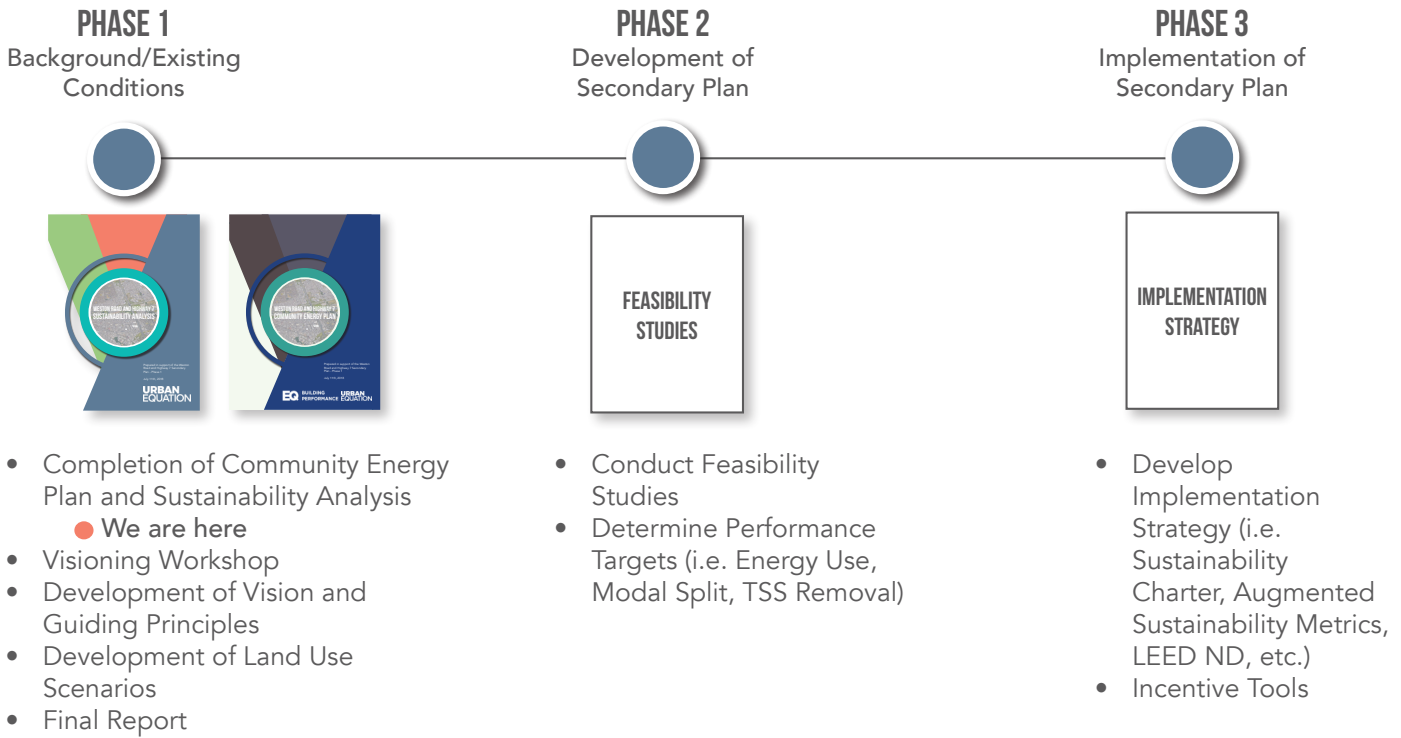
WESTON ROAD AND HIGHWAY 7 SECONDARY PLAN: SUSTAINABILITY ANALYSIS

6.1 Next Steps

The process timeline on the next page provides an overview of how sustainability fits into the Secondary Plan project phases. This section expands on the diagram, noting the required steps to ensure a sustainable vision is brought to bear on the Plan Area.

As the planning framework for the Plan Area progresses (**Phase 1**), it is our recommendation that this report inform decision-making regarding the development of the vision and guiding principles. Doing so will ensure that sustainability permeates the land use and development scenarios, including elements of transportation, building design and block orientation, and public realm design. Reaching this end will require coordination between consultants to ensure everyone is progressing towards the same sustainability goals and objectives. We also recommend that the land use scenarios be assessed according to the Sustainability Performance Metrics.

In **Phase 2** of the project (Development of the Secondary Plan), we recommend that deeper feasibility studies be conducted to derive



evidence-based strategies for, among other things, water management, carbon emission and energy reduction, and transportation demand management measures, both at the scale of the building and the site. The terms of reference for the feasibility studies should include the exploration of fiscal tools to implement the sustainability strategies, including section 37 benefits, community improvement plan incentives, and street network improvements. Determining which elements to explore in feasibility studies will be largely informed by the goals that emerge from Phase 1. In our experience, these studies often lead to robust strategies that are economically feasible while also advancing specific targets to reach desired outcomes. Given the depth of technical analysis required to complete feasibility studies, the resultant targets are defensible - particularly important when included in Secondary Plan policies.

In Phase 3 of the project (Implementation of the Secondary Plan), we recommend exploring implementation tools to ensure the targets set out in Phase 2 are achieved. While there are a number of implementation tools available, we recommend developing a sustainability project charter, where the strategies defined in Phase

2 will be rolled up into a single document that provides specific goals, key performance indicators, targets, and requirements related to the guiding principles defined in Phase 1. Typically, a sustainability project charter also includes a checklist to be used throughout the project's life cycle, from planning, to design and construction, to maintenance and operations. Importantly, this charter should be considered a living document, flexible and nimble in its approach, understanding that there is a need to balance prescriptive requirements in the short-term and long-term goals, which are apt to change with the evolution of sustainability technologies, policies, and plans.

The sustainability project charter could be supported by a number of tools to incentivize developers to meet the targets set out in Phase 2, including Section 37 benefits, community improvement plan incentives, and street network improvements. Determining which incentive tools to use will be a matter of exploration in this final phase of the project. In addition, other implementation mechanisms, including pilot projects, should be explored in this phase depending on the technologies and measures that are chosen in Phase 2.

