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WESTON 7 SECONDARY PLAN

Phase 1 Final Report

May 10, 2019





CONTENTS

SECTION 1: Introduction	1
1.1 Project Overview	3
1.2 Planning Context	5
1.3 The Study Area	9
1.4 Study Area Issues and Opportunities	11
1.5 Overview of Phase 1 Background Study and Process	14
SECTION 2: Draft Vision, Principles and Policy Directions	26
2.1 Vision	29
2.2 Draft Principles and Policy Directions	30
SECTION 3: Draft Land Use Scenarios	37
3.1 What the Scenarios Examine	39
3.2 Draft Land Use Scenarios	43
3.3 Summary of Draft Land Use Scenarios Feedback	49
SECTION 4: Conclusion and Recommendations for Future Phases	59
4.1 Character and Role	59
4.2 Transportation Network	59
4.3 Servicing	59
4.4 Parks and Open Space	59
4.5 Community Services	60
4.6 Building Height and Density	60
4.7 Land Use	60
4.8 Density	60
4.9 Height	60
4.10 Conclusion	60
Appendix 1: Preliminary Transportation Assessment Report	
Appendix 2: Full Background Report and Appendices	



Section 01

INTRODUCTION



1 INTRODUCTION

1.1 Project Overview

The City of Vaughan is growing and changing. A new TTC subway station at the Vaughan Metropolitan Centre (VMC) opened in 2018. The Highway 7 bus rapid transitway, vivaNext, will be fully operational by 2019. Tall buildings are beginning to dot the landscape at locations connected to new transit infrastructure. Aging, low-density, single-use parcels of land are beginning to evolve into higher density mixed use developments across the city, particularly in the City's planned Primary Centres where growth and intensification are directed. Vaughan is at the precipice of a long term transformation into a place of greater development intensity, connectivity, and urban place-making, focused on its Primary Centres. Weston 7 is one of these areas, and in the spring of 2018 the City of Vaughan began a process to develop a Secondary Plan for the Weston 7 Primary Centre.

Phase 1 of the Secondary Plan process was awarded in April 2018 and was undertaken by the following consultant team:

- **Urban Strategies Inc.** as project lead, providing planning and urban design expertise;
- **HDR** providing traffic and active transportation planning analysis and guidance;
- **Hemson** providing expertise in land economics and growth management;
- **The Municipal Infrastructure Group (TMIG)** providing analysis and guidance on servicing and stormwater; and
- **Urban Equation** providing sustainability analysis and a community energy plan.
- **RTG Systems** providing a telecommunications memo

1.1.1 Purpose

To effectively plan for the long term future of Weston 7 and implement the direction of the Official Plan, the City of Vaughan has initiated a Secondary Plan process for Weston 7. The City has created three phase process to deliver the Weston 7 Secondary Plan. Through this work all of the requirements to support growth will be defined for Weston 7, including: new roads and active transportation routes, new open spaces and parks, policies to establish height and density of new development, and hard and soft infrastructure requirements. Ultimately the process will result in the creation of a Secondary Plan to formally guide the evolution of Weston 7.

The purpose of Phase 1 of the Weston 7 Secondary Plan development process was to develop a series of draft Land Use Scenarios that will be used to inform the creation of an ultimate preferred Land Use Scenario for Weston 7 and Secondary Plan policies. Phase 1 included a background review and needs assessment of the Weston 7 area, the development of a draft vision and principles, and the creation of draft Land Use Scenarios. A detailed Background Report was issued October, 2018, addressing the existing conditions, constraints and opportunities in the area.

This report is the final deliverable for Phase 1 of the Secondary Plan study and provides a high level overview of the project process, background findings, draft vision and principles, draft Land Use Scenarios and stakeholder feedback gathered through the process.

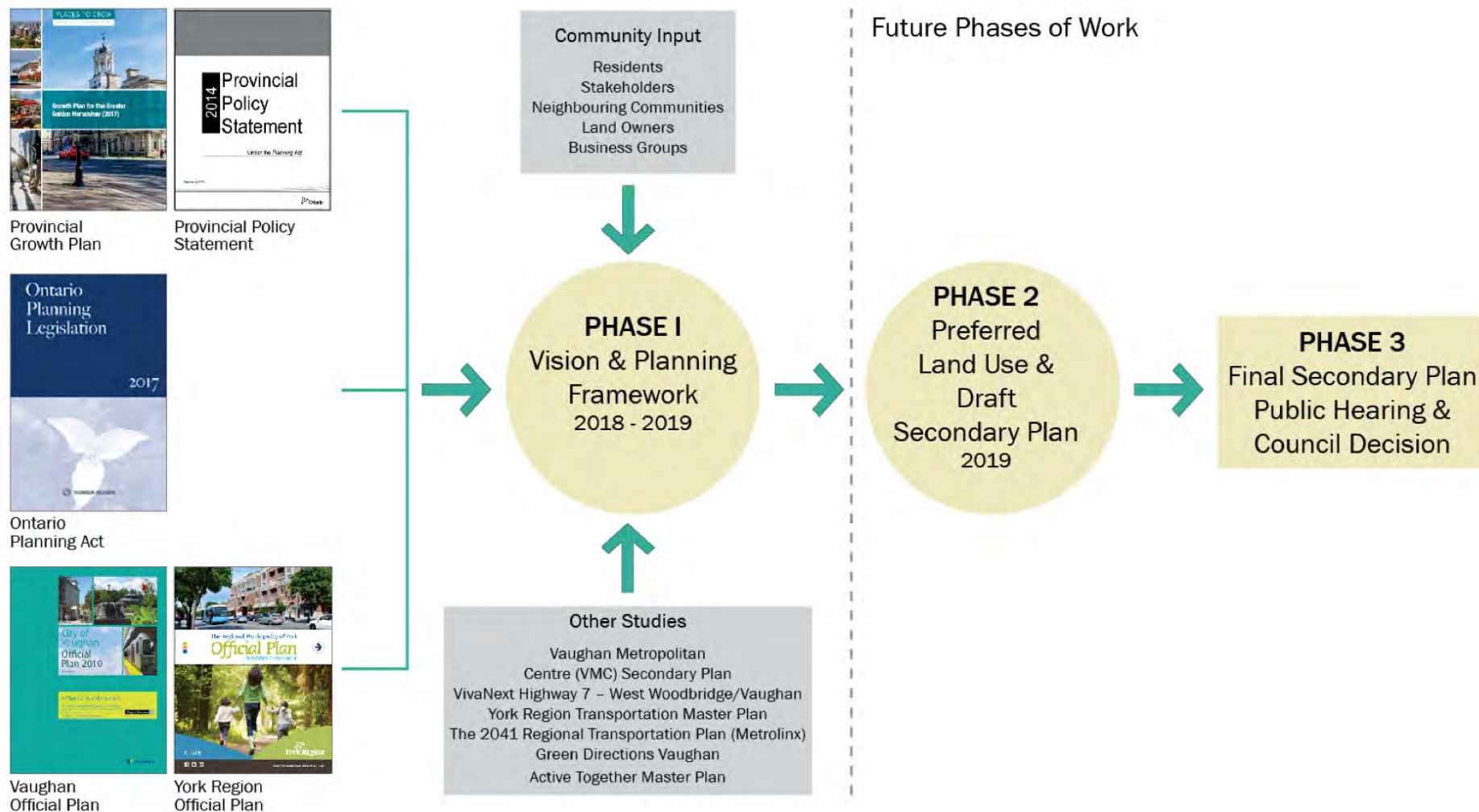


Figure 1. Weston 7 Secondary Plan Process (Source: City of Vaughan)

1.2 Planning Context

1.2.1 Why is the City interested in planning for Weston 7?

According to the 2010 City of Vaughan Official Plan (VOP 2010), the City is expected to accommodate approximately 167,300 new residents and 103,900 new jobs by 2031, largely in areas of the City that are already built up. The City of Vaughan has already advanced the thinking about how to accommodate this anticipated growth, through the identification of a number of strategic growth areas identified in VOP 2010. One such location identified for growth is the Weston Road and Highway 7 Secondary Plan area, identified on Schedule 1 of the VOP 2010 as an intensification area, and identified on Schedule 14A as 'required Secondary Plan area'. The area is 126 hectares in size, 22 hectares of which are Highway 400/407 right-of-way lands, leaving a gross land area of 104 hectares. The plan area is positioned across Highway 400 from the centre of the City's anticipated growth, and future downtown, the Vaughan Metropolitan Centre (VMC), and is approximately 1.5 km west of the VMC Subway Station. The Weston 7 area is identified as a Primary Centre in Schedule 1: Urban Structure of VOP 2010 and intended to become a place to realize a connected, sustainable, mixed use, vibrant community that is transit oriented, pedestrian friendly and a distinct place of major activity.

The Province, York Region, and City of Vaughan's planning policies direct growth to intensification areas, such as the Weston 7 Secondary Plan Area

(SPA). The following sections provide a high-level overview of key policy directions and land use designations for the SPA today. A complete analysis of the planning context is provided in the Planning Policy Review found in Appendix 5 of the Background Report.

At the time of this report (May 2019), there were a number of pending policy framework amendments, including Bill 108, which would amend the *Planning Act*, among other pieces of legislation, as well as a new Growth Plan to take effect on May 16, 2019. In addition, comprehensive reviews of the York Region Official Plan and City of Vaughan Official Plan are to be completed, which will be supported by more detailed review and planning for MTSAs. The ultimate Weston 7 Secondary Plan policies will conform with all higher order planning policies in force at the time of its approval, including the Provincial Policy Statement, The Growth Plan for the Greater Golden Horseshoe, the York Region Official Plan, and the City of Vaughan Official Plan.

1.2.2 Growth Plan for the Greater Golden Horseshoe

The Growth Plan for the Greater Golden Horseshoe 2017 (Growth Plan) is the Province's primary planning document to guide growth and intensification in the Greater Golden Horseshoe (GGH). Municipalities throughout the Region must take direction from the Growth Plan when planning for growth in their communities. The overall objective of the Growth Plan is to create

complete, healthy communities that prioritize intensification of specially identified areas close to public transit infrastructure to make efficient use of land and infrastructure and support transit viability. Weston 7, located on vivaNext's Highway 7 rapidway and approximately 1.5 km (at the intersection of Weston Road and Highway 7) from the northern terminus of TTC's Subway Line 1, is a strategic place for intensification along transit as described in the Growth Plan. The Growth Plan identifies Highway 7 as a 'Priority Transit Corridor', and the SPA will need to be planned to support intensification based on its role as a Primary Centre in the City's urban structure. The area should be developed as a complete community providing the necessary infrastructure, facilities and services to support development within this strategic growth area.

The Growth Plan also identifies Major Transit Station Areas (MTSAs) and Priority Transit Corridors (PTCs), which must be planned to be transit supportive, and incorporate a diverse mix of uses including affordable housing, achieve multi-modal access to stations, and provide connections to nearby major trip generators. Reflecting the two vivaNext rapid transit stops in the SPA, the Weston 7 SPA includes two MTSAs, which are targeted places for employment and residential growth that include a requirement to plan for 160 people and jobs per hectare at a minimum. Matching transit infrastructure with greater population and employment densities is a key principle of the Growth Plan and MTSAs will play an important role in supporting transit use and improving livability of new communities.

1.2.3 York Region

The 2010 York Region Official Plan (YROP) is the overall planning tool to guide growth and development in York Region, and sets the stage for detailed planning by local municipalities. The YROP identifies the VMC as a 'Regional Centre' and Highway 7 as a Regional Corridor. Regional Centres and Corridors form part of a larger regional system of urban growth centres and intensification corridors.

The YROP instructs lower-tier municipalities to direct the most intensive and widest range of uses within the Regional Corridors to specific intensification areas, identified as Key Development Areas. Weston 7 has been identified as a Key Development Area, and will be a focus area for growth and development within the City of Vaughan. The York Region Official Plan requires Secondary Plans to be developed for Key Development Areas, a process which the City of Vaughan has initiated through the Weston 7 Secondary Plan Process. As stipulated by the Region, Secondary Plan areas within Key Development Areas shall include minimum density requirements and targets, and will also establish a fine-grained street grid, a pedestrian-oriented built form and will seek to concentrate development close to rapid transit stations.

Additionally, the section of Highway 7 that runs through Weston 7 is designated as a Corridor. Regional Centres and Corridors form part of a larger regional system of urban growth centres and intensification corridors, which are vital to the long term prosperity and identity of communities within the Greater Toronto area.

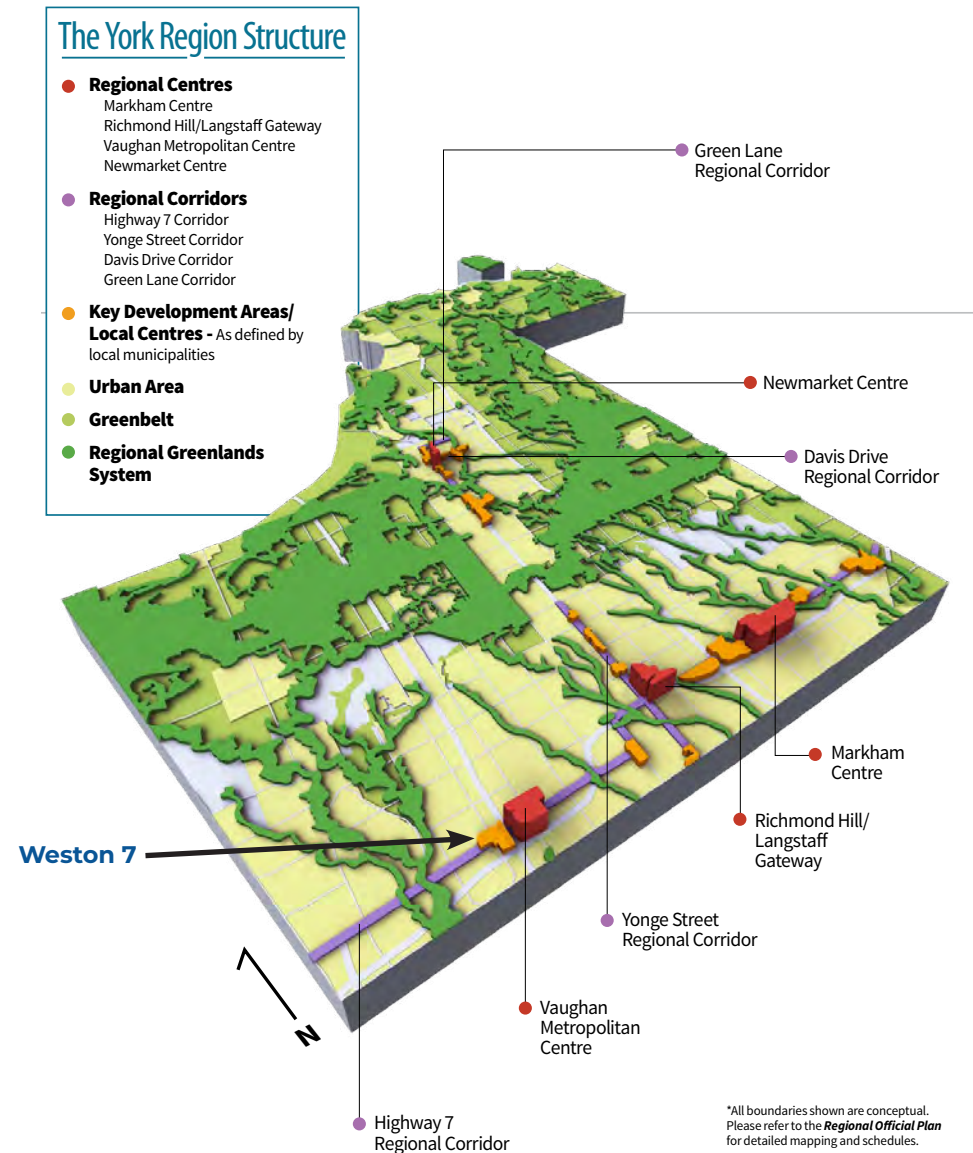


Figure 2. Weston 7 in the York Region Structure (Source: York Region)

1.2.4 The City of Vaughan Official Plan

The City of Vaughan Official Plan (VOP 2010) reflects the Provincial and Regional direction for Weston 7 to be a place for growth and transit-supportive intensification. In Schedule 13 of VOP 2010, the subject lands are currently designated as Mid-Rise Mixed-Use, High-Rise Mixed-Use and Community Commercial Mixed-Use to establish the intention for future growth and change in this area. Schedule 14A of VOP 2010 includes a requirement for a comprehensive Secondary Plan for this area to guide future development, determine the appropriate hard and soft services, amenities, urban form, sustainable initiatives and housing options to develop a complete community.

Vaughan Official Plan (2010) Urban Structure and Land Use Designations

Weston 7 is designated as a Primary Centre in VOP 2010 Schedule 1 (Urban Structure). Primary Centres are locations for intensification, accommodating a wide range of uses in the form of mainly mixed-use mid rise and high-rise buildings that provide for residents' daily needs for living and working in close proximity to transit. They are to be developed as transit-supportive, pedestrian friendly places that support both current and future residents of both the Primary Centre and neighbouring community areas.

Current Land Use Designations (VOP 2010 Schedule 13) permitted within the Weston 7 area are:

1. Mid-Rise Mixed-Use;
2. High-Rise Mixed-Use; and
3. Community Commercial Mixed-Use.

These uses reflect the high density mixed-use nature of development that support Primary Centres.

As a Primary Centre on Priority Transit Corridor, a greater mix of uses and increased density of people and jobs will support investments in the Highway 7 vivaNext Bus Rapid Transit (BRT) rapidway. At a minimum, Weston 7 will be planned to accommodate the minimum density requirement of 160 people and jobs per hectare for Major Transit Station Areas (MTSAs), identified in the Growth Plan For the Greater Golden Horseshoe, 2017 (Growth Plan).

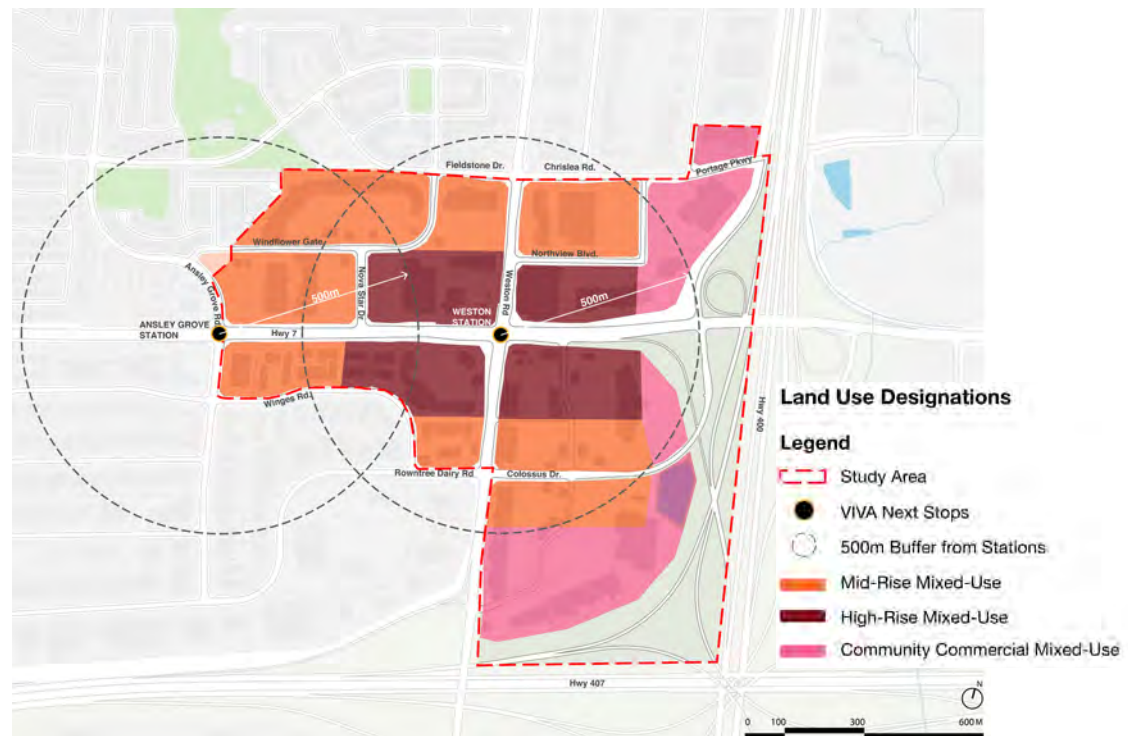
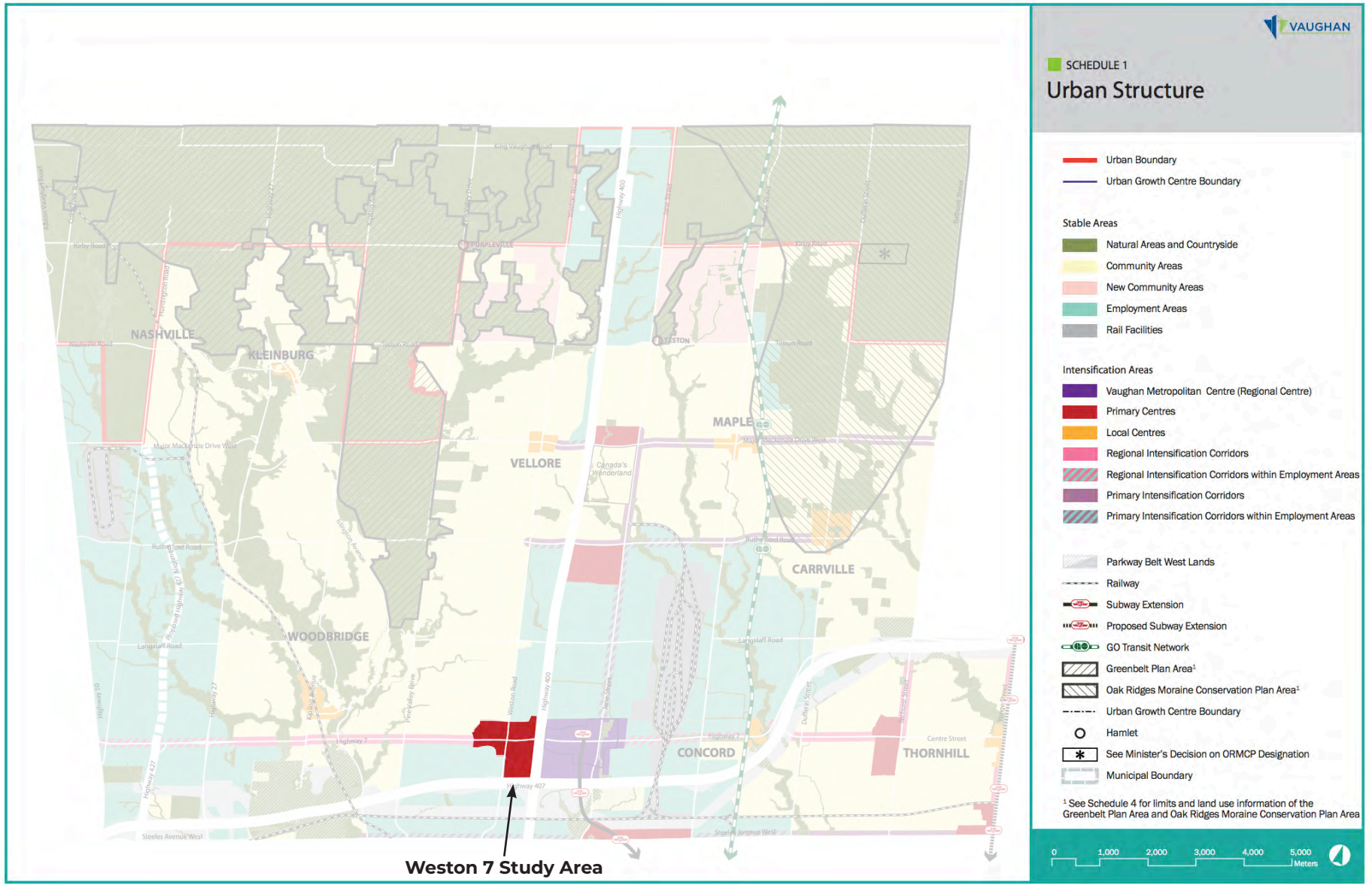


Figure 3. Vaughan Official Plan (2010) Land Use Designations

SCHEDULE 1
Urban Structure



Weston 7 Study Area

Figure 4. Vaughan Official Plan (2010) Urban Structure

1.3 The Study Area

Weston 7 is located on the west side of Highway 400, north of Highway 407 on the Highway 7 corridor a designated Priority Transit Corridor, where York Region Transit is currently constructing the vivaNext BRT system. Two vivaNext BRT stations fall within Weston 7, one at Weston and Highway 7 and to the west on Highway 7 and Ansley Grove Road. Weston 7 is approximately 800 metres from the western edge of the Vaughan Metropolitan Centre (VMC), Vaughan's Urban Growth Centre and future downtown.

Weston 7 is made up of 31 properties, approximately 104 hectares (excluding Highway 400 and 407 lands, but including all other rights-of-way within the SPA). The Weston 7 SPA is currently characterized by single storey low density retail commercial buildings and associated surface parking lots, with the exception of one recent high-density residential development at the northeast corner of Weston Road and Highway 7.

Today, 33 hectares of surface parking lots dominate the SPA. The sizes of the structuring blocks are large and the area is lacking a fine-grained network of streets. The area also exhibits limited pedestrian infrastructure and amenities.

The Weston 7 area today functions as a commercial centre of regional significance. It is a destination for shopping and entertainment uses for people across Vaughan, and York Region, North York and Toronto, different in its role and character in the City from the neighbouring Vaughan Metropolitan Centre (VMC). Day to

day and specialized shopping needs are met in the Weston 7 area, making it an active, healthy commercial node, at the edge of the established Woodbridge neighbourhood.

The Highway 7 corridor, planned as a 45 metre right-of-way to accommodate the vivaNext BRT, is a barrier between the north and south portions of the SPA. Weston Road, forming part of the Regional Transit Priority Network in VOP 2010, is a 43 metre road running north-south, and is a heavily used corridor in this area of the City. It is difficult to cross and acts as a barrier for east to west movements. The Provincial Highway 400 corridor, spanning approximately 300 metres in width, creates a significant barrier between the Weston 7 area to the west and the Vaughan Metropolitan Centre (VMC) to the east.

Other significant constraints to the SPA include existing long-term stable employment areas to the south and west and a mix of landownership patterns and irregular internal road networks. Given the commercial nature of many of the land uses and stable tenants on many of the lands, full growth potential may be realized beyond a 20 year development horizon. However, there is a significant amount of opportunity and development interest as well as relatively unencumbered land to redevelop and contribute to a complete, mixed use community at Weston 7.

The following is a summary of key elements of the SPA today- more detail and analysis of the SPA can be found in Section 3 of the Weston 7 Background Report.

Low Density Commercial

The SPA consists of predominately large format retail destinations and large associated parking lots. Most people are using automobiles to access the area and few are walking. The predominance of parking areas and street connections results in few options for how people and vehicles travel through the area, and there is very little pedestrian activity and significant traffic congestion along the major routes of Highway 7 and Weston Road. Blocks are very large and missing a fine grained street network that would make walking easy and desirable. While sidewalks and a wide boulevard are present along Windflower Gate, there are not many people choosing to walk in the area.

Recent Mixed Use Development

One high-density mixed use development at the northeast corner of Weston Road and Highway 7 was approved by Vaughan City Council in 2014 and is now nearing complete occupancy. The development, known as Centro Square, includes two residential apartment towers of 30 and 33 storeys and approval for 800 units. The development also includes a 10 storey office component of 14,357 square meters and commercial uses of up to 11,402 square meters. Centro Square's built form is reflective of the pattern seen in the VMC, including a retail/ commercial and office podium with residential towers above.

Recent Commercial Development

Some of the commercial development in the southeast quadrant of the Weston 7 area is relatively new, as opposed to older building stock along the south side of the Highway 7 corridor. Consideration of phasing and development timing for existing landowners will be an important component of the land use framework developed for Weston 7.

Highway 7

Highway 7 has a planned 45 metre right-of-way and is currently under construction to realize the centre-lane vivaNext BRT rapidway, a regional BRT line. Weston 7 will be home to two rapidway station stops, one at Weston Road and the other at Ansel Grove Road at the western edge of the SPA.

Highway 7 today is a commercial corridor built to move traffic and is generally hostile to cyclists pedestrians. Some pedestrian and cycling infrastructure is being implemented as part of the vivaNext rapidway construction including a multi-use path and sidewalks.

Employment Uses and Stormwater Management

Employment lands border the SPA to the south and include a range of commercial enterprises in buildings that are well tenanted and active. Understanding how intensification in the Weston 7 SPA effectively transitions and relates to surrounding areas is explored in the draft Land Use Scenarios in Section 3.

A large storm water facility is also part of the south portion of the Weston 7 SPA. The VMC provides a strong example of how an existing natural feature, Black Creek, was used to frame and anchor character areas and redevelopment blocks, turning a stormwater feature into an amenity.

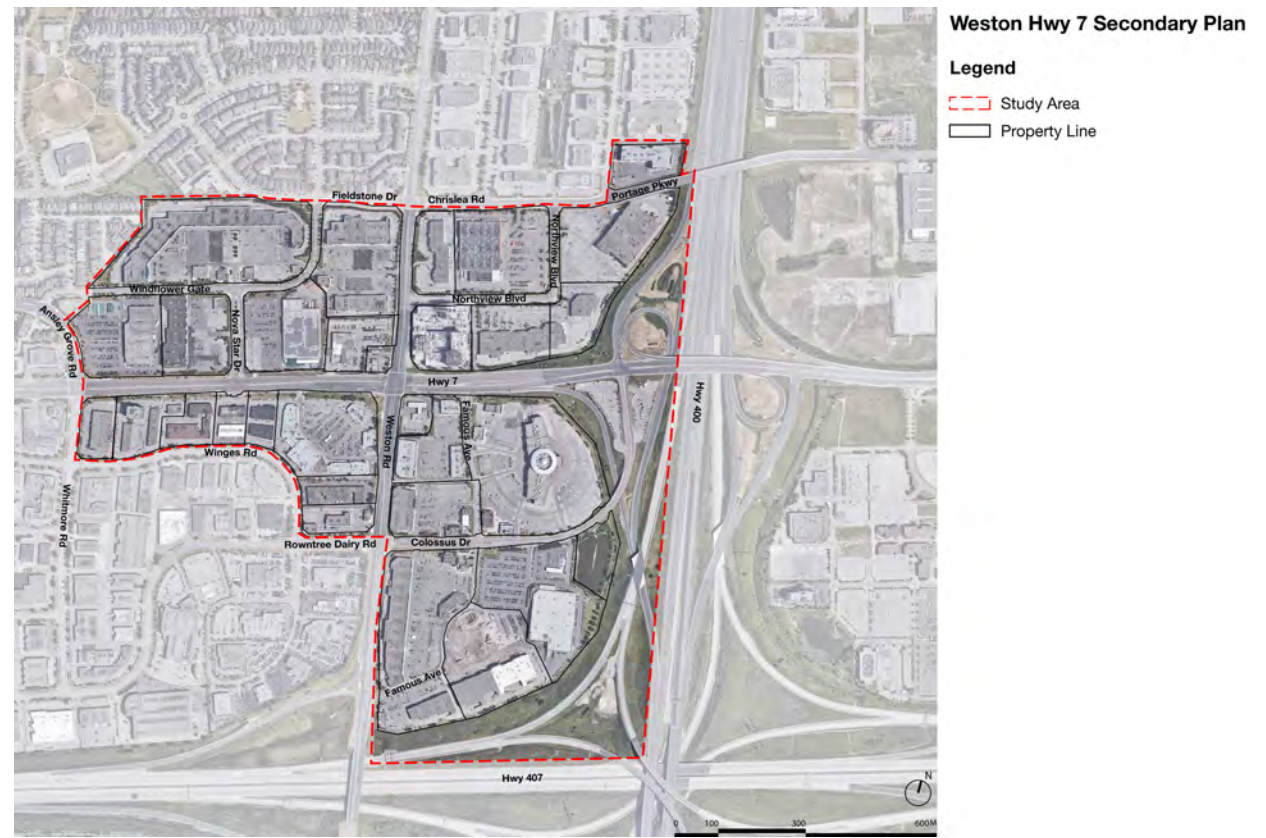


Figure 5. Weston Hwy 7 Secondary Plan Study Area

1.4 Study Area Issues and Opportunities

The Weston 7 SPA has a number of issues and opportunities that will frame how future Secondary Plan development phases unfold. The following is a summary of the primary issues and opportunities facing the area. More detail on SPA Issues and Opportunities can be found in the Weston 7 Background Report.

1.4.1 Opportunities

Sustainable Communities

At this early stage of planning for future development, there is a great opportunity to build in progressive sustainable development practices and policies to shape Weston 7's future and add to Vaughan's objective to cultivate an environmentally sustainable City. As outlined in the Sustainability Analysis (Background Report Appendix 3), key themes such as green buildings, sustainable water management, energy efficiency, climate change adaptation, and sustainable waste management should be put at the forefront of how the Secondary Plan takes shape to ensure that sustainable thinking is embedded into the process early on.

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 (LID) measures are captured by the term green infrastructure and are generally designed at the site or building level. Policies guiding development in Weston 7 should contemplate promoting these types of sustainable practices.

A Sustainability Analysis and Community Energy Plan have been created to begin this conversation and the recommendations from these reports, summarized in Section 6 of the Background Report and included in Appendices 3 and 4 of the Background Report, will inform the Secondary Plan development process going forward.

A Place for Growth

An important opportunity for the Weston 7 SPA is that it is identified as an area for growth from the Provincial policy direction through to the City of Vaughan Official Plan. Primary Centres are locations for intensification, places where rapid transit services intersect with nodes of retail and commercial development, and where there is high redevelopment potential for mixed use transit-oriented development. Change is desirable at this location and there is strongly supportive policy context for transformation of the area into a more complete, connected community, as detailed here and in the Planning Policy Review technical report found in Appendix 3 of the Background Report.

Developable Land

In addition to the policy direction to support future intensification and growth, the available land base at Weston 7, including 33 hectares (82 acres) of surface parking lots and the current low density uses, represents an opportunity for redevelopment of the area. Today, Weston 7 is largely defined by isolated single use existing development including low density commercial buildings, including

Costco, Cineplex, Home Depot, Fortinos and others, as well as smaller employment uses for warehousing and wholesaling and limited residential development. The large impermeable blocks have great potential for change and transformation into more compact, mixed-use transit-supportive development with parks and open spaces.

Major Landowners

The Weston 7 SPA includes over 20 landowners. Two primary land owners hold 43% of the land in the area. Such a land ownership structure presents opportunities for a comprehensive approach to redevelopment, allowing for 'big moves' through the development approvals process to help achieve the Secondary Plan's vision. Consultation with all of the private landowners has been an important part of the engagement strategy for Phase 1 of the Secondary Plan process, which will ensure that those ultimately responsible for implementing change through redevelopment have a voice at the table, along with the public and other stakeholders.

Applying Urban Design Standards

The City of Vaughan's City Wide Urban Design Guidelines (UDG) were adopted by Vaughan City Council in January 2018. The UDG provide performance-based directions for building and site design. As an area with significant future redevelopment potential, Weston 7 presents a significant opportunity to implement a green approach, enhancing the overall character and walkability of the public realm.

1.4.2 Planning Issues

Streets and Blocks

The existing road network of the Weston 7 SPA is auto-centric, and does not currently support alternate modes of transportation. To transform large, single-use blocks, improvements must be made to the connectivity and movement system within the SPA and beyond.

To develop a thriving commercial centre and support the Highway 7 vivaNext rapidway, improvements to circulation are needed to enhance site access and improve movement choices. The widths of the existing rights of way present further challenges in this regard. Weston Road (a 43 metre right-of-way) and Highway 7 (a 45 metre right-of-way) transect the site from north-south and east-west directions. Road widths of these magnitudes tend to create environments that are hostile to pedestrians and cyclists, both in perception and reality, thereby creating barriers. The barriers formed by Weston Road, Highway 7, and to a lesser extent, Colossus Drive lead to 5 precincts within Weston 7- these precincts are explored in more detail in Section 3 (Draft Land Use Scenarios).

In addition to the experiential factors, the distance between the two sides of these major corridors present practical challenges for crossing, often requiring pedestrians and cyclists to cross in multiple stages. A fine-grained pattern of streets and blocks will help to establish Weston 7 as a thriving, pedestrian-oriented mixed-use centre, by creating

porosity and enhanced urban realm to give pedestrians convenient options and alternative routes. Weston 7 streets would follow the new service level standards for urban streetscapes established through Vaughan's City-Wide Streetscape Implementation Manual.

Distinguishing Weston 7 From the Vaughan Metropolitan Centre

The Highway 400 corridor represents a significant barrier between Weston 7 and the VMC, and as such, they must be considered as distinct, but inter-related centres. Along the Highway 7 corridor, the ramps to and from Highway 400 create a separation of existing and future development that can not be reduced. Weston 7 and the VMC are adjacent to one another across this considerable gap created by the Highway 400 corridor.

The VMC is the primary node for intensification and mix of uses in the City of Vaughan's urban structure. The VMC is planned to function as Vaughan's downtown, with the widest mix of uses, including office employment uses, as well as the greatest densities of population and jobs within Vaughan's urban structure.

Weston 7, as a Primary Centre located along a primary transit corridor, will also form an important area of intensification. However, the levels of intensification should not be the same as those of the VMC- this perspective was shared by many stakeholders engaged in Phase 1 of the Weston 7 Secondary Plan process, including Councillors and members of the public.

Weston 7 currently functions as a successful retail and entertainment centre, and this function is very likely to continue into the future. The Weston 7 Secondary plan will need to recognize and support this function as the area continues to intensify and redevelop.

Ongoing intensification and redevelopment will need to maintain an awareness of the relationship between these two centres and balance the approved development. While both Weston 7 and the VMC physically have the space to accommodate a great deal of intensification, market forces and development across the City must be considered when thinking about the future absorption of new residential units, office and commercial space. Balancing growth to allow for all of the City's primary growth areas to succeed in the long term will be an important consideration for future phases of this study.

Parks and Open Spaces

Parks and open space in the Weston 7 SPA today is limited. There are no public parks or natural heritage areas within the SPA. A managed and fenced stormwater management pond is located in the southeast portion of the SPA. Two parks are located to the north of the SPA- Giovanni Caboto Park (6.72 hectares), and Blue Willow Square (0.64 hectares). Within a two kilometre walkshed, there are nine parks, totaling 28.5 hectares; all of which are located in the northwest section of the walkshed, a residential area. The Active Together Master Plan recommends all residential areas be within 500m (walking distance) of a park. The majority of the SPA is not within walking distance of a park.

The planned landscape improvements associated with the development of the Highway 7 corridor present a limited opportunity to contribute to a network of green spaces in the SPA. In addition, many of the existing streets in the area include tree-lined boulevards. Future open space planning in the area should take advantage of these existing assets and planned improvements to create a green space network through the plan area. While they may contribute to an overall network of open spaces, it should be noted that landscaped areas along Highway 7 are not a replacement for public park and open space. The VMC includes a number of new parks and environmental open spaces such as Edgeley Pond and the Black Creek Greenway that frame new development blocks. Weston 7 will require its own strategy and direction to create a meaningful open space network that contributes to the area's quality of life. The future phases of work will begin to define strategies to achieve a parks and open space network to support development.

Transition to Adjacent Uses

The Weston 7 area interfaces with both employment areas (to the north, west, and south), and established residential areas to the north and west. The existing stable residential area of the community of Woodbridge to the northwest of the Weston 7 area consists primarily of low density single family homes and townhomes. The Weston 7 interface with this neighbourhood to the north will require a sensitive transition between higher densities and heights in the centre of the plan area to edge areas.

Areas located to the north, south, and west of the Weston 7 area are protected as provincially significant employment zones, and may only be redesignated through a municipal comprehensive review (MCR). In addition, the light industrial and auto-oriented character of the employment lands to the south and west are located directly adjacent to the plan SPA with no natural 'buffers', and as such, the transition between the two areas will be an important consideration in minimizing potential land use conflicts.

Active Transportation

Weston 7 has no existing bicycle infrastructure in place, however there are a number of planned routes that engage the SPA. While a planned intention for active transportation is a first step forward, making an built environment that is conducive to cycling and streets that feel safe is an important part of making active transportation a viable mobility choice. Through refinements to the street network and changes to the quality and character of the streets, active transportation in Weston 7 could become a preferred way to travel.

1.5 Overview of Phase 1 Background Study and Process

Phase 1 of the Weston 7 Secondary Plan process consisted of three Stages. Stage 1 consisted of a Project Kick-Off, including site tour and developing a consultation plan. Stage 2 focused on understanding the existing context and needs for Weston 7, and concluded with a background report summarizing a policy context and existing conditions review, best practices, and initial consultation inputs. Stage 2 included a public ideas workshop, stakeholder interviews, and a Technical Advisory Committee (TAC) summit. Stage 3 included the development of a vision and guiding principles for Weston 7, which then informed the development of three draft Land Use Scenarios. Stage 3 consultation included a public vision and guiding principles Workshop, a public Land Use Scenarios Workshop, a Landowners Workshop, and a TAC workshop on the draft Land Use Scenarios. These activities and reports are summarized below. Feedback on the draft Land Use Scenarios is included in Section 3 of this report. This Final Report is the final product of the Weston 7 Secondary Plan Phase 1 process.

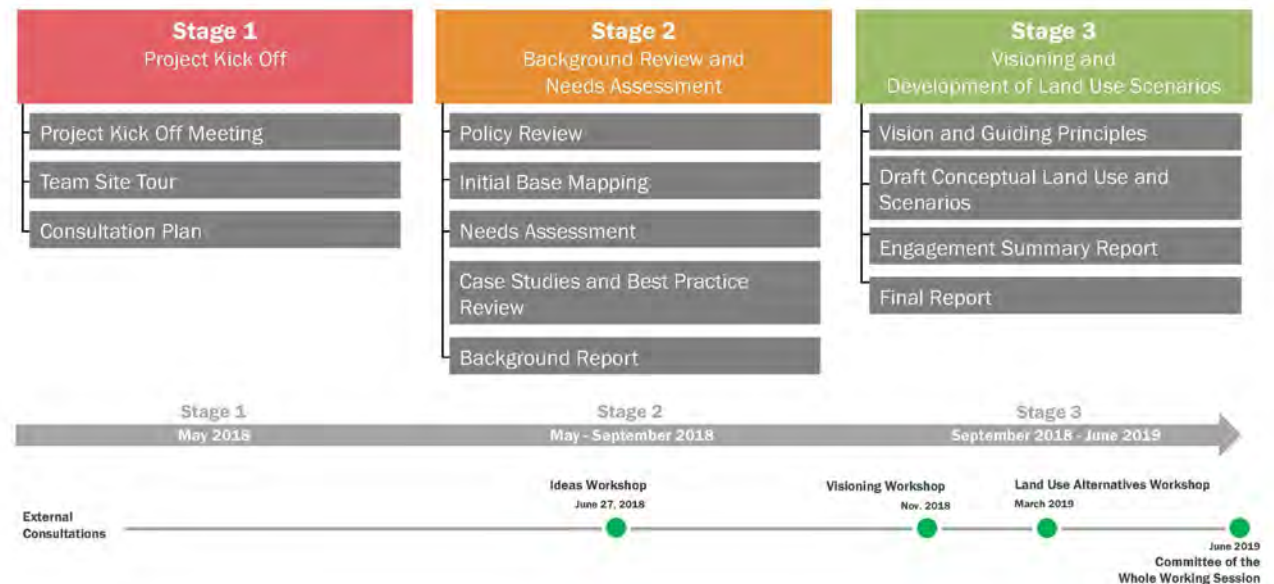


Figure 6. Weston 7 Secondary Plan Phase 1 Work Plan

1.5.1 Stakeholder Interviews

From June-October 2018, the project team held one-on-one interviews with a number of area landowners and stakeholders including the City of Vaughan VMC team, City of Vaughan Economic Development, and York Region Transit. The purpose of these interviews was to inform stakeholders about the study process and timelines, gather insight into their perspectives on the role of Weston 7 in the City of Vaughan and to discuss their short or long term intentions for redevelopment.

Reflecting policy in VOP 2010 that requires a Secondary Plan for the Weston 7 area (VOP 2010 Schedule 14A), most of the landowners are eager to work with the City of Vaughan to achieve their long term development goals for the area. The City of Vaughan contacted landowners on a number of occasions by direct mail and email, as well as in some cases in-person site visits to ensure that each landowner was informed of the study and the ability to participate in the process.

Some general themes from the feedback received these interviews include:

- Weston 7 should be a destination with cultural institutions, entertainment, shopping, parks and public space.
- Greater density is desirable, but not as high as the VMC.
- Today there is a strong focus on the automobile in the area.
- There is a mix of short and longer term

development interests in the area today.

- There are some concerns regarding transition policies to existing neighbourhood areas.
- Some landowners expressed an interest in re-thinking the big box format and moving towards mixed use development.

1.5.2 Technical Advisory Committee (TAC) Roundtable Summit

On June 13, 2018, a Roundtable Summit was held with the project TAC, which included representatives from:

- **City of Vaughan departments:**
 - Policy Planning and Environmental Sustainability;
 - Development Planning;
 - Parks Development;
 - Economic and Cultural Development;
 - Infrastructure Planning and Corporate Asset Management;
 - Urban Design and Cultural Heritage;
 - Vaughan Public Libraries; and
 - Development Engineering and Infrastructure Planning.
- **External agencies:**
 - York Region Engineering;
 - York Region Community Planning;
 - Toronto and Region Conservation Authority;

- York Region Transit/vivaNext;
- York Region District School Board; and
- York Catholic District School Board.

The Ontario Ministry of Transportation was not in attendance at the June 13 TAC summit. The project team met with MTO on August 3, 2018. MTO has also been circulated Weston 7 draft materials for comment throughout the Phase 1 process.

The summit included presentations from Urban Strategies' consultant team to establish the context for the area and to share initial observations about the site, its potential and related challenges. Following the presentations, each of the attendees shared their vision for the future of Weston 7 as well as challenges to achieve that vision with the group. Following individual reflections, the attendees participated in roundtable discussions around topic areas of transportation and infrastructure, environment and sustainability, parks and open space, community infrastructure, and planning, development and urban design. At each table, participants were asked to discuss challenges and opportunities related to their topic area as well as general questions including:

- What is the role of this Primary Centre in the City's urban structure?
- How is Weston 7 distinguished from the VMC and what makes it different?
- What do you see as the greatest challenge for the centre to reach its potential as described in policy?

- What advantages does Weston 7 have in terms of fulfilling its potential?

Some feedback highlights and themes from the Roundtable Summit include:

- **Street Network**- Create a finer grid and support active transportation.
- **Land Use**- Increase the mix of uses while retaining commercial.
- **Intensification**- Focus on the Highway 7 and Weston Road intersection.
- **Capitalizing on BRT**- Create a 7-day destination at Weston 7.
- **Relationship with the VMC**- Weston 7 can be a companion area to the downtown.
- **Parks and Open Space**- Assembling land will be a challenge.
- **Community Infrastructure**- Focus on co-location.
- **Environment/Sustainability**- LID and sustainability principles should be foundational.

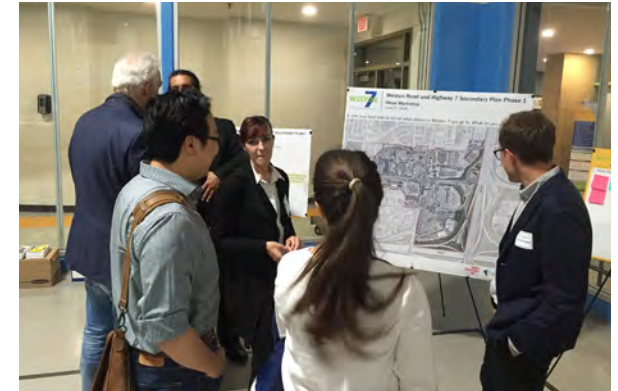
1.5.3 Ideas Workshop

On June 27, 2018 a public Ideas Workshop was held at the Chancellor Community Centre. The workshop included members of the public and local development community and was the first of three public engagement events designed to inform people about the project process and solicit their feedback. The workshop included interactive mapping activities to gather insight

into the places in Weston 7 that are most used, what qualities of the area were liked or disliked, where there are major problems or issues in the area and suggestions for making the place better in the future. Following a brief presentation including policy background and a virtual tour, the attendees were divided into small groups to work on vision boards to illustrate what kind of place Weston 7 could become.

Highlights and themes from the Ideas Workshop include:

- Weston 7 is an important destination for shopping, entertainment and restaurants for Vaughan residents today.
- Many participants expressed frustration with the level of congestion in the area.
- There is a lack of social and community amenities in the area today.
- The area is not felt to be friendly for pedestrians or cyclists today.
- A desire for passive, tranquil open spaces that could be an asset to balance the potential intensity of development.
- Encouraging mid-rise and mixed-use built form, multi-purpose public open spaces that could act as a destination for the new community.
- A common desire to retain the retail in the area along with new residential development to maintain the level of retail service and convenience in the area.



Public Ideas Workshop

1.5.4 Background Report and Supporting Studies

The Background Report, completed in October, 2018 included a summary of a range of baseline conditions and preliminary findings about the Weston 7 area. The work from this stage of research and analysis was used to inform the development of a vision and principles as well as the draft Land Use Scenarios.

As part of the Phase 1 Background Report, the following supporting background studies were prepared by the consultant team:

- Transportation Needs Assessment Report, HDR, October 2018;
- Population and Employment Outlook and Commercial Use Assessment, Hemson Consulting, October 2018;
- Sustainability Analysis, Urban Equation, October 2018;
- Community Energy Plan, Urban Equation, October 2018;
- Planning Policy Analysis, Urban Strategies, October 2018;
- Community Facilities and Services Study, Urban Strategies, October 2018;
- Preliminary Water, Wastewater and Stormwater Servicing Analysis, TMIG, August 2018; and
- Telecommunications Memo, RTG Systems, August 2018.

These background studies are summarized below, and are available as appendices to the Weston 7 Background Report. A complete list of recommendations for further study in Phase 2 of the Weston 7 Secondary Plan project are discussed in Section 4 of this report.

Transportation Needs Assessment Report (HDR), October 2018

HDR prepared a comprehensive review of the transportation-related existing conditions of the Weston 7 SPA as well as description of the key transportation challenges and opportunities. Based on the review of existing conditions, HDR identified six major opportunities for the future of the Weston 7 SPA, described below:

- **Creation of a grid street network**
The expected redevelopment of the SPA offers an opportunity to break up the existing “superblock” pattern, establishing a finer-grained street network with a walkable block structure. Increasing the grid network density would increase the number of options available to all modes, add road capacity to the network, balance mobility choices for walking and cycling trips within the SPA due to improved connections across the land uses, and increase the pedestrian catchment area to vivaNext BRT stations.
- **A transportation network for all mobility users**
A transportation network in the SPA will have to balance the needs of pedestrians, cyclists, transit users, drivers, and goods movement. It will have to take into account

the area’s ongoing role as a retail hub, the needs of pedestrians and cyclists accessing VIVA BRT and VMC subway station from areas, future residential densification, and truck traffic through and within the SPA, particularly to light industrial sites to the southwest of the SPA and to the north of the SPA. Future phases of the study should take these mobility needs and priorities into account when making recommendations, while recognizing streets’ roles in placemaking and prosperity.

- **Improving Pedestrian and Cyclist safety at the Highway 407 ETR Ramps**
Safety challenges exist where cyclists and pedestrians must traverse Highway 400 and Highway 407 ETR interchanges. However, with the Highway 7 West Viva project is planning to implement a median multi-use trail between Famous Avenue towards the VMC, and this will eliminate pedestrian and cyclist conflicts at the free-flow on-ramps. The issue remains however at the Highway 407 ETR ramps however, and solutions to allow pedestrians and cyclists to traverse these ramps safely should be explored in later phases of this study.
- **Improve safety for all modes of travel**
The intersection at Highway 7 and Weston Road has been consistently ranked as one of the highest collision intersections in York Region. It is recognized that safety may be improved for this intersection after the reconstruction of Highway 7. This should

be considered in late phases of the study. With a complete street network and better pedestrian connections at highways, the safety will be improved for vulnerable users such as pedestrians and cyclists.

- **New Innovative Smart Mobility Plan and TDM Measures**

This Secondary Plan presents the opportunity to encourage or require the program for developments in the SPA and tailor it to the needs of local businesses and residents. Existing smart mobility technology (such as Uber / Lyft) and car share programs for trips during the day could also be used to shift travel behaviour away from single-occupancy vehicles to other modes. Emerging social megatrends such as increased green and sustainability awareness are pushing the population towards more sustainable travel behaviours via the rapidly developing pay-per-use economy. Car-sharing, ride-sharing, and bike-sharing in particular can be facilitated by City policies, initiatives, and infrastructure by creating designated, comfortable waiting areas to find a bike-share rack, car-share vehicle, or wait for a ride-share driver.

- **Increase Sustainable Modal Share**

According to the pedestrian walkshed analysis in Section 3.6.3 of HDR's Transportation Needs Assessment Report (Background Report Appendix 1), all roads in the SPA are included as part of the 500 metres that people are willing to walk to a higher order transit stop. As a

result, pedestrian infrastructure should be provided or improved on all roads in the SPA. Pedestrian network improvements have the dual role of increasing the attractiveness of transit as a travel option through improved pedestrian connections from transit stops to local businesses.

- **Optimize the Existing Road Network**

The existing road network should be optimized including improved traffic signal coordination along Weston Road between Northview and Highway 7 intersection, as well as coordination at adjacent intersections, review of turn lane requirements, queue jump lanes.

- **Consider partial ramp access at Portage Parkway**

One of the keys to unlocking the growth potential of the SPA not only for Weston and 7 but also for the VMC, is to provide alternate access to Highway 400. Highway 7 is extremely congested at Weston Road today, and providing additional options to vehicular traffic will significantly improve congestion in the SPA. While it is recognized that MTO has concerns about interchange spacing, future phases of this study should explore the potential opportunities to provide an alternative Highway 400 access to Portage Parkway.

- **Extend Portage Parkway / Chrislea Road west of Weston Road**

A more direct connection back to Highway 7 from Portage Parkway / Chrislea Road

should be considered west of Weston Road. Right now, there is access via Fieldstone Drive, Windflower Gate and Ansley Grove Road, but the route is already congested with multiple turns and does not provide a feasible through-route. However, through development as lands become available, the possibility of reconstructing the roadway along the northwestern boundary of the SPA should be strongly considered. This through-route will prioritize movements into the nearby residential neighbourhoods, which should be restructured as development proceeds.

Population and Employment Outlook and Commercial Use Assessment (Hemson Consulting), October 2018

Hemson Consulting Ltd. prepared a growth outlook to assist in preparing land use and infrastructure plans for the area. The analysis involved preparing estimates of employment and development trends in the SPA, supplemented by development application data from the neighbouring VMC. Development potential was also assessed in relation to Major Transit Station Area (MTSA) density requirements for the vivaNext Highway 7 BRT corridor. Background information for this outlook was gathered from 2016 Federal Census population and housing data, City of Vaughan planning and development applications, and the 2017 York Region Employment Survey.

Category	Land Area (ha)
Total Land Area	126
- Highway 400/407 Lands	(22)
Gross Land Area (for density calculation)	104
- Current Local Roads and SWM	(20)
Developable Area	84
Net Developable Area (25% Gross-to-Net)	63
Net Developable Area (30% Gross-to-Net)	59

Table 1. Weston 7 SPA Land Area Estimates

As of Census day in 2016, the Weston 7 SPA hosted approximately 4,800 jobs and no residents. A recently completed residential development at 7777 Weston road has added approximately 1,700 new residents to the SPA and total employment has increased to approximately 5,000 jobs, mostly in retail and commercial activities.

Preliminary development assumptions for the Weston 7 area are determined in conjunction with the planning for the MTSAs to comply with policy 2.2.4.3 of the Growth Plan for the Greater Golden Horseshoe. The Weston 7 SPA falls completely within the boundaries of two MTSAs, and as a result, the development outlook for Weston 7 takes into consideration density requirements for conformity to the Growth Plan, starting with planning to 160 persons-and-jobs per gross hectare as the minimum density target.

The total gross area of the Weston 7 SPA is approximately 126 hectares, of which approximately 22 hectares make up parts of the

Highway 400/407 interchanges and another 20 hectares make up existing local roads and the storm water management pond (SWM), leaving 84 hectares of parcel area on which future development may occur.

The 84 hectares is reduced by 25–30% as a gross-to-net factor to account for new local roads, storm water infrastructure and park space, resulting in a range of 59–63 hectares of net developable land.

The preliminary development outlook assumes that new development will occur at a ratio of 87% residential space to 13% non-residential space, comprised of supportive retail, commercial and service employment for the future residents of the Weston 7 SPA, as well as additional office space either in freestanding buildings or as part of mixed-use developments.

The development scenarios start with 160 persons and jobs per gross hectare on the low end (to reflect the minimum density target for MTSA planning) and transition to 200 persons

Development Scenario	160	200	250	300	400
(persons+jobs/ha)					
Gross Land Area (ha)	104	104	104	104	104
Total Persons + jobs/ha (Gross)	16,600	20,700	25,900	31,100	41,400
Persons + jobs to remain	(1,900)	(1,900)	(1,900)	(1,900)	(1,900)
NEW PERSONS AND JOBS	14,700	18,800	24,000	29,200	39,500

Note: Numbers may not add due to rounding.

Table 2. Weston 7 SPA Population and Jobs Outlook

and jobs per gross hectare (reflecting the density target for VMC and most urban growth centres in the Greater Toronto Area and Hamilton). Densities higher than 200 are provided for illustrative purposes to 400 persons and jobs per gross hectare, the density target for the Downtown Toronto Urban Growth Centre (UGC).

- At 160 people and jobs per hectare, estimated population and residential unit demand is 5,790 housing units and 1,930 jobs.
- At 200 people and jobs per hectare, estimated population and residential unit demand is 7,430 housing units and 2,480 jobs.
- At 250 people and jobs per hectare, estimated population and residential unit demand is 9,470 housing units and 3,160 jobs.
- At 300 people and jobs per hectare, estimated population and residential unit demand is 11,510 housing units and 3,840 jobs.

- At 400 people and jobs per hectare, estimated population and residential unit demand is 15,600 housing units and 5,200 jobs.

The population, housing and employment potential provided were prepared on the basis of a long-term ultimate development capacity and not planning to a specific horizon year

According to Hemson's report, it is reasonable for the City of Vaughan to plan to achieve development densities up to 160 persons and jobs per hectare by 2041, allowing it to meet the density targets for the Highway 7 MTSAs within the time frame of the Secondary Plan, but achieving densities higher than that would require a longer-term outlook.

In addition to planning to meet the minimum density targets, finding the right balance of density in Weston 7 and other growth areas in the City, particularly in the VMC will be important. This will be further analyzed in Phase 2 of the Weston 7 Secondary Plan process. Development applications already submitted for the VMC will account for 56% of the total forecast

of apartments from 2016-2041 for the entire City of Vaughan. In planning for 160 persons and jobs per hectare to 2041, the Weston 7 SPA would account for 40% of the remaining potential, a significant figure considering the combined total outlook for apartments in other City of Vaughan area plans.

It is important that the Weston 7 SPA plays a complementary role to the VMC and not compete for similar uses and development. As a result, the Secondary Plan may consider a limit to the development outlook to 2041 at 200 persons and jobs per hectare to ensure the Weston 7 SPA meets the guidelines for Regional Corridors, the minimum density target for the vivaNext Highway 7 Corridor and without co-opting the VMC's role as an Urban Growth Centre.

With regards to Commercial Uses, as a whole, the area plays an important role in providing retail and commercial services to a wide catchment area including residential uses to the northwest of the Weston 7 SPA as well as the Highway 400 and Pine Valley employment areas. Moving forward, it is important for the SPA to maintain its role as a commercial centre for a broader area than the immediate Secondary Plan boundaries.

As an existing commercial area with a regional catchment area, the employment outlook also accounts for office, retail and institutional employment as shown in Table 3 below. As the City of Vaughan proceeds with the planning for the Weston 7 SPA, the relationship between

Development Scenario (persons+jobs/ha)	160	200	250	300	400
Office Employment	470	610	770	940	1,270
Retail and Institutional Employment	1,460	1,870	2,390	2,900	3,930
TOTAL EMPLOYMENT	1,930	2,480	3,160	3,840	5,200

Table 3. Weston 7 SPA Employment by Type

residential and nonresidential outlooks may change as the plan for the area develops and consideration is given to a broader role for non-residential development in the area. A complete accounting of the projected non-residential space is provided in Appendix 2 of the Background Report.

Sustainability Analysis (Urban Equation), October 2018

The Sustainability Analysis prepared by Urban Equation is a document that provides insight and strategies for how to create a Secondary Plan for Weston 7 that provides the background information on sustainability directions to input into future phases of the Secondary Plan's development including the vision and directions as well as the ultimate policy language. The report provides a robust analysis of provincial, regional, and municipal policies, plans, and strategies, which inform the sustainability vision, guiding principles, and strategies. The report also includes policies and tools to help the City improve the delivery of green infrastructure, green building design, and climate change adaptation.

The report includes a detailed review of policy including directions from:

- Provincial Policy Statement (2014)
- The Growth Plan for the Greater Golden Horseshoe (2017)
- Ontario's Climate Change Strategy (2016)
- Ontario's Five-Year Climate Change Action

Plan (2016-2020)

- Long-Term Energy Plan (2013)
- Ontario Climate Change and Health Toolkit
- MOECC Low Impact Development Storm
- Water Management Guidance Manual (2017)
- York Region Official Plan (2010)
- York Region Sustainability Strategy: Towards a Sustainable Region
- City of Vaughan Official Plan (2010)
- Green Directions Vaughan (2018 Draft Update)
- The Vaughan Municipal Energy Plan (MEP)
- Vaughan Sustainability Performance Metrics

Key themes that emerged through reviewing the relevant policy direction that informs how sustainability should be incorporated into the planning process include: sustainable water management, energy efficiency, climate change adaptation, sustainable transportation, a strong local economy, and sustainable waste management. In the body of the report, each theme is defined by a guiding principle and a number of strategies are recommended for consideration in the long term redevelopment of the Weston 7 SPA.

In addition, the report includes policy and tool recommendations to consider for the policy development stage of the Secondary Plan. As noted in the report, the proper policies and tools are required to ensure that development can be moved towards more sustainable

outcomes. Recommended policies and tools organized into three categories: green infrastructure, green building, and climate change adaptation. A selection of some of the policy recommendations in these theme areas are provided below:

Green Infrastructure:

- Development in the SPA 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, which is being updated at the time of this report.
- 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;
 - Maximizing the extent and function of vegetative and pervious surfaces; and
 - Consider a higher mandatory threshold for green infrastructure by augmenting the existing Vaughan Sustainability Performance Metrics.

Green Buildings:

- 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.
- Achieve high standards of environmental sustainability by encouraging green buildings.

Climate Change Adaptation:

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

While the scope of the Phase 1 work for the Weston 7 Secondary Plan will not include policy development, the recommendations of the Sustainability Analysis will be carried forward into future stage of work. As the report recommends, as the planning framework for the SPA progresses, the Sustainability Analysis report can inform decision-making regarding

the development vision and guiding principles, which will ensure that sustainability permeates the land use and development scenarios, including elements of transportation, building design and block orientation, and public realm design.

Community Energy Plan (Urban Equation), October 2018

The Community Energy Plan (CEP), available in Appendix 4 of the Background Report, seeks to inform the anticipated energy use of the Weston Road and Highway 7 Secondary Plan area, informing long term energy planning for development. Focused on the importance of climate change to Vaughan, as advanced in the York Region Official Plan, Vaughan Official Plan 2010, Green Directions Vaughan and the Municipal Energy Plan, the Community Energy Plan presents the high-level background knowledge required to eventually plan for an energy efficient, low-carbon community in Vaughan.

The report includes information about planning for energy at the community scale, a summary of energy policy, trends in carbon emissions, energy demand and efficiency projections, a discussion of resiliency, community energy technologies and community energy systems.

Energy demand and efficiency scenarios for buildings planned in the Weston 7 area are provided giving an estimate of energy use based on three scenarios that escalate in projected reductions in carbon emissions, to show how progress could be made towards Vaughan’s long

term goal of becoming a net zero carbon city. The three scenarios are: 1- baseline compliance with the Ontario Building Code (OBC); 2- incremental improvement beyond the OBC; and 3- towards net zero carbon. Scenarios 2 and 3 have 11% and 59% reduction in projected energy use respectively, and a 12% and 84% reduction in GHG emissions over the baseline scenario 1, respectively. Such progress towards limiting energy use can be possible with advancements in building technology, focusing primarily on reducing heating and domestic hot water loads, and included in policies or design guidelines for Weston 7 in a future stage of work.

With regards to resilience, energy resilience is an important factor in adapting to climate change. Both technological and people driven, organizational solutions are explored in this CEP. Voluntary guidelines for increased backup power capacity, particularly for multi-unit residential buildings, are reviewed. This includes strategies for expanding the use of emergency generators, particularly in high rise residential buildings, to provide power for longer and to additional services.

The Community Energy plan also explores several technologies, focused on renewable, efficient and low carbon options, which can serve community energy demands.

Technologies explored in detail include the feasibility of geothermal systems for heating and cooling and the use of Combined Heat and Power (CHP) technology to provide both electricity and thermal energy. Technologies may also improve resilience by virtue of providing

power independent of the electricity grid during power outages, for example by using CHP to provide emergency backup power.

Given that the Weston 7 planning process is being done on a large, community scale, the Community Energy Plan addresses community scale and district energy systems allow the community to provide local generation and demand response, improving resilience and creating more opportunities for integration of renewable and low carbon strategies. High and low temperature district thermal options, as well as micro-grid electricity storage and delivery, are explored. Community energy systems identified open up possibilities related to fuel flexibility, future-proofing energy supply options and allowing for adaptability over time.

The Community Energy Plan provides important insight into the energy performance of the Weston 7 area and is an opportunity to engage in a conversation at an early stage in the Secondary Planning process about the right strategies to introduce at the municipal level to manage energy use and contribute to Vaughan's long term goal of becoming a net zero carbon city.

Planning Policy Analysis (Urban Strategies), October 2018

A planning policy analysis was completed by Urban Strategies in support of the Background Report (Background Report Appendix 5). This policy analysis is summarized in Section 1.2 of this report.

Community Facilities and Services Study (Urban Strategies), October 2018

As part of understanding the impact of future growth in the Weston 7 SPA on community services such as parkland, schools, libraries, indoor and outdoor recreation facilities, social services, childcare and places of worship, a CFSS was undertaken by Urban Strategies.

The purpose of the CFSS is to assess the current provision of community services and facilities within the SPA, and to understand how provision levels may change over time in light of anticipated population growth. The following are significant findings from the analysis that may be used to inform and support the Weston / Hwy 7 Secondary Plan planning process:

- The SPA is anticipated to experience substantial population growth over the long-term planning horizon. In the Vaughan Metropolitan Centre (VMC) (which falls within the SPA), more than 9,700 units are proposed or approved, representing a potential resident population of 19,224 residents. Development outlooks for the Weston / Hwy 7 Secondary Plan show a potential population of between 12,740 and 34,320. Altogether, over the long term, the population of the SPA could grow to between 54,842 and 76,422 people.
- Future population growth may significantly reduce the rate of parkland provision, which is currently above the city-wide provision level of 1.86 hectares. However, to apply the ATMP's recommended target of 2.0 hectares

per 1,000 residents (new growth) to the SPA would require significant new parkland – between 22 and 65 hectares. This is not realistic in the context of an intensification area, considering the challenges of assembling land and the economic realities of development. A parkland provision target specific for the SPA should be developed to address this challenge, and parkland acquisition should be front-ended.

- In all development scenarios, provision levels of public libraries will decrease to below ATMP provision targets, despite the library branch and self-serve library currently under construction at VMC. Depending on the development scenario, the deficit of library space could range between 3,964 and 17,127 square feet.
- There is limited capacity at the two YRDSB elementary schools that serve the Secondary Plan area. YRDSB staff have indicated that an elementary school site would be required for development scenarios 1 and 2, and that additional school sites may need to be considered for the higher density scenarios. School sites would be provided consistent with the VMC standard of five acres, though the ultimate size may be adjusted through the planning and development process.
- The requirement and preferred location of a school site will be refined through Phase 2 of the Study. The YCDSB will continue to be engaged throughout the Secondary Plan process. The YCDSB reserves the opportunity

to provide school site designation requirements as development scenarios are refined, specifically relating to timing and unit types.

- Future population growth in the SPA will reduce the provision level of community centres to below ATMP provision targets in development scenarios 3, 4 and 5 of Hemson's analysis, despite the new YMCA under construction in VMC. This service gap (1:38,000 in scenario 5 against a provision target of 1:30,000) may not be significant enough relative to service gaps elsewhere in the municipality to warrant a new facility.
- The demand for community centres is largely driven by the need for the component parts – libraries, fitness centres, gymnasiums, arenas and indoor pools. As demonstrated above, the provision levels of many of these facilities will fall below ATMP provision targets in some, but not all, development scenarios.

Preliminary Water, Wastewater and Stormwater Servicing Analysis (TMIG), August 2018

TMIG conducted a preliminary water distribution, wastewater, and storm servicing analysis to understand the existing sanitary system in the SPA and the capacity for the potential development of the Weston 7 SPA. Background information for the water distribution, wastewater collection and stormwater management systems were obtained from the City, through the Vaughan City-Wide Water/Wastewater and Stormwater Management Master Plans dated June 2014. Several key findings are outlined below:

Water Distribution

- Much of the planned intensification can be accommodated within the existing distribution system as the City's watermains were generally constructed based on a design criterion of 450 Litres per Capita Per day (Lpcd), which does not reflect the historical reductions in water demands over the past several decades.

Wastewater Collection

- Much of the planned intensification can be accommodated within the existing collection system as the City's sewers were generally constructed based on a design criterion of 450 Lpcd, which does not reflect the historical reductions in water demands (and – by extension – wastewater generation) over the past several decades.

Stormwater Management Analysis

- Impervious coverage in the area is estimated at 90% or higher. Redevelopment and intensification of established urban areas is generally expected to reduce impervious cover through increased landscaped areas and new parks.
- All new developments within the Weston 7 SPA will be required to adhere to most up-to-date City of Vaughan, TRCA, and MECP standards. The updated standards are more stringent than the criteria in the past. Thus, generally, the existing system will have a slight improvement from new development within the SPA.

Once development alternatives are further defined, a more detailed analysis of the servicing requirements of the alternatives will be prepared. A functional servicing report will not be prepared as part of the Weston 7 Secondary Plan Process, as this will be undertaken at a later date in conjunction with an update of the City's Infrastructure Master Plans. See Appendix 7 of the Background Report for the TMIG report.

Telecommunications Memo (RTG Systems), August 2018

RTG prepared a brief memo outlining communications infrastructure availability in the Weston 7 SPA. The Weston 7 SPA area is currently serviced by both Bell Canada and Rogers Cable Communications for telephone, television, and internet servicing. Both Bell and Rogers have existing fibre optic cables along Weston Road and Highway 7 corridors. Bell and Rogers would review service applications within the SPA, confirm financial viability and then provide service to developments as required connecting to their existing infrastructure grid. Additional capacity, if required, would be brought in via the existing Highway 7 or Weston Road corridors. As the planning for the SPA evolves, Area Managers for both Bell and Rogers should be kept apprised of developments on a regular basis to ensure that they can provide the most up to date services available to the area. See Appendix 8 of the Background Report for the RTG report.

Background Report Key Findings

Some of the key findings from the Background Report that will be critical to the subsequent stages of the Secondary Plan development include:

- Defining the appropriate people and job targets for the Weston 7 area in relationship to its role in the urban structure and the overall network of MTSAs in the City of Vaughan will be essential. Weston 7 will need to conform to higher order planning policies, and will need to consider the York Region and City of Vaughan Official Plan updates currently underway.
- Principles of sustainability should be reflected in urban design strategies and policy recommendations for the Weston 7 area.
- It will be important to identify strategies to accommodate growth and address the high levels of traffic congestion including the creation of a draft new street network and transportation demand management strategies to influence movement patterns over time.
- An appropriate parks and open space network to frame development must be determined.
- Weston 7's role and character in the City and in relationship to the VMC must be clearly defined.

1.5.5 Vision and Principles Open House

On November 7, 2018 a vision and guiding principles workshop was held at the Hilton Garden Inn. The workshop included members of the public and local development community and was the second of three public engagement events designed to inform people about the project process and solicit their feedback. The workshop included a summary of project work to date and interactive panels on the vision and each of the 8 guiding principles. Following a brief presentation on the vision and principles, attendees shared their input on the panels and with City of Vaughan staff and consultant team members.

Some of the feedback received at the vision and guiding principles workshop included:

- “Weston 7 has a lot of potential”
- “Need senior independent living apartments that could include care and meal plans”
- “How do we address the needs of people in distress? Low income, illness, isolated, mobility, etc.”
- "How do you plan to address the winter months to encourage social connection and cohesion?"
- “Would be nice to see parks breaking up large blocks to make Weston more walkable”
- “Greater canopied trees on boulevards for shade”
- “Desperately need more open space – too much congestion!”

- "Low carbon is hard when surrounded by industrial park"
- "Can we adopt a night life and live music?"
- "Does this mean less room for parking?"
- "These families have children who need to get to school. School bus parking issues is a big problem in this area. Needs to be addressed at the planning level."
- “Alleviate traffic at Weston”
- “Recent approvals tend to be massive condos. Where are the mid-rise buildings?”
- "What does “high quality” or “design excellence” mean? How is it carried through to development?"
- "European feel to socialize with outdoor patio, walk thru among greenery."



Vision and Principles Open House





Section 02

**DRAFT VISION,
PRINCIPLES
AND POLICY
DIRECTIONS**

2 DRAFT VISION, PRINCIPLES AND POLICY DIRECTIONS

The vision and principles form a shared understanding of what the Secondary Plan for Weston 7 should achieve. They were developed through input from a range of sources including:

- Public Feedback
- Background Report Findings
- Landowner and Stakeholder Interviews
- Working sessions with the City of Vaughan project team
- Provincial, Regional and City of Vaughan policy expectations for growth

The principles are subject to interpretation and could be achieved in a variety of ways, but the words and guidance of this work has formed a foundation for the Land Use Scenarios and the future development of Weston 7. The following section outlines the vision, guiding principles and policy considerations, and refer to relevant higher-level policy direction where applicable. A complete review of planning policies relevant to Weston 7 can be found in the Weston 7 Secondary Plan Phase 1 Background Report.

2.1 Vision

“Weston 7 will be a vibrant and inclusive place for all people from Vaughan and surrounding cities to gather, shop, live, work and enjoy. As one of the city’s primary growth centres, it will be a distinct urban place with a variety of commercial, cultural and entertainment destinations, providing housing options and jobs within walking distance to the Highway 7 rapidway. The area will evolve into a place that is universally accessible; providing convenient options for everyone to comfortably and safely get around by walking, biking, taking transit or driving. Weston 7 will strive to be a low-carbon, healthy community defined by a network of pedestrian-oriented, well-connected streets, parks and gathering places that becomes a distinguished, landmark destination of choice in Vaughan.”



Weston 7 Vision and Principles Inputs

2.2 Draft Principles and Policy Directions

2.2.1 Role

"Develop a significant commercial, cultural, and entertainment destination that builds upon current assets and strengthens the local economy."



An important consideration in developing the Weston 7 Secondary Plan will be the area's relationship with the adjacent VMC. The VMC is intended to evolve into the City of Vaughan's downtown, with the greatest intensity and mix of uses and highest density of people and jobs. As a Primary Centre, Weston 7 is also planned for transit supportive population densities and a wider mix of uses, although it should complement, and not compete with the VMC.

The role and character of Weston 7 will be explored through the draft Land Use Scenarios presented in this report and the development of a preferred scenario in Phase 2 of the Secondary Plan project. Potential policy considerations to

support this Principle include:

- Policies in the Weston 7 Secondary Plan will need to consider the plan area's relationship with the VMC, as well as with other Primary Centres within the city.
- A clearly defined role for Weston 7 within the City of Vaughan in order to ensure it complements other Primary Centres and the VMC, rather than competing with them.
- While most of Weston 7 will be planned to be a mixed use community, policies should build on the strengths of the area today, as a commercial, cultural and entertainment destination.

2.2.2 Multi-Modal

"Establish a connected, multi-modal community that supports choice of movement for cars, pedestrians, cyclists and transit users."



Reducing traffic congestion and greenhouse gas emissions in Weston 7 will be supported by ensuring residents and visitors have viable alternatives to the private automobile. Cycling and walking are important elements of a multi-modal community, supporting first and last mile connections to the Highway 7 BRT corridor, as well as allowing residents a greater range of transportation choice within the community.

Weston 7 currently has no existing bicycle infrastructure in place, and is dominated by large surface parking lots that are not pedestrian friendly. Creating a built environment that is conducive to cycling and walking, and streets that feel safe for all users is important part of making active transportation a viable mobility choice. Through refinements to the

street network and changes to the quality and character of the streets, active transportation in Weston 7 could become a preferred way to travel. Potential policy considerations to support this Principle include:

- Prioritizing the safety and comfort of pedestrians and cyclists in all streets within Weston 7, including contextually appropriate infrastructure.
- Requiring adequate, safe, and sheltered bicycle lock-up facilities at public destinations and within new private developments.
- Establishing a network of bicycle lanes and paths that is linked to the city-wide bicycle network.
- Requiring pedestrian and bicycle circulation be considered in applications for development in Weston 7.

2.2.3 Public Realm

"Create a diverse and a high quality public realm that supports urban vibrancy and civic gathering."



An inviting, comfortable, and active public realm will be a key component of the success of Weston 7. Today, the plan area is automobile-oriented, with large blocks and large parking lots. While the Weston 7 area plays an important role for Vaughan residents, the uses in the area are largely utilitarian today; the availability of retail and entertainment destinations is attracting people to the area, not its quality of place. In addition, there are no public parks or open spaces within the plan SPA, and there are limited locations for civic gathering. To support this Principle, future development in Weston 7 should be people-oriented, with a focus on creating civic gathering spaces.

A number of existing City of Vaughan policies and guidelines support this Principle, including:

- **City Of Vaughan Official Plan Policy 2.1.3.2 (k):**

“Establishing a culture of design excellence with an emphasis on providing for a high quality public realm, appropriate built form and beautiful architecture through all new development”

- **City of Vaughan City-Wide Urban Design Guidelines Priority 6: Frame an Active Public Realm and Pedestrian Environment:**

“New buildings will be designed to integrate with public spaces, amenity spaces and streetscapes. The design of sites and the ground floor of buildings will be particularly important in creating a seamless transition between private and public space and supporting a vibrant public realm.”

- **City of Vaughan City-Wide Streetscape Implementation Manual:**

The Streetscape Manual addresses the public realm component of streets- from the curb to building frontage. The intent of these streetscape improvements is to support active transportation, provide consistent quality of design, and design streets that are appropriate to their context.

- **City of Vaughan City-Wide Public Art Program:**

Primary Centres are identified as a Key Opportunity for where Public Art should be located.

Potential policy considerations to support this Principle include:

- Directing parking associated with new development in the plan area to underground or structured parking facilities wrapped with active uses, prohibiting the development of new surface parking lots.
- Limiting blank exterior walls in new development to support visual interest at a pedestrian scale.
- Ensuring adequate setbacks from rights-of-way to ensure a comfortable pedestrian realm.
- Exploring opportunities for new public gathering places such as public squares.
- Requiring a high standard of landscaping and streetscaping, aligned with the City-Wide Streetscape Implementation Manual.
- Applying urban design guidelines aligned with the Zoning By-law and City-wide Urban Design guidelines to implement a green approach to development and support a comfortable, attractive public realm.

2.2.4 Housing

"Encourage variety in housing types and tenures to meet the life cycle needs of people of all ages."



Planning policies at the provincial, regional, and municipal levels provide strong direction to support diversity in housing types and tenures, particularly in transit-accessible areas.

- **Section 2.2.4 of the Growth Plan for the Greater Golden Horseshoe (2017):**

This Section includes specific direction in how Major Transit Station Areas (MTSAs) and Priority Transit Corridors (PTCs) are to be planned, calling on these areas to incorporate a diverse mix of uses including affordable housing.

- **Section 3.5.6 of the York Region Official Plan (2010):**

This Section directs a minimum of 35% of new housing units in Regional Centres and Key Development Areas to be affordable.

- **Policy 2.1.3.2 (j) of the Vaughan Official Plan (2010):**

This Policy provides for a diversity of housing opportunities in terms of tenure, affordability, size and form.

Secondary plan policies for Weston 7 developed in Phase 2 will be consistent with this higher-level policy direction to encourage housing diversity, including affordable housing.

Potential policy considerations to support this Principle include:

- Directing a mix of unit sizes and numbers of bedrooms in new development to accommodate varied lifestyles and life stages.
- A minimum of at least 35% of housing units should satisfy York Region's affordable housing threshold.
- Encouraging a range of residential building types, including high-rise, mid-rise buildings and townhouses.

2.2.5 Well-Being

"Encourage an inclusive community with a built environment that fosters social connection and cohesion."



This Principle is closely linked with other principles for Weston 7, particularly those related to Multi-Modal transportation, Design Excellence, and the Public Realm. Weston 7 should be a place for people of all ages, abilities, and means; a place with a pedestrian-friendly public realm, a transportation network that supports active transportation, active streetscapes and public spaces can all support the goals of inclusivity, social connection and cohesion.

In addition to the potential policy considerations under related principles, well-being could be supported through proposed policy considerations such as:

- Ensuring streets are accessible for those with disabilities, through curb ramps, surface textures and clear passageways.
- Requiring all new public buildings, parks,

and open spaces be universally accessible.

- Where privately owned, publicly accessible public spaces are proposed, ensure that access is not restricted.

2.2.6 Sustainable

"Create a place that is rooted in sustainability and considers impacts to future generations."



The development of the Weston 7 Secondary Plan presents a great opportunity to build in progressive sustainable development practices and policies to shape the area's future and add to the City-wide objective of cultivating an environmentally sustainable City. Key themes such as green buildings, sustainable water management, energy efficiency, climate change adaptation, and sustainable waste management should be put at the forefront of how the Secondary Plan takes shape to ensure that sustainable thinking is embedded into the process early on.

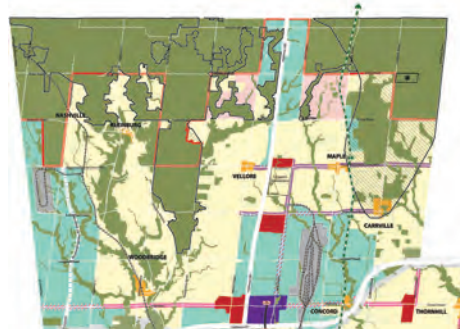
Potential policy considerations to support this Principle include:

- Require applications for development to provide submissions to implement the Vaughan Sustainability Performance Metrics (SPM).

- Require that all development in Weston 7 have regard for the goals and objectives of Green Directions Vaughan, the Toronto and Region Conservation Authority's Low Impact Development (LID) Stormwater Management Planning and Design Guide, and the City of Vaughan's Stormwater Management Master Plan.
- Require applications for development include a Sustainable Development report, consistent with Policy 9.1.3.3 of the Vaughan Official Plan 2010.
- Encouraging future development to incorporate on-site LID measures, and maximizing the extent and function of vegetative and pervious surfaces.
- Encouraging new private development and public buildings to be constructed to zero emission standards by 2030, and all buildings to meet zero emission standards by 2050 to minimize climate change impacts associated with the built environment, as recommended in the Intergovernmental Panel On Climate Change Summary for Policy Makers, directed at limiting global warming to 1.5°C.
- Encourage building and block design to maximize solar energy gains.
- Encourage future buildings to incorporate renewable energy (e.g. solar panels) where feasible.
- Require multi-unit residential buildings to include areas of refuge for extreme weather events.

2.2.7 Balanced Intensification

"Develop a balanced approach to growth and density that capitalizes on transit investment while respecting the ability of other Vaughan centres to also grow and evolve."



As a Primary Centre, Weston 7 is an important location for growth in the City of Vaughan. However, Weston 7's location adjacent to the Vaughan Metropolitan Centre (VMC) introduces some important considerations for planning growth in this Primary Centre. The Highway 400 corridor represents a significant barrier between Weston 7 and the VMC, and as such, they must be considered as distinct, but inter-related Centres.

Potential policy considerations to support this Principle include:

- Implement a people and jobs target and related development heights and densities that reflect an awareness of the urban structure relationship between Weston 7, as a Primary Centre, and the VMC, as the

Regional Centre. In addition, the relationship between Weston 7 and the other Primary Centres in the City should be reviewed to ensure balanced development City-wide.

- While both Weston 7 and the VMC physically have the space to accommodate a great deal of intensification, market forces and development across the City must be considered when thinking about the future absorption of new residential units, office and commercial space. Balancing growth to allow for all of the City's primary growth areas to succeed in the long term will be an important consideration for future phases of this study.

2.2.8 Design Excellence

"Focus on high quality place making and design excellence to distinguish Weston 7 within the region and Greater Toronto Area."



This Principle is closely linked with the Public Realm Principle for Weston 7. As a Primary Centre, Weston 7 is an important area for growth within the City's urban structure, and will continue to be a destination for residents throughout the city. As such, encouraging high-quality architecture that respects the existing and planned built form, with appropriate transitions to surrounding established communities will be important.

Potential policy considerations to support this Principle include:

- Requiring new development be aligned with the City of Vaughan's City-Wide Urban Design Guidelines.

- Consider developing site-specific urban design guidelines for Weston 7.
- Requiring new buildings to have detailed facades using high quality materials, and substantial glazing.
- Visually breaking up larger buildings to reduce perceived mass.
- Requiring a podium and tower form for high-rise buildings to minimize shadowing and wind impacts.
- Respecting existing stable neighbourhoods by including provisions for transitioning heights.





Section 03

DRAFT LAND USE SCENARIOS



3 DRAFT LAND USE SCENARIOS

With the VOP 2010 policies as a foundation, the draft Land Use Scenarios primarily explore the potential role and character of Weston 7 in Vaughan. They take the core elements of the vision and look at different ways those ideas can be expressed on the ground.

Each of the draft Land Use Scenarios described in this report address the vision and principles developed in the Phase 1 process as well as the City of Vaughan Official Plan (VOP 2010) direction for a Primary Centre. Establishing a clearly defined role is one of the 8 guiding principles for Weston 7. The three draft Land Use Scenarios developed in Phase 1 express variations of the role and character of Weston 7 by taking the core elements of the vision and applying these ideas on the ground. While other principles are considered in the three draft Land Use Scenarios to a limited extent, they will need to be applied and tested through further study in Phase 2 of the project, as well as in the policy development stage of Phase 2.

3.1 What the Scenarios Examine

In exploring the "role" principle of Weston 7, the draft Scenarios focus on where different character elements of a mixed-use community might be located such as:

- Entertainment Precincts;
- Office Uses within High-Rise Mixed Use Areas;
- Low-Rise Transition Areas;
- Retail Nodes and Corridors;
- Mid-Rise Mixed Use Areas;
- Public Parks and Open Spaces; and
- Schools or Community Facilities.



Entertainment Precinct: One Light District, Kansas City, Missouri



Office Uses with High-Rise Mixed Use Areas: City Centre 2, Surrey, British Columbia



Low-Rise Transitional Areas: Townhomes, Calgary, Alberta



Retail Nodes and Corridors: Bloor Street, Toronto, Ontario



Mid-Rise Mixed Use Areas: Wesbrook Mall, Vancouver, British Columbia



Schools or Community Facilities: Langford, British Columbia

The other principles developed for Weston 7 described in Section 2 will be used in the refinement of the preferred land use scenario and will be used to guide the Secondary Plan policy development stage of Phase 2.

Table 4 below describes how each of the other principles relates to the three draft Land Use Scenarios, and how they could be assessed Phase 2 of the project.

Table 4. How the Draft Principles Relate to the Three Draft Land Use Scenarios

PRINCIPLES	APPLICATION
<p>Connected and Multi-Modal: Establish a connected multi-modal community that supports choice of movement for cars, pedestrians, cyclists and transit users.</p>	<p>The draft Land Use Scenarios include the same basic network of additional streets that will frame the redevelopment of the area. Phase 2 will evaluate the future population density and test the capacity of the primary street network and what additional streets, pedestrian mews and other connections are necessary to support the planned growth.</p>
<p>Public Realm: Create a diverse and a high quality public realm that supports urban vibrancy and civic gathering.</p>	<p>The draft Land Use Scenarios include general locations for parks and open spaces, based on logical locations associated with the role and precinct character in each scenario. Specific locations, types and sizes of parks and open space will need to be determined through further study and refinement in Phase 2 of the project, based on the ultimate target population for the Weston 7 area.</p>
<p>Housing Diversity: Encourage variety in housing types and tenures to meet the life cycle needs of people of all ages.</p>	<p>The draft Land Use Scenarios do not identify specific building heights, but use the existing VOP urban structure and land use designations as a starting point. The achievement of this Principle will stem from further work during policy development that refines the direction for housing types and heights, including provisions for affordable housing, consistent with City and Regional Official Plans .</p>
<p>Enhanced Well-being: Encourage an inclusive community with a built environment that fosters social connection and cohesion.</p>	<p>The achievement of this Principle will stem from further work during the policy and design guidelines stage where further direction on how to achieve well being through planning policy will be explored.</p>
<p>Sustainable: Create a place that is rooted in sustainability and considers impacts to future generations.</p>	<p>While certain elements of sustainable community, including a transportation network that will support reduced reliance on private automobiles, can be explored at a high level through the draft Land Use Scenarios, the achievement of this Principle will stem from further work during the policy and design guidelines stage.</p>
<p>Balanced Intensification: Develop a balanced approach to growth and density that capitalizes on transit investment while respecting the ability of other Vaughan centres to also grow and evolve.</p>	<p>The draft Land Use Scenarios each assume 160 people and jobs per hectare as a base. Further work will be required to determine the ultimate appropriate density for Weston 7, reflective of its role in the city.</p>
<p>Design Excellence: Focus on high quality place making and design excellence to distinguish Weston 7 within the region and Greater Toronto Area.</p>	<p>The draft Land Use Scenarios create a framework of streets, blocks and open spaces that create opportunities for design excellence. The achievement of this Principle will stem from further work on site specific urban design guidelines in all cases. Placemaking opportunities are also tied to role. Further refinement of design excellence directions will be tied to the ultimate role of Weston 7.</p>

3.1.1 Underlying Assumptions

The draft Land Use Scenarios begin with the existing in-force Vaughan Official Plan (VOP) 2010 Land Use designations as a base assumption. The in-force Official Plan Land Use shapes where the draft Scenarios show High-Rise Mixed Use, Mid-Rise Mixed Use, Community Commercial Mixed-Use, and Transitional Areas. The Secondary Plan land use designations may also include Parks (VOP 2010 Section 9.2.2.15), the specific locations of which will be determined through future phases of the Weston 7 Secondary Plan development and implementation.

Ranges in height and appropriate mix of uses will be further refined in Phase 2 of the Weston 7 Secondary Plan process to examine focal points and forms of intensification.

The applicable VOP 2010 land use designations at Weston 7 are shown in Table 5:

Table 5. VOP 2010 Land Use Designations

LAND USE	VOP 2010 SECTION	PERMITTED USES	PERMITTED BUILDING TYPES
Mid-Rise Mixed Use	9.2.2.4	Residential units; Home occupations; Community facilities; Cultural uses;	Mid-rise Buildings (5-12 storeys); Public and Private Institutional Buildings; and Gas Stations
High-Rise Mixed Use	9.2.2.6	Retail uses (subject to policies of subsection 5.2.3); Office Uses; Parking Garage; Hotel; and Existing Gas Stations (subject to Policy 5.2.3.12).	High-rise Buildings (12+ storeys); Mid-rise Buildings (5-12 storeys); Public and Private Institutional Buildings; and Gas Stations
Community Commercial Mixed-Use	9.2.2.8	In intensification areas: Office Uses; Hotel; Cultural and Entertainment Uses; Retail Uses; and Existing Gas Stations (subject to Policy 5.2.3.12).	In Regional Intensification Corridors: Mid-rise Buildings (5-12 storeys); Public and Private Institutional Buildings; and Gas Stations
Transitional Areas (within 70 metres of an area designated as Low-Rise Residential, or on streets that are not arterial streets or Major collector streets)	9.2.2.4 (f) 9.2.2.6 (g)		Townhouses (up to three storeys); Stacked Townhouses (up to four storeys); and Low-rise Buildings (up to five storeys)

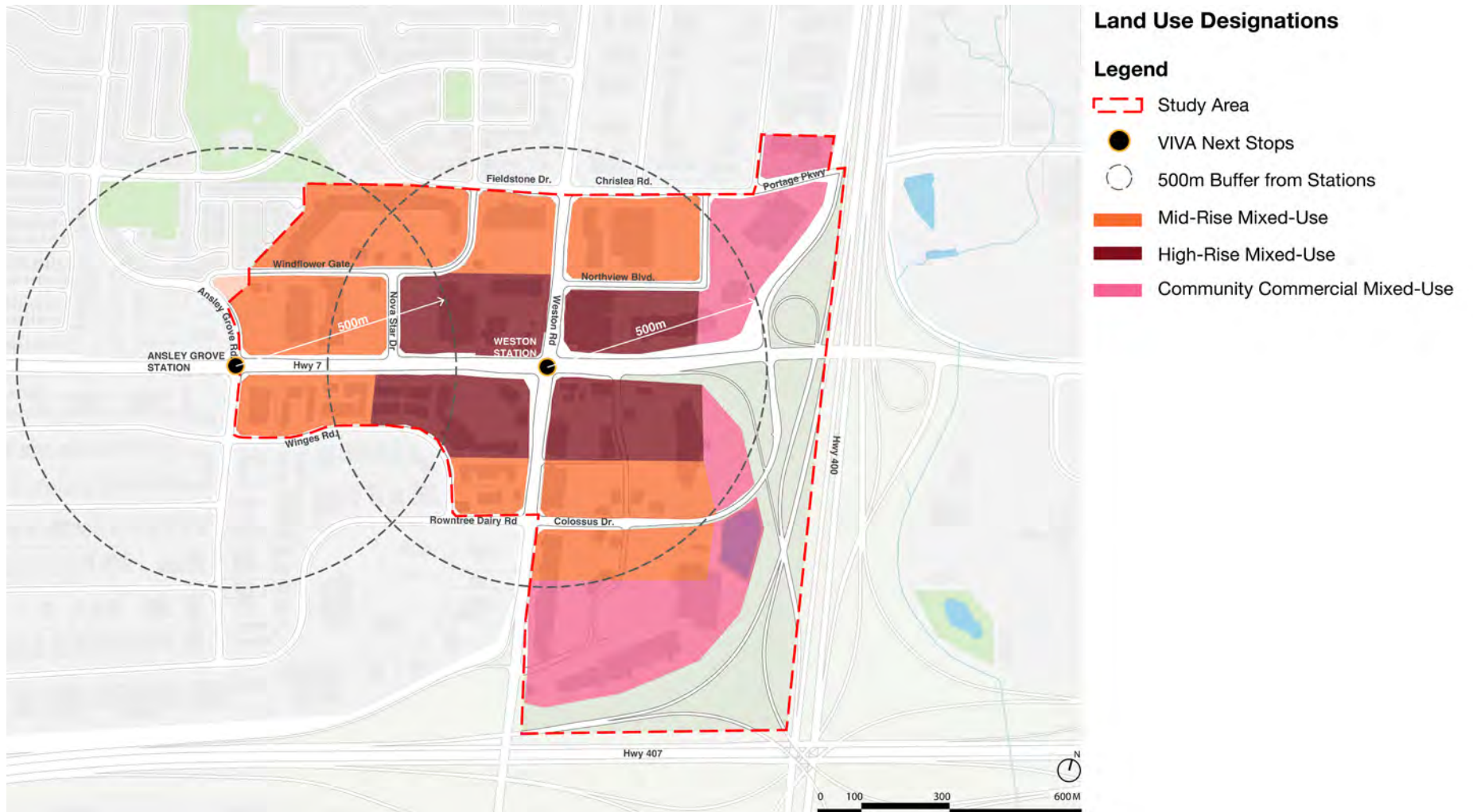


Figure 7. Weston 7 VOP 2010 Land Use Designations

3.2 Draft Land Use Scenarios

The three draft Land Use Scenarios for Weston 7 are illustrated on the following pages. Each Scenario contains common elements, such as high-rise mixed use areas, mid-rise mixed use areas, community commercial mixed-use areas, retail focus areas, and general park locations, presented in different configurations to achieve different character areas. Precedent images are also included to indicate the general intent of different scenario components.

3.2.1 Scenario 1- Four Corners Central Node

A single four-corner node is located at the intersection of Weston Road and Highway 7, surrounded by high-rise mixed use, and transitioning to mixed-use neighbourhood precincts further from the intersection. Office uses in podium levels of high rise mixed use buildings are encouraged at the four corners. Retail is focused in two locations on the primary transportation network- two corners in the northwest quadrant, and a 'high street' in the southeast quadrant. An entertainment precinct is located in the lower southeast quadrant, and includes commercial mixed use and mid-rise mixed use.



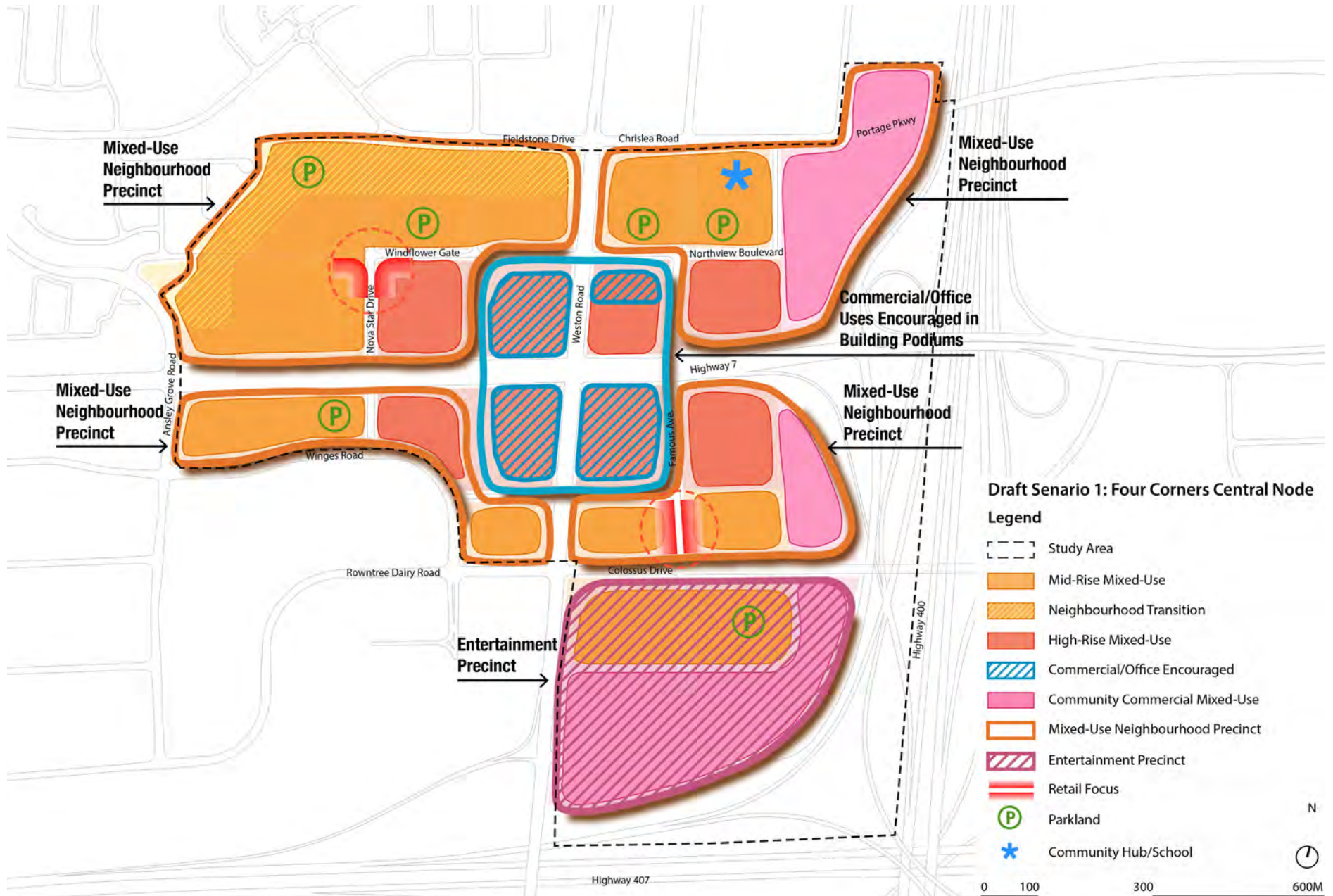
High-Rise Office Node: Bloor Street, Toronto, Ontario



Entertainment Precinct: Memphis, Tennessee



Retail Node: Pitt Street Mall, Sydney, Australia



Draft Scenario 1: Four Corners Central Node Legend

- Study Area
 - Mid-Rise Mixed-Use
 - Neighbourhood Transition
 - High-Rise Mixed-Use
 - Commercial/Office Encouraged
 - Community Commercial Mixed-Use
 - Mixed-Use Neighbourhood Precinct
 - Entertainment Precinct
 - Retail Focus
 - P Parkland
 - ★ Community Hub/School
- N
- 0 100 300 600M

3.2.2 Scenario 2- Two Nodes Retail Focus

Two retail nodes, located at the intersection of Weston Road and Highway 7, as well as Ansley Grove and Highway 7, are linked by a corridor with retail at-grade. An entertainment precinct is located in the upper southeast quadrant, and includes a retail high street and public plaza, with high-rise and mid-rise mixed use. The retail nodes are surrounded by high-rise mixed use, transitioning to mixed-use neighbourhood precincts further from the nodes. A three-corners retail area is included in the northwest quadrant.



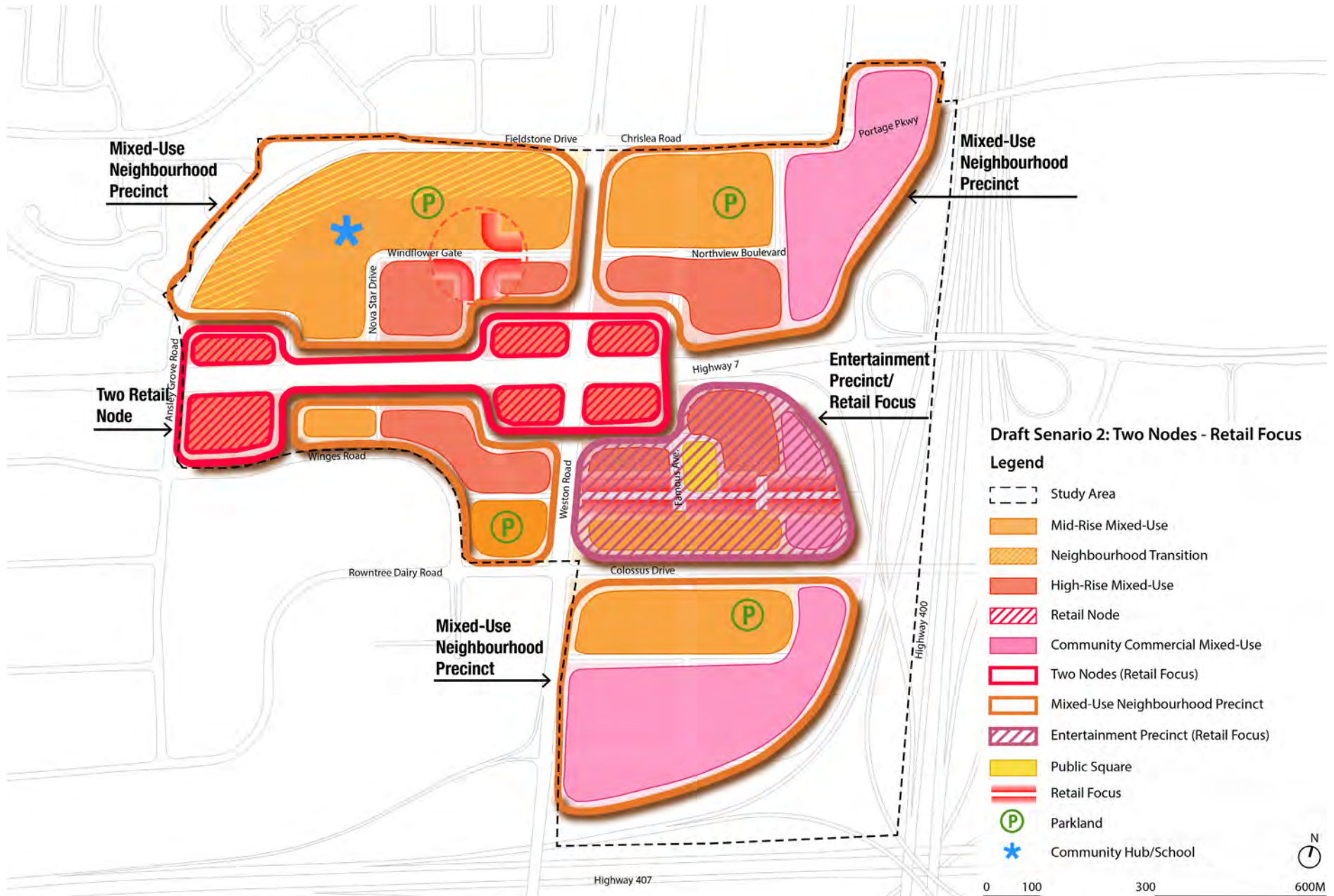
Retail Corridor: Rue Sainte Catherine, Montreal, Quebec



Entertainment-Retail Precinct: Lincoln Road Mall, Miami, Florida



Retail Node: Gastown, Vancouver, British Columbia



3.2.3 Scenario 3- Southeast Mixed Use Entertainment Precinct

The upper southeast precinct is the focus for the most complex mix of uses, and includes office areas, entertainment uses, and at-grade retail high streets along the primary transportation network. Other precincts in scenario three are mixed-use neighbourhood precincts, with both high- and mid-rise mixed use areas. A retail high street is also included on the northwest quadrant.



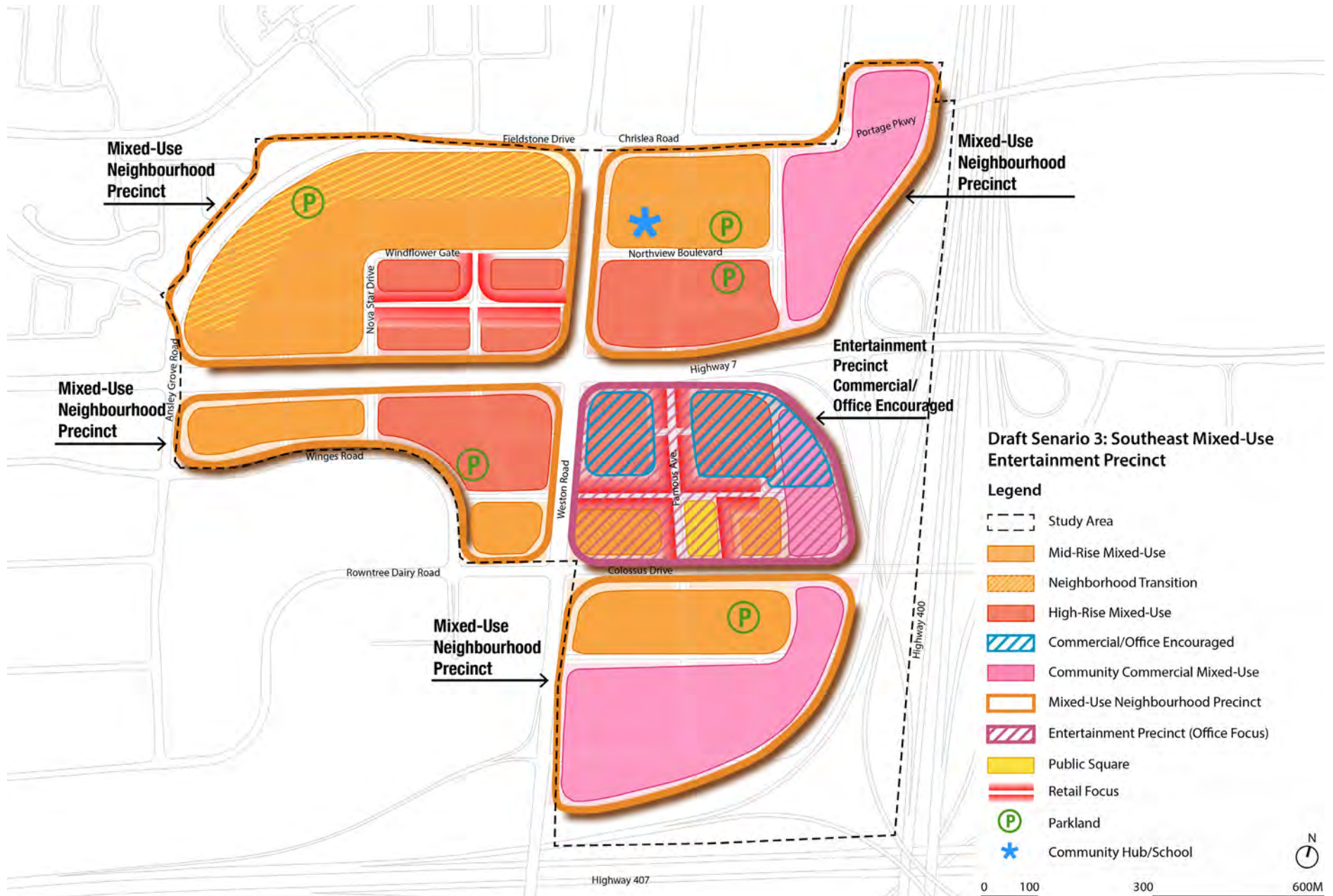
Entertainment District: Lincoln Road, Miami, Florida



Retail High Street: St. Christopher's Place, London, UK



Commercial/Office Mixed-Use Node: New Westminster, British Columbia



3.3 Summary of Land Use Scenarios Feedback

3.3.1 Technical Advisory Committee (TAC) Feedback

On March 12, 2019, the three draft Land Use Scenarios were presented to the project TAC for feedback. Attendees included the following City of Vaughan Departments: Policy Planning and Environmental Sustainability, Economic and Cultural Development, Infrastructure Planning and Corporate Asset Management, Parks Development, Vaughan Public Libraries, and Development Engineering, as well as external agencies. Some of the agencies included York Region, Toronto Region and Conservation Authority, vivaNext, York Region Transit, York Catholic School Board, York Region District School Board and the Ontario Ministry of Transportation.

The TAC meeting included a presentation from the consultant team on the three draft Land Use Scenarios, followed by table discussions and reporting back. The following are high level themes and comments raised by the TAC about the quality and character of the scenarios:

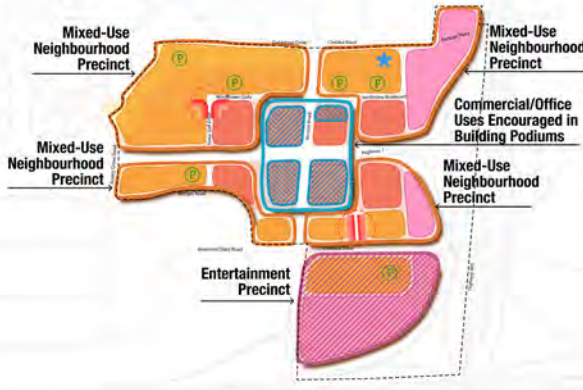
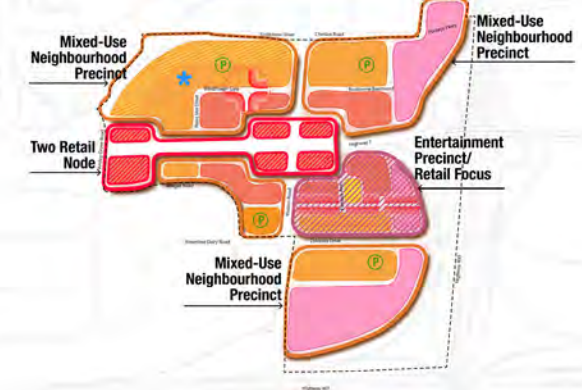
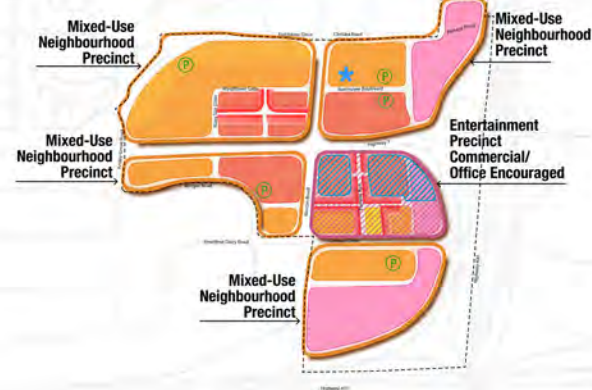
Comparison and General Comments

- Scenario three is the one to work towards from a transportation perspective: finer grained street networks are better, but we will need to articulate block size and explain why.
- It is paramount that residents have access to community centres and schools- school and community centre needs will be dependent on population/unit counts.
- A right-in/right-out intersection on Highway 7, west of Highway 400 will require a Ontario Ministry of Transportation (MTO) permit.
- Love the idea of enhanced streetscapes- think of Highway 7 as a green avenue, or a special streets plan that can compliment the parks network.
- Quadrants each as a complete community is a good idea- it decreases the need to cross Highway 7 to reach services.

Considerations for Future Phases

- Define an active transportation network.
- Next phase of work needs demonstration plans and massing models.
- Showing the grid network relative to property networks as an analysis piece to avoid expropriation.
- Refine high streets rationale and strategy- if we have targets for square metres for retail and office, why that amount? How long does a high street need to be to be successful?
- Consider district energy and geothermal use, balancing uses to balance energy needs.
- Servicing- need for a pumping station location, supported by a preliminary review of land and topography.
- MTO would like a very detailed analysis of the preferred scenario.

Table 6. Technical Advisory Committee (TAC) Feedback Summary

SCENARIO 1	SCENARIO 2	SCENARIO 3
		
<ul style="list-style-type: none"> • Office focus might compete with the VMC. • Southwest and southeast park spaces might be too close to highways. • Community hub and school need to be closer to residential population. • Shift retail further to the west to leverage existing population. • Adjacent to Highway 7 may not be an appropriate location for park space. 	<ul style="list-style-type: none"> • Does not have office focus- should be included. • High-rise needs to be located near transit. • Community centre should be near residents and schools/parks. • The school location may be too close to existing schools. • Look at the potential for second floor pedestrian overpass connections over Weston Road. 	<ul style="list-style-type: none"> • Like the location of the mixed use precinct and uses. • Is the retail focus achievable where proposed? • Intersection spacing may be an issue on Highway 7 for signalization. • Southwest park space too close to Highway 400.

3.3.2 Landowners Feedback

On March 18, 2019, the three draft Land Use Scenarios were presented to Weston 7 area landowners and their representatives for feedback. The meeting included a presentation from the consultant team on the three draft Scenarios, followed by a question and answer period. Landowners and their representatives were invited to answer a series of questions on the three draft Scenarios using a workbook provided at the meeting, or electronically following the meeting. The following are high level themes and comments raised by area landowners about the quality and character of the scenarios:

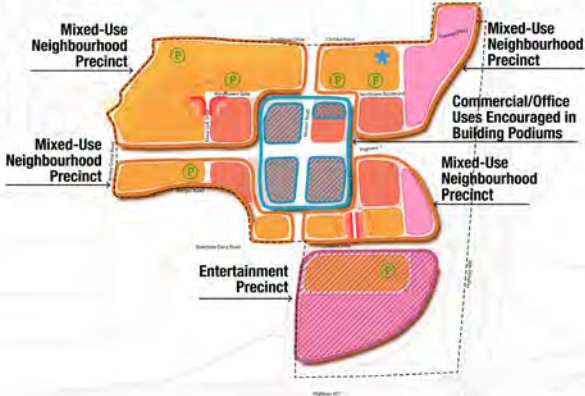
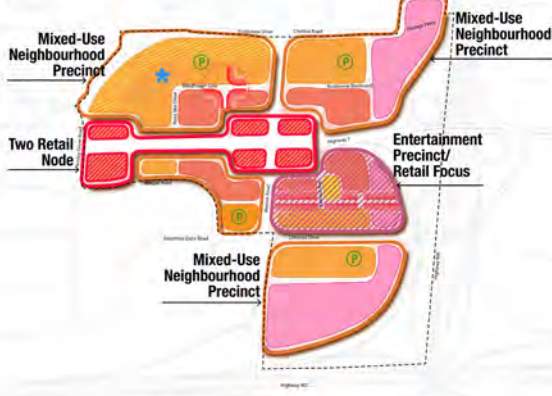
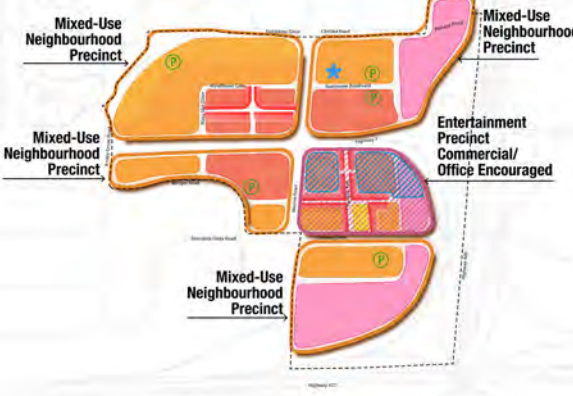
Comparison and General Comments

- Consider revitalizing the stormwater management pond in the southeast to integrate into a park or open space.
- Logical phasing of development will be a challenge for all scenarios- there will be a range of development timeframes across the sites, with many of the retail commercial uses not planning on moving in the short term.
- Attracting office uses to Weston 7 may be a challenge, and must be managed to ensure the area does not compete with the VMC.
- Each of the 4 quadrants needs to work independently, but also physically work together as a Primary Centre and be walkable.
- Position of park spaces needs to consider proximity of residents, and should be in locations that will serve a high number of residents.

Considerations for Future Phases

- Maintaining existing uses- access and operations- is important to many landowners. Existing noise sources need to be factored in to planning- introduction of residential uses need to be compatible with existing uses.
- Transition policies are needed, and we need to examine appropriateness of new land uses adjacent to existing development surrounding outskirts of the Primary Centre. New residential is being proposed adjacent to existing employment and major highways in the Scenarios.
- School sites need to be reviewed with school boards- consideration should be given to urban schools within a multi-level building or high-rise residential building.
- The secondary transportation network should consider existing property boundaries.

Table 7. Landowners Feedback Summary

SCENARIO 1	SCENARIO 2	SCENARIO 3
		
<ul style="list-style-type: none"> • Too much office space proposed here- it might compete with the VMC, and may not be feasible from a market perspective. • Distribution- why is there two park blocks on some small blocks? • Higher density housing could make it easier to transition to existing uses (compared to ground-related housing). • School/community hub should be located closer to existing residential in the northwest. 	<ul style="list-style-type: none"> • Retail nodes may not transform without economic incentives. • Squares and retail focus streets will draw people to the area. • Promote a place where people can live, work, or visit by walking by creating multiple focus spots for the area. • Some blocks are too shallow/irregular in configuration for high-rise mixed use or mid-rise mixed use. • Retail use and squares are a draw. 	<ul style="list-style-type: none"> • The most balanced approach, with highest concentration and mix of uses, located close to Weston and 7, which is transit supportive and walkable. • Office uses should be permitted, but not be the focus- proposed office may not materialize. • Why are parks in close proximity to each other, and in precincts without existing residents in proximity?

3.3.3 Public Feedback

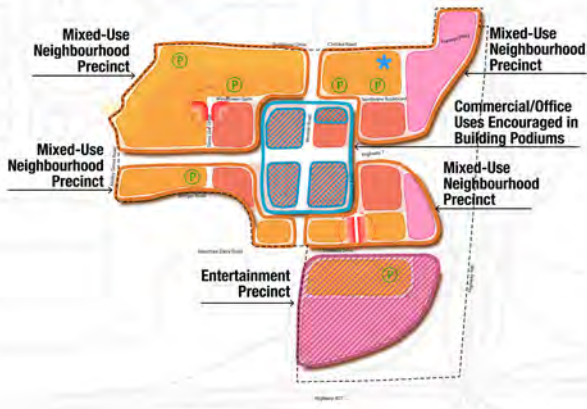
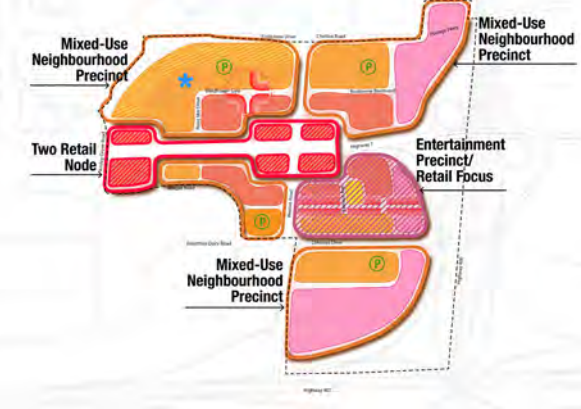
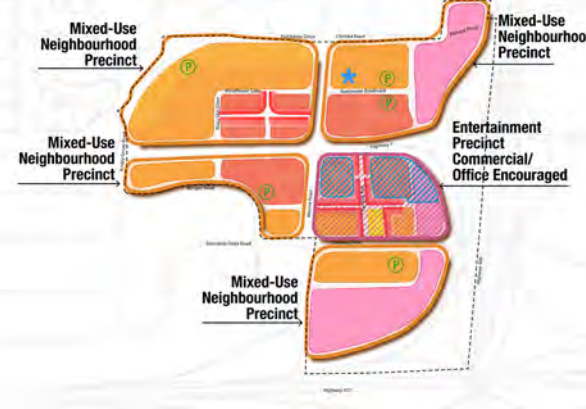
On March 25, 2019 a public Open House was held at the Vellore Village Community Centre. Participants included members of the public and local development community (a separate landowners workshop was also held- see Section 3.3.2). The purpose of the open house was to inform people about the project process, update them on progress, and solicit their feedback on the three draft Land Use Scenarios.

The workshop included a brief presentation on the three draft Scenarios, and participants were invited to share input using workbooks, as well as through one-on-one conversations with project team members. Information panels provided additional information on the scenarios for participants. The following are high level themes and comments raised by area by the public about the quality and character of the scenarios:



Draft Land Use Scenarios Open House

Table 8. Public Feedback Summary

SCENARIO 1	SCENARIO 2	SCENARIO 3
 <p>Scenario 1 site plan showing five Mixed-Use Neighbourhood Precincts, one Entertainment Precinct, and Commercial/Office Uses Encouraged in Building Podiums.</p>	 <p>Scenario 2 site plan showing Two Retail Nodes, an Entertainment Precinct/Retail Focus, and Mixed-Use Neighbourhood Precincts.</p>	 <p>Scenario 3 site plan showing five Mixed-Use Neighbourhood Precincts and an Entertainment Precinct where Commercial/Office Uses are Encouraged.</p>
<ul style="list-style-type: none"> • Entertainment district is too far from Highway 7 (and transit). It should be moved north. • Lacks a common space or courtyard for community engagement. • Traffic flow does not work. • Good layout/distribution of green spaces. • Office component should be contained, and not too high. • Office buildings seem to take over the intersection, losing the community feel. 	<ul style="list-style-type: none"> • The community hub should be moved closer to Weston Road. • Need more spaces for civic engagement. • Neighbourhood transition areas are good. • Good location for an entertainment district. • A retail node at Ansley Grove stretches the business centre too far. Should be contained to Weston and Highway 7. • The 2 areas may disperse congestion- address traffic flow. 	<ul style="list-style-type: none"> • Entertainment precinct is in a great location. • Multiple retail streets is fantastic. • Needs more green/park space. • Including a square is really important. • High rises should be closer to Weston Road. • Traffic flow looks better here. • The 5 precincts are well defined.

3.3.4 Additional Perspectives from Urban Strategies

In addition to the feedback gathered from the TAC, landowners, and the public, the following are some additional observations on the three draft Land Use Scenarios. Each of the three scenarios help to demonstrate challenges and opportunities associated with varied approaches to distribution and types of character areas. These tradeoffs are described in more detail in Table 9.

The ultimate land use scenario developed in Phase 2 may be a hybrid of the three scenarios, developed with consideration of these tradeoffs. Some of the composite elements the ultimate land use scenario should consider include:

- The entertainment precinct is likely to be most successful if located in the upper southeast quadrant. This location is closer to rapid transit, and comprised of the greatest mix of land uses, including commercial retail, entertainment/cultural, office components, and a signature civic space surrounded by retail uses at grade.
- While retail uses should be permitted on Highway 7, an interior retail high street system is likely to create the most compelling retail environment in the northwest quadrant and entertainment precincts, and supports a finer-grained street network, promoting greater choice of movement.
- The park land distribution shown in Scenario 2 is most evenly distributed, with the exception of the northeast quadrant, which should pursue a similar distribution to what is shown in Scenario three.



Giovanni Caboto Park and Surrounding Low-Density Housing

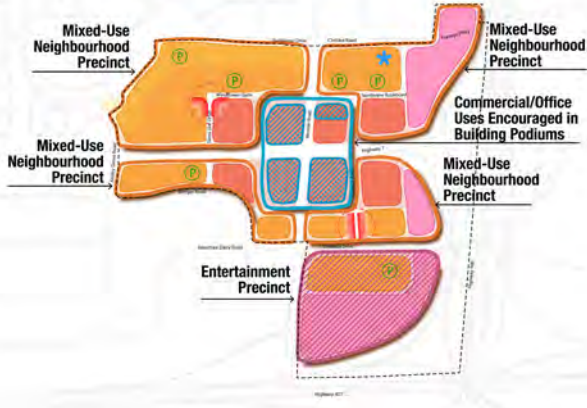
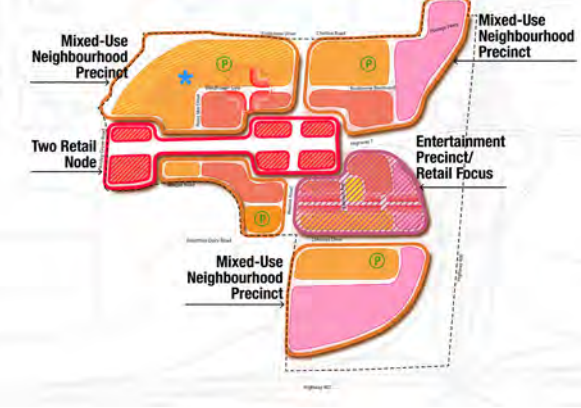
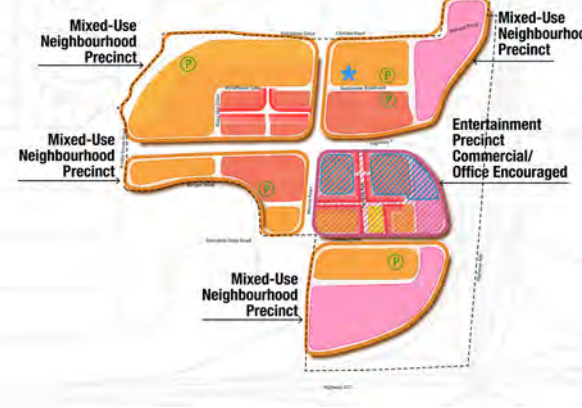


Existing Entertainment and Restaurant Area at Weston 7



Road Work along the Highway 7 rapidway

Table 9. Additional Perspectives from Urban Strategies

SCENARIO 1	SCENARIO 2	SCENARIO 3
 <p>Mixed-Use Neighbourhood Precinct</p> <p>Mixed-Use Neighbourhood Precinct</p> <p>Mixed-Use Neighbourhood Precinct</p> <p>Mixed-Use Neighbourhood Precinct</p> <p>Commercial/Office Uses Encouraged in Building Podiums</p> <p>Entertainment Precinct</p>	 <p>Mixed-Use Neighbourhood Precinct</p> <p>Mixed-Use Neighbourhood Precinct</p> <p>Two Retail Node</p> <p>Entertainment Precinct/ Retail Focus</p> <p>Mixed-Use Neighbourhood Precinct</p>	 <p>Mixed-Use Neighbourhood Precinct</p> <p>Mixed-Use Neighbourhood Precinct</p> <p>Mixed-Use Neighbourhood Precinct</p> <p>Entertainment Precinct Commercial/ Office Encouraged</p> <p>Mixed-Use Neighbourhood Precinct</p>
<ul style="list-style-type: none"> • While it provides a focus area, the split four-node office area may not be as attractive as an office area located entirely in one precinct. • A entertainment precinct in the lower southeast quadrant may be too isolated, as it is not as close to transit as in other scenarios. • Retail nodes may not be significant enough, and could be expanded. • The southwest quadrant park has challenging frontage on Highway 7- the land will be expensive, not attractive for users, not safe, and not connected to a network. 	<ul style="list-style-type: none"> • Community hub is well located. • Improved parkland distribution. • Retail along Highway 7 may not be a desirable location for many retail tenants or pedestrians, and may be a challenging environment in which to create an inviting, walkable public realm. • There are improved synergies in this scenario between retail focus and entertainment district, and both are closer to transit. 	<ul style="list-style-type: none"> • Best chance to allow entertainment district to succeed due to the complex range of uses, and proximity to transit. • Interior retail focus away from Highway 7 creates a more comfortable pedestrian realm. • High streets and resulting secondary road system will support increased choice of movement. • Trying to secure parkland in high density areas may be challenging.



Section 04

CONCLUSION AND RECOMMENDATIONS FOR PHASE 2 WORK

4 CONCLUSION AND RECOMMENDATIONS FOR PHASE 2 WORK

Phase 1 of the Weston 7 Secondary Plan development process was focused on understanding background conditions and needs in the Weston 7 area, developing a draft vision and principles for the area, and creating land use scenarios that describe how the area may achieve its policy direction in the future. The role of Phase 1 of the Secondary Plan process was not to identify a preferred Scenario, rather, to present the scenarios and a series of questions for further study which are required to assess and evaluate the scenarios.

The following is a summary of topics for further study in future project phases.

4.1 Character and Role

- Further evaluation is required to determine the character that best suits the role of Weston 7. This can be informed by additional internal and external stakeholder engagement to test the scenarios in relationship to market demand and uptake, City economic development objectives and landowner plans.
- Consideration needs to be given to how policy will be used to assist in the realization of the area character – for example, office requirements, retail replacement requirements, and other policy directions to achieve the desired character.

4.2 Transportation Network

- The Weston 7 transportation network will be structured around a Primary and a Secondary street network. Phase 1 work has identified a Primary Network. The Primary Network is the basic network of additional streets that will frame the redevelopment of the area. These streets were determined in consultation with City staff, and also informed by the transportation study prepared as part of the 7777 Weston Road development approval process. The primary network is the same in all Scenarios.
- Phase 2 will require a more detailed analysis of the Secondary Network. Local streets and minor collectors will form the Secondary Network. Walkways, mews and promenades

also provide connections on a pedestrian scale. Phase 2 will evaluate the future population density and test the capacity of the primary street network and what additional streets, pedestrian mews and other connections are necessary to support the planned growth.

- An assessment of the transportation network in relationship to any density scenarios will be required to understand what streets are required to adequately service the targeted population.

4.3 Servicing

- An assessment of servicing capacity and storm water management infrastructure requirements in relationship to the targeted population and final land use scenario is required to understand impacts to infrastructure. In any case, both hard and soft services need to be considered. Outcomes of this work may feed into an infrastructure phasing strategy where development is tied to the provisions of new hard and soft services required to meet the needs of the population.

4.4 Parks and Open Space

- Phase 1 draft Land Use Scenarios identified conceptual locations for parks, whereas Phase 2 will confirm the target population density and associated parks and open space.
- In Phase 2, park and open space sizing

and role will need to be confirmed and the appropriate long term parkland provision target for the intensification area determined. Open space network connections to support pedestrian and cyclist movement will also need to be confirmed.

4.5 Community Services

- A preliminary assessment of impacts to Community Services was performed as part of the Phase 1 Background Study. Impacts of densities on community service provision should be part of Phase 2 work.

4.6 Building Height and Density

- Phase 1 has relied on the Official Plan and the Growth Plan for height and density minimums. The Growth Plan requires a minimum density of 160 persons and jobs per hectare for MTSA, and the Project Area has 2 identified MTSA.
- Phase 2 will determine the ultimate density with input from City-wide Major Transit Station Area study and the Official Plan Review. Building heights and forms should be tested in correlation with the ultimate target density.

4.7 Land Use

- Modifications to the existing mid-rise mixed use or commercial mixed-use land use designations could be considered if there is a demonstrated need, achieved through a land use needs assessment study.

- If changes were to be considered to the community commercial mixed use designation to increase the permitted uses in those areas, a minimum non-residential depth should be established to buffer residential uses from 400 series highway corridors.

4.8 Density

- A key to determining the ultimate maximum density for Weston 7 will be understanding the capacity of the transportation network and the role of the two Weston 7 MTSA in relationship to other MTSA within the City and Region. In this regard, additional information is required such as:
 - Outcomes of MTSA Study
 - City of Vaughan and York Region Official Plan Review Process
- Development yields should be evaluated in relationship to the land use mix recommendations developed by Hemson as part of the Phase 1 Background Report, policy-based people and job targets and landowner expectations and plans.

4.9 Height

- Various built form typologies should be explored that align with prescribed density and height ranges and used to refine a desirable height range for Weston 7.
- Transition heights and related policies

to existing residential communities and other sensitive land uses will need to be determined.

- Further height and density analysis will be an iterative process, incorporating an understanding of related impacts to Transportation, Servicing Networks, Parks and Open Space provision and Community Services.

4.10 Conclusion

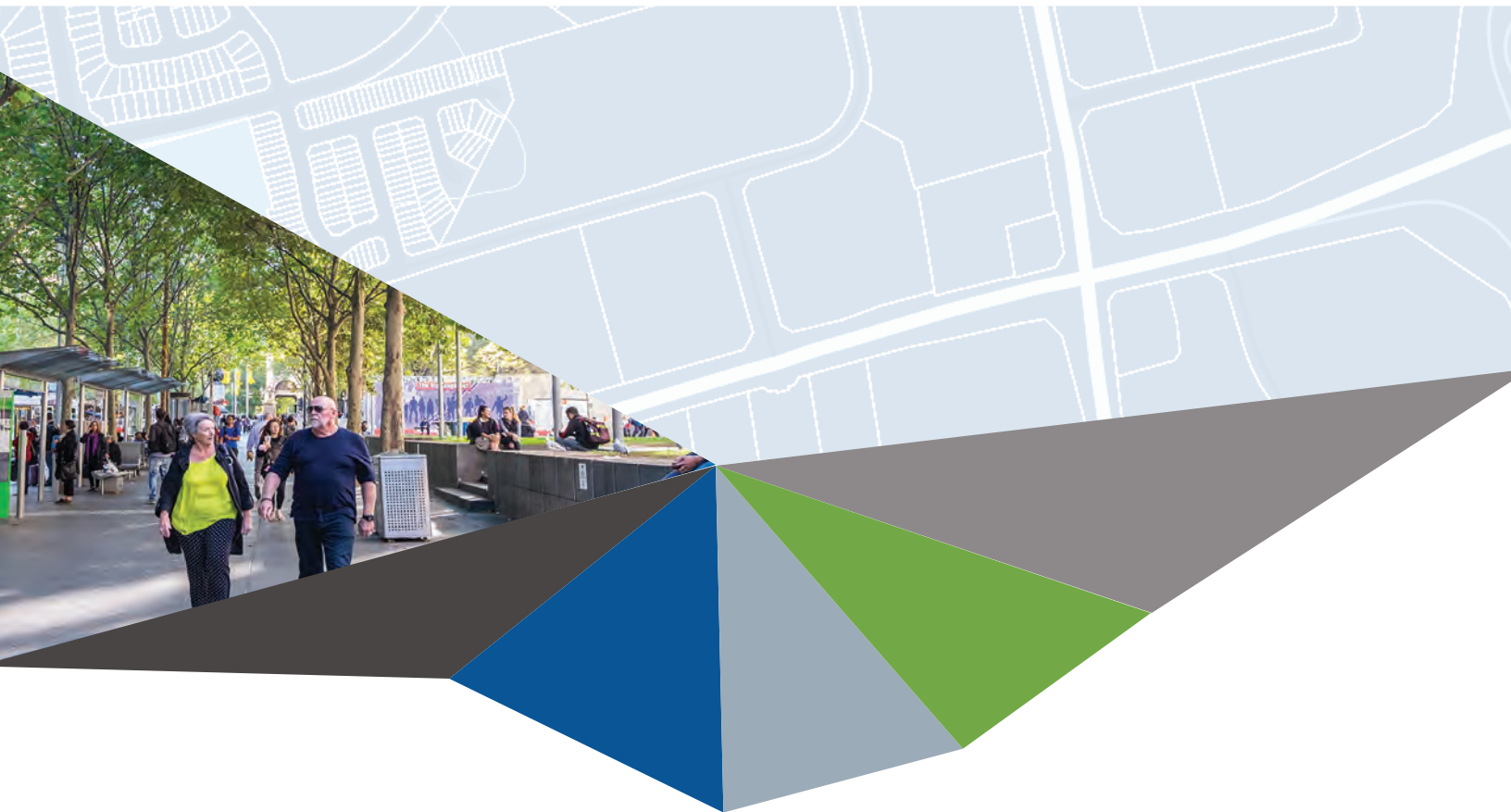
The Weston 7 Secondary Plan Phase 1 project has focused on creating a draft vision and guiding principles for growth in this Primary Centre, as well as three draft Land Use Scenarios illustrating the potential role and character of the area. This work will help to define the Weston 7 area in relation to other Primary Centres in Vaughan, including the neighbouring Vaughan Metropolitan Centre.

Future project phases will further evaluate and test these three draft Scenarios to develop a preferred Land Use Scenario and Secondary Plan policies for Weston 7. The development of a preferred Scenario will require further study of a range of considerations, including the target population for the area, building heights and density, location and size of parks and open space, and the ultimate transportation network for the area. The land use concept and policies for the Weston 7 Secondary Plan will be grounded in the vision and guiding principles developed in Phase 1, to create a mixed-use urban community that is inclusive, connected, and future-friendly.

PRELIMINARY TRANSPORTATION ASSESSMENT REPORT

APPENDIX 1

MAY 10, 2019





Preliminary Transportation Assessment Report FINAL

Weston Road and Highway 7 Secondary Plan
Phase 1

City of Vaughan
May 13, 2019



Contents

1	Introduction	1
2	Stakeholder Consultation	1
2.1	Consultation with York Region Transit	1
2.2	Consultation with York Region and York Region Rapid Transit Corporation	2
2.3	Consultation with MTO	3
3	Constraints and Opportunities	6
3.1	Creation of a Grid Street Network	6
3.2	A Transportation Network for All Mobility Users.....	7
3.3	Improve Safety for All Modes of Travel.....	8
3.4	New Innovative Smart Mobility Plan and TDM Measures	9
3.5	Increase Sustainable Modal Share	10
3.6	Optimize the Existing Road Network.....	11
3.7	Consider Additional Access to Highway 400	11
3.8	Extend Portage Parkway / Chrislea Road west of Weston Road	11
4	Transportation Study Framework.....	11
4.1	Transportation Analysis Framework	12
4.1.1	Objective.....	12
4.1.2	Recommended Analysis Process	12
4.2	Data Needs	15
4.2.1	Available Data and Documents from Phase 1 Transportation Study.....	15
4.2.2	Outstanding Data	18
4.3	Proposed Work Plan Input.....	18

Tables

Table 4-1:	Available Documents from Phase 1 Transportation Study.....	16
Table 4-2:	Available Turning Movement Counts, Availability of Signal Timing Cards and Assumptions	17

Figures

Figure 3-1:	Preliminary Street Network from the Stakeholder Workshop.....	7
Figure 3-2:	EcoMobility Hub Concept.....	10
Figure 4-1:	Model Development.....	12
Figure 4-2:	Recommended Analysis Process.....	14

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1 Introduction

The City of Vaughan has initiated the Weston and Highway 7 Secondary Plan Phase 1 study. The study builds on a variety of provincial, regional and City plans and policies, including the York Region Transportation Master Plan, York Region Official Plan, Vaughan Official Plan, the Growth Plan for the Greater Golden Horseshoe (GGH), and Metrolinx's 2041 Regional Transportation Plan (RTP). The first task of this Phase 1 study included the Transportation Needs Assessment Report which included a comprehensive review of the planning context, assessment of existing conditions for all modes of travel, and creation of a draft problem and opportunity statement.

This report will document the feedback from key stakeholders on the constraints and opportunities that were identified. The stakeholders consulted include York Region Transit (YRT), York Region (YR) / York Region Rapid Transit Corporation (YRRTC), and the Ministry of Transportation Ontario (MTO).

Building on the feedback from stakeholder meetings and from the public, the transportation constraints and opportunities have been refined.

Lastly, this report will identify the requirements for the next phase of the study, including the framework to conduct what-if scenario testing, refinements to the Phase 1 transportation work, and the data needs, tasks, and timeline for future phases of the transportation study.

The transportation preliminary assessment work was conducted in conjunction with the rest of the Phase 1 work, which included the development of land use scenarios as documented in the Weston 7 Secondary Plan Phase 1 Final Report.

2 Stakeholder Consultation

Throughout Phase 1 of the study, consultation meetings were held with agency stakeholders to guide and shape the Weston-7 Secondary Plan and to inform future phases of the study.

2.1 Consultation with York Region Transit

Key findings from the consultation with YRT are summarized as follows:

On-Demand Transit Pilot: YRT is implementing a pilot program for on-demand transit service in this area, which will replace Route 561. This transit line will connect the Blue Willow Terrace (senior apartments), Chancellor community centre, Fortinos, Walmart, and the Vaughan Metropolitan Centre (VMC) Subway Station.

- There will be one vehicle available to provide the service. Once the service has been requested, it is expected to take 5 to 10 minute to arrive depending on the availability of the vehicle. The trip origin-destination data will be make available as the service provider will collect it monthly.

- This program may be supported by planning for lay-by parking spaces in the vicinity of the VIVA stations.

Origin-Destination Data: The project team requested origin-destination or transit modal split information in Vaughan, specifically after the Yonge Subway Extension opened. YRT mentioned that the data is not available and suggested the project team to rely on Transportation Tomorrow Survey (TTS) data.

Grid Network to support Transit Service: YRT's preference for development in the Study Area is that a grid network be provided which will allow for multiple routing options.

2.2 Consultation with York Region and York Region Rapid Transit Corporation

During the consultation with York Region and York Region Rapid Transit Corporation (YRRTC), the following topics were discussed.

Public vs Private Design Standards: It was recognized there are challenges when private roads are intended to serve the public and therefore should be designed to public standards (for example, design standards for the City of Vaughan);

Secondary Plan Precedents in York Region: The project team asked for good examples of a successful area surrounding the existing VIVA stations. YRRTC indicated the Region is in a transition period, and therefore there may not be any best examples to look at. It was suggested that the project team could reference examples from other jurisdictions. The Region is aiming to bring pedestrians to rapid transit lines and bring cars away from rapid transit lines. YR and YRRTC stressed that it is important to implement a fine grid road network.

Secondary Plan Study Improvements: YR and YRRTC suggested that the public space element has been missing from many secondary plans. The Weston 7 study area should be planned as a destination for people to go and gather, and public space will be a crucial element for it. It was also suggested the project team to define objectives for this Secondary Plan, such as prioritizing pedestrians and transit. The study area should be designed to a pedestrian scale, and destinations should be within walking distance.

Implementation of the Secondary Plan: It was recognized that some landowners may have short term visions, which could potentially be in conflict with the long term plan. Developers may also have aggressive short term ambitions, and the project team should consider how to achieve the long-term goal while providing a smooth and appropriate transition period.

vivaNext Construction Timing: Expected to be complete by the end of 2019, with landscaping completion by 2020. YRRTC indicated ideally there will be no changes to the design at this time, and any recommended changes to the design of Highway 7 will have to be approved by York Region.

Potential improvements: The project team consulted YR for any improvements that the study team should not consider, for example eliminating double left turns (e.g., the double left turns on from Highway 7 to Famous Avenue) and extending Windflower Gate to Weston Road which will likely impact the future of Weston Road Environmental

Assessment (EA). YR and YRRTC were not opposed to these potential recommendations.

Weston Road EA: The widening of this road from four to six lanes is not in the Region's 10-year Capital plan, therefore the EA has not been initiated.

Safety Review: YR indicated a safety review is needed for the study area, specifically for the intersection at Weston Road and Highway 7. YR also indicated that there is a lack of a fine grid network in the study area. Double left turns might not be needed in the future, and eliminating double left turns could resolve some of the challenges for pedestrian crossings as the space could be allocated to provide a pedestrian refuge in the median, or the pedestrian crossing distance could be reduced.

2.3 Consultation with MTO

The consultant team and MTO discussed the following topics.

Vaughan Metropolitan Centre Secondary Plan: The City indicated that they are continuing to monitor and study conditions for the build-out of the VMC, and are considering reviewing the Secondary Plan.

VMC Surrounding Areas Study: it was noted that this study did not meet MTO's expectations and requirements. The trip generation rates for the next phase of this study should be reviewed and discussed with MTO. It was also noted that the Langstaff interchange may be upgraded to a full interchange and could potentially cause an issue due to its proximity to Bass Pro Mills and Rutherford intersection.

Colossus Overpass: MTO staff raised significant concerns about the Colossus Overpass. It was noted that initial preliminary design work indicated that the connection could not be tunneled due to the water table, and that proposed overpass structures would require grades that did not meet MTO design criteria. Subsequent to the meeting with MTO, it was confirmed that further preliminary design work was completed in 2015, which modified the proposed overpass structure appropriately to meet MTO design criteria.

Highway 400 HOV lanes: it was noted that the HOV lane network on Highway 400 is not planned to be extended to Highway 7 due to physical constraints. MTO also prefers to not convert existing lanes to HOV lanes, requiring HOV lanes to be assigned from newly constructed lanes.

Famous Avenue and Highway 7 intersection and the traffic conditions at 7777 Weston Road: MTO does not support modifying Highway 7 and Famous Avenue/7777 Weston Road access to a full moves intersection, due to the close proximity to the Highway 400 off-ramps and the Highway 7 and Weston intersection. The southbound right movement from 7777 Weston Road was not allowed due to an unsafe weave with traffic looking to access Weston Road southbound. It was noted that there are currently issues of traffic from 7777 Weston Road looking to access southbound on Weston Road. Due to the existing road network and westbound left queue on Northview Blvd, MTO noted that some traffic may need to travel in the opposite direction, across Portage Parkway to Edgeley Boulevard onto Highway 7, in order to access Weston Road southbound.

Signal timing on Weston Road: MTO indicated signal timing is a major issue. There is poor coordination between the Weston and Northview Blvd and the Weston and Highway 7 intersections. Furthermore, the limited southbound green, results in westbound left traffic from Northview Blvd queuing.

Suggestion to consider partial ramps at Portage Parkway: MTO expressed concerns with decision point distances, weaving, and safety. These potential partial ramps will be located too close to the Langstaff interchange. Spacing of at least 2km is preferred. Ramps should also terminate to a municipal road, and MTO will not accept ramps terminating to private roads. MTO did not indicate that they are opposed to this idea, but the project team would need to make a strong case and demonstrate to MTO that operations are acceptable.

Future VISSIM modelling: MTO has a VISSIM model specific to the southbound off-ramp on Highway 7 leading to 7777 Weston Road. York Region has a VISSIM model for the Vaughan Metropolitan Centre and Surrounding Areas Study. MTO suggested the project team to use either York Region's model or build our own model, although MTO expressed that they disagreed with York Region's model's parameters and assumptions, and updated modelling will have to consider new trip generation assumptions from increased density at the VMC. MTO should be consulted on the new model development to ensure assumptions meet their expectations.

14m setbacks: The project team consulted MTO on the 14m setback requirements from MTO infrastructure. MTO indicated elements that are not critical to the functioning of a site can be placed within the 14m setback. As long as the land owner is not opposed to MTO coming in and removing elements within the setback when it is required. Another example of this is that parking in excess of zoning requirements could be removed.

Other key improvements: MTO is supportive of the following potential improvements for the study area

- A more direct connection / alternative route back to Highway 7 from Portage Parkway (i.e. extend Fieldstone Drive towards Ansley Grove Road);
- "Ring Road" type system around the VMC and Weston/7, flanked by Ansley Grove, Colossus, and Portage Parkway; and
- More connections across Highway 407 to the south.

In addition, the transportation will need to be reviewed and approved by MTO and 407 ETR. The study should:

- Include all provincial highways, intersections, and interchanges that will be impacted by the proposed development and all nearby proposed developments, as all developments will impact the provincial facilities including the existing and proposed access points.
- Demonstrate the transportation impacts of the proposed developments can be mitigated with the proposed traffic network, and the impacts can be addressed in a manner that is consistent with the study objectives, in compliance with the MTO Traffic Guidelines and 407 ETR Requirements.
- Base on a full development of the site and clearly address the phasing of the development.

- The study should include detailed maps and diagram showing the existing and proposed transportation facilities, including roads (with number of lanes, posted speeds, and traffic controls), intersections indicating signalization, restrictions on movements, transit routes, and transit stations.
- It is the proponent responsibility to retain a qualified (RAQS approved) transportation consultant experienced in transportation planning and traffic engineering, familiar with Ministry requirements and standards.

It is also noted that the MTO also requires that any new buildings/structures (including internal roads and detention ponds etc.) above and below ground be setback a minimum distance of 14 m from the Highway 400 and 407 ETR property line. Ministry permits are required for all buildings located within 46m from Highway 400 and 407 ETR property line and within a radius of 800m from the centrepoint of Highway and 407 ETR and any municipal roads intersections, prior to any construction being undertaken. The application is available through the *Highway Corridor Management permits* on MTO's website, and permits can be obtained after MTO and 407 ETR approvals are received.

3 Constraints and Opportunities

The *Phase 1 Transportation Needs Assessment Report* conducted a detailed analysis of the existing conditions and constraints for the Weston 7 study area. Based on the stakeholder consultation and existing conditions, the following constraints were identified:

- The existing built form is characterized by very large blocks bounded by arterial and collector roads with extensive surface parking lots. The built form is auto-centric and discourages walking and cycling in the study area;
- The existing transportation network is primarily designed to accommodate vehicles and improved facilities are needed to accommodate pedestrians and cyclists of all ages and abilities;
- Major arterials (Highway 7 and Weston Road) and highways (Highway 400 and Highway 407 ETR) create major barriers for pedestrians and cyclists to cross safely;
- As a result of the existing built form and transportation network, 96% of people travel to/from the study area as an auto driver or auto passenger;
- Safety can be improved for all modes of transportation in study area – in addition to pedestrian and cyclist concerns, the intersection at Highway 7 and Weston Road has been consistently ranked as one of the highest collision intersections in York Region; and
- The existing traffic operations need improvement. There is a lack of network connectivity, which results in significant congestion across the study area, particularly at the Highway 7 and Weston Road intersection.

Eight major opportunities were identified:

1. Creation of a grid street network;
2. A transportation network for all mobility users;
3. Improving safety for all modes of travel;
4. New innovative smart mobility plan and TDM measures;
5. Increase sustainable modal share;
6. Optimize the existing road network;
7. Consider additional access to Highway 400; and
8. Extend Portage Parkway / Chrislea Road west of Weston Road.

The constraints and opportunities are discussed in the following sections.

3.1 Creation of a Grid Street Network

At present, the Weston 7 Secondary Plan study area street network is characterized by very large blocks bounded by arterial and collector roads with extensive surface parking lots. This auto-centric built form encourages driving by requiring pedestrians to walk longer distances to reach their destinations, often across unfriendly environments or along informal paths such as surface parking lots. It also reduces choices for all modes,

such as walking and biking. A large portion of the land use is parking, again for the purpose of accommodating access to retail stores through driving. Streets in the study area do not fulfill their vital role as public spaces to enhance the environment and community. This auto-oriented focus results in the high auto mode share (97%) of the area even though more than half (51%) of visitors to the site are from Vaughan, and 24% of the trips are under 3km, which can be made by transit, walking, or cycling.

There is a need to create a Complete Street network in the study area to balance the needs of pedestrians, cyclists, transit users, drivers, and goods movement. Many guidelines provide recommendations on how to build a complete street, such as the National Association of City Transportation Officials (NACTO) Guidelines and the Ontario Traffic Manual (OTM) Book 15—Pedestrian Crossing Facilities and Book 18—Cycling Facilities. They can provide guidance in the redesign of the existing street network to improve the comfort and safety of the road system and to provide high-quality infrastructure for all modes of travel.

In addition, pedestrian and cycling only connections can be created to improve the accessibility and connectivity of the study area and reduce automobile dependency. Pedestrian crossings should be improved, especially across Weston Road and Highway 7, as they are the major barriers for pedestrians to access and travel within the study area. This can be accomplished by redesigning the existing pedestrian crossings or adding new dedicated pedestrian crossings at necessary locations. It is noted that the vivaNext plans will provide an improved crossing across Highway 7 with the implementation of median bus platforms. The Weston-7 Secondary Plan should supplement the vivaNext plans. In addition, connections into public parkland spaces and community facilities should be considered.

There is also a need to improve roadway connections at specific areas, such as connections to provincial highways. The use of land within the study area should be reviewed to determine options to provide better accessibility and connectivity for all modes of travel.

The transportation network will have to consider the area's ongoing role as a retail hub, the needs of pedestrians and cyclists accessing vivaNext BRT and VMC subway station from areas, future intensification, and truck traffic through and within the study area, particularly to light industrial sites to the southwest of the study area and to the north of the study area. Future phases of the study should take these mobility needs and priorities into account when making recommendations, while recognizing streets' roles in placemaking and prosperity.

3.3 Improve Safety for All Modes of Travel

Safety can be improved for all modes of travel in the study area. Providing a complete street network and better pedestrian connections throughout the study area, and at highways, safety will be improved for vulnerable users such as pedestrians and cyclists.

The intersection at Highway 7 and Weston Road has been consistently ranked as one of the highest collision intersections in York Region. It is recognized that safety may be improved for this intersection after the reconstruction of Highway 7. This should be considered in future phases of the study.

More specifically, safety challenges exist where cyclists and pedestrians must traverse Highway 400 and Highway 407 ETR interchanges. However, with the Highway 7 West vivaNext project is planning to implement a median multi-use trail between Famous Avenue towards the VMC, and this will eliminate pedestrian and cyclist conflicts at the free-flow on-ramps. The issue remains at the Highway 407 ETR ramps however, and solutions to allow pedestrians and cyclists to traverse these ramps safely should be explored in later phases of this study.

Finally, it is recognized through studies such as the City's Pedestrian and Bicycling Master Plan that Vaughan residents feel safer when cycling in a separated cycling facility. Literature also supports the use of separated cycling facilities to improve the safety of cycling. Introducing separated cycling infrastructure has the immediate benefit of improving the safety of this mode of transportation, with the long-term benefit of increasing the use of sustainable modes.

3.4 New Innovative Smart Mobility Plan and TDM Measures

The Smart Commute program has demonstrated successful shifts in mobility behaviour away from the single occupant vehicle. This Secondary Plan has the opportunity to encourage or require the program for developments in the study area and provide tailored Transportation Demand Management to match the needs of local businesses and residents. Existing smart mobility technology (such as Transportation Network Companies) and car share programs for trips during the day could also be used to shift travel behaviour away from single-occupancy vehicles to other modes.

Emerging technologies and increased sustainability awareness are beginning to lead the population towards utilizing non-traditional travel options such as car-sharing, ride-sharing, and bike-sharing. These non-traditional options have the potential to reduce reliance on single-occupant vehicles. Support for these options can be facilitated by creating designated, comfortable waiting areas to find a bike-share rack, car-share vehicle, or wait for a ride-share driver. One concept for providing this “one-stop service point” for multimodal systems is called “EcoMobility hubs”^{1 2}. An illustration of an EcoMobility hub is provided in **Figure 3-2**, which shows a large scale hub incorporating multiple systems. These hubs may also be smaller scale, such as an on-street car-share station or an integrated bike share and bus stop. These measures can improve the transit mode share in the study area and help achieve the targets indicated in York Region and City of Vaughan OP.

¹ Karim D. M., Innovative Mobility Master Plan: Connecting Multimodal Systems with Smart Technologies, Disrupting Mobility Conference, MIT Media Lab, Cambridge, USA, November 11~13, 2015.

² Karim D. M., Creating an Innovative Mobility Ecosystem for Urban Planning Areas, Disrupting Mobility - Impacts of Sharing Economy and Innovative Transportation on Cities, Springer Book, Lectures in Mobility, ISBN: 978-3-319-51601-1, pages 21-47, 2017.

Figure 3-2: EcoMobility Hub Concept



Source: multi mobility, Sophia von Berg, 2014

3.5 Increase Sustainable Modal Share

The VMC subway station was opened in December 2017, and the vivaNext transitway along Highway 7 is scheduled to open in 2019 and includes two stops in the study area: Weston Road and Ansley Grove Road. These critical higher order transit investments provide the spine of a sustainable transportation system. Further to the policy direction of the Vaughan Official Plan 2010, which targets a transit mode share of 40% in the study area, the key opportunity in the Weston-7 Secondary Plan is to maximize connectivity to the transit stations within and adjacent to the study area.

Multi-use paths and bike lanes are planned on Highway 7 as part of the VivaNext Plan, and bike lanes are planned on Weston Road and collector roads such as Chrislea Road and Colossus Drive. This will provide sustainable travel options for people to connect to transit stations in the area.

A large portion of the study area is within a 500 metre walk to the vivaNext transit stations. To maximize the convenience of walking to the transit stations, pedestrian infrastructure should be provided or improved on all roads in the study area, especially those with lower pedestrian level-of-service scores as noted in the **Transportation Needs Assessment Report**. Pedestrian network improvements serve a dual role of increasing the attractiveness of transit as a travel option, and improving pedestrian connections from transit stops to destinations within the study area.

With these opportunities in mind, the land use and built form alternatives to be explored in later phases of this study will need to consider significant shifts in transit and non-auto modal share in line with the established policy goals.

3.6 Optimize the Existing Road Network

The existing road network should be reviewed and optimized in concert with development as part of the future phases of the Secondary Plan, and during implementation of the Secondary Plan. Some measures include improved traffic signal coordination along Weston Road between the Northview and Highway 7 intersection, as well as coordination of adjacent intersections and corridors, review of turn lane requirements, and queue jump lanes.

Furthermore, all options to improve access to the Secondary Plan area should be investigated, including modification/relocation of existing intersections.

3.7 Consider Additional Access to Highway 400

One of the keys to unlocking the growth potential of the study area not only for Weston 7 but also for the VMC, is to provide alternate access to Highway 400. Highway 7 is extremely congested at Weston Road today, and providing additional options to vehicular traffic will significantly improve congestion in the study area. While it is recognized that MTO has concerns about interchange spacing, future phases of this study should explore the potential opportunities to provide an alternative Highway 400 access to Weston 7.

3.8 Extend Portage Parkway / Chrislea Road west of Weston Road

A more direct connection to Highway 7 from Portage Parkway / Chrislea Road should be considered west of Weston Road. Right now, there is access via Fieldstone Drive, Windflower Gate and Ansley Grove Road, but the route is already congested with multiple turns and does not provide a feasible through-route. Through development however as lands become available, the possibility of reconstructing the roadway along the north-western boundary of the study area should be strongly considered. This through-route would also be designed to discourage movements into the nearby residential neighbourhoods.

4 Transportation Study Framework

This section outlines a framework for the comprehensive Transportation Study to be completed alongside future phases of the Secondary Plan study. The Transportation Study should be completed under the Master Planning process, following Phase 1 and 2 of the Municipal Class Environmental Assessment (EA) process. This process is required as new roads and road extensions may need to be completed as a Schedule C Municipal Class EA, and this approach will provide a holistic review of the proposed transportation network and support streamlined approvals from Council and agencies.

The framework involves the identification and assessment of alternative land use scenarios, analysis and identification of a preferred alternative and supporting policies for implementation. The framework will incorporate and evaluate, at minimum, the following components:

- Testing of grid street network options based upon the work of the “Weston 7 Secondary Plan Phase 1 Final Report”, and in concert with land use / growth to maximize connectivity and efficiency;
- Evaluating an active transportation network that is comfortable and safe;
- A Multimodal Level of Service approach to evaluate network connections and infrastructure;
- The effects of new mobility options; and
- A travel demand management and parking strategy.

In addition, the transportation will need to be reviewed and approved by MTO and 407 ETR, as discussed in **Section 2.3**.

A transportation analysis framework, data needs, and an actionable work plan with estimated timelines are detailed further in the following sections.

4.1 Transportation Analysis Framework

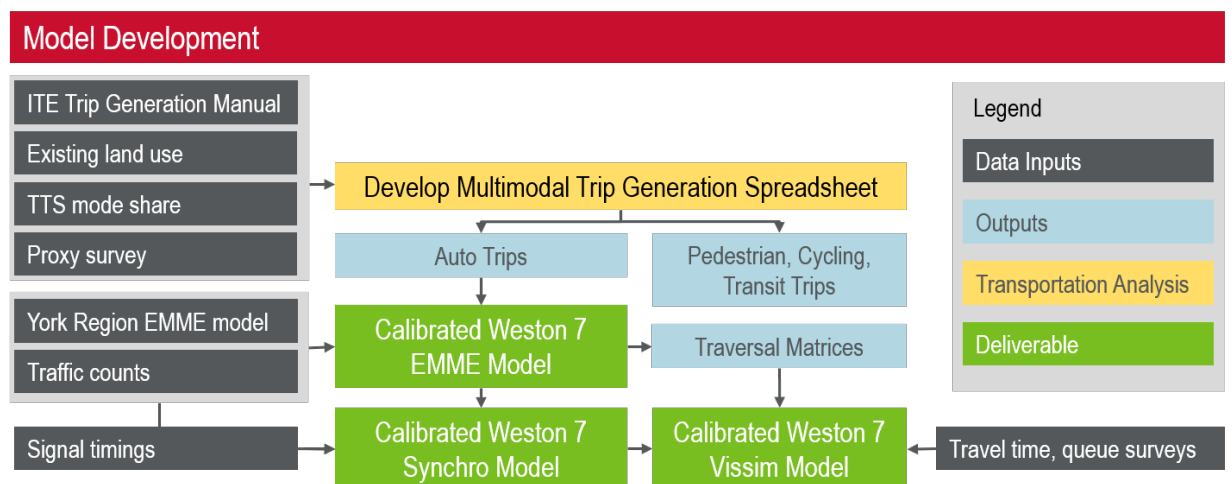
4.1.1 Objective

The objective of the transportation network in the Weston 7 Secondary Plan is to create a multi-modal and connected network for people who walk, cycle, take transit, and drive, maximize safety for all users including vulnerable users such as children and elderly, integrate with, support and improve proposed developments, and position streets as locations for placemaking and extended public realm.

4.1.2 Recommended Analysis Process

The following flow chart (**Figure 4-1**) illustrates the overall process, while the following sections provide additional detail with respect to each of the four stages of the transportation modeling process.

Figure 4-1: Model Development



The analysis process will conduct multimodal trip analysis to test various scenarios against an improved transportation network/new mobility options, and land use alternatives. This requires a multimodal trip generation spreadsheet/tool and a sub-area model to distribute and assign trips in different modes. This tool should include:

- A multimodal trip generation spreadsheet which:
 - incorporates ITE trip generation to account for varying trip making characteristics by specific land use types and time period
 - incorporates mode share estimation based on proximity to higher order transit and which may account for “what-if” scenario testing of new mobility options
 - generates trip productions and attractions for all travel modes
 - utilizes, to the extent possible, local trip generation information including site surveys
- An EMME model with a disaggregated zone system (e.g., parcel or block level) and detailed network to allow for refined analysis for scenario testing and assignment of multimodal trip generation
- A Synchro model to assess intersection capacity and to optimize signal timings based on future turning movements estimated by the EMME assignment and distribution
- VISSIM traffic microsimulation modelling will be used to assess the land use options to understand impacts to higher-order transit service and queuing and delay issues throughout the Secondary Plan Area plus a segment of Highway 7 east of the SP area including the Highway 400 ramp terminals. Depending on the City’s budget for the study, we see three potential options for the modelling effort:
 - **OPTION 1:** Static assignment model for the Highway 7 corridor only, Ansley Grove to Highway 400 NB off-ramp.
 - **OPTION 2:** Dynamic assignment model for the Secondary Plan area plus Highway 7 easterly to Highway 400 NB off-ramp.
 - **OPTION 3:** Dynamic assignment model for a broader study area to capture the impacts of improvements to the Langstaff Road interchange and potential ramps at Portage Parkway. The study area for the VISSIM model would include Langstaff Road to the north, Weston Road and the SP area to the west, the SP area boundary to the south, and Highway 400 NB off-ramp at Highway 7 and Highway 400 to the east.

The analysis process is illustrated in the following flow chart in **Figure 4-2**.

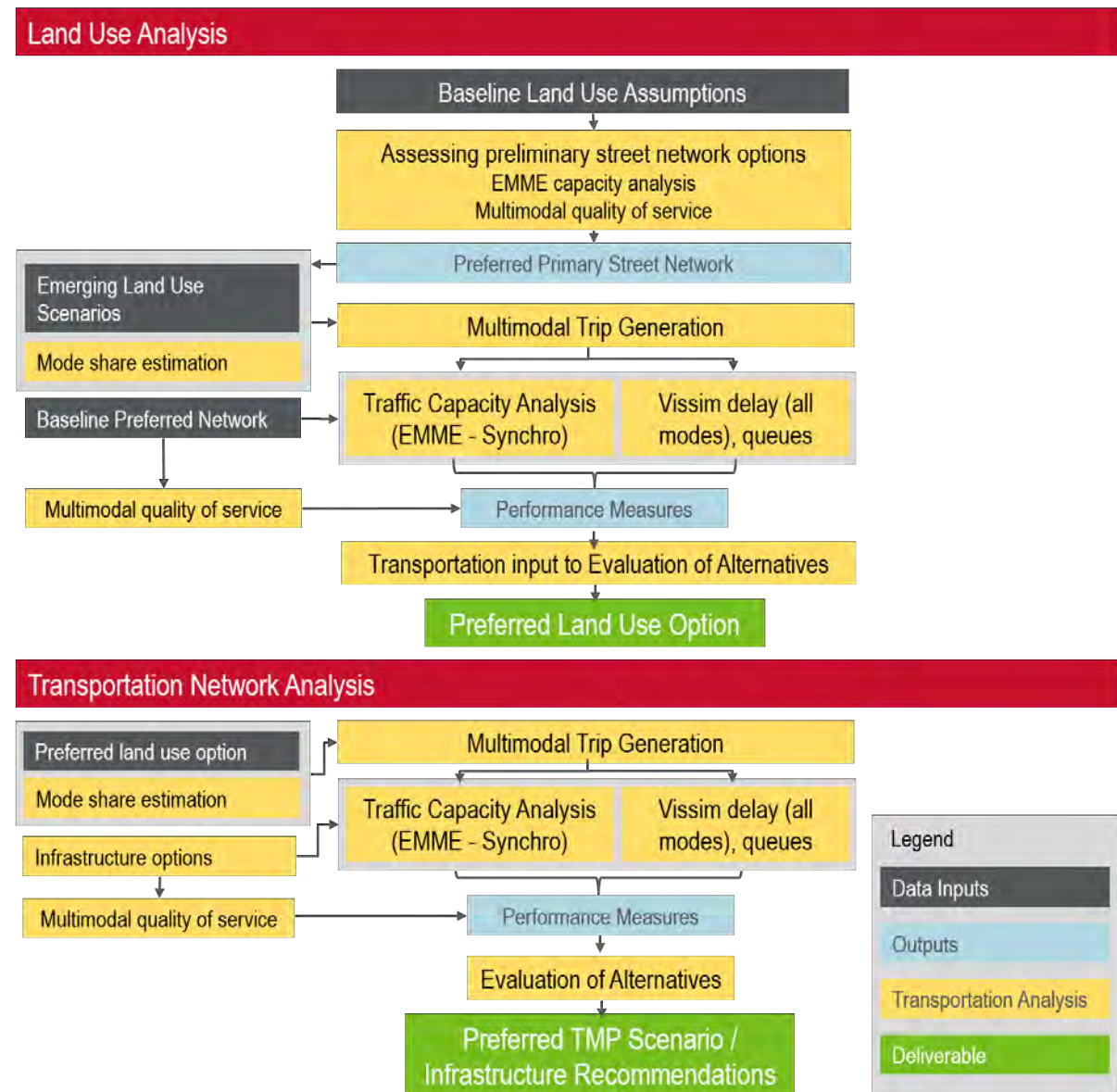


Figure 4-2: Recommended Analysis Process

The baseline land use assumptions developed from the findings of the Weston 7 Secondary Plan Phase 1 Final Report will be used to evaluate and determine a preliminary preferred street network. Using the modelling tools developed and the findings of the Weston 7 Secondary Plan Phase 1 study, an analysis of emerging land use options will be carried out. A preliminary assessment should be carried out to determine a preferred primary street network, which are intended to be roads that meet the traffic capacity requirements of the study area. This should be a high-level assessment based on EMME outputs, connectivity measurements and other measures as appropriate. Further, it is noted that specific VISSIM analysis may be required to inform the feasibility of street options. Following the preliminary preferred street network, a refined set of land use options should be developed based on the primary street network which will be tested to the intersection level to understand development capacity impacts. This will inform the selection of the preferred land use option.

Further testing and analysis of the preferred land use option should then be carried out to rationalize and refine the primary street network, identify additional streets and determine an appropriate street hierarchy. As noted, we recommend that a Transportation Master Plan following phases 1 and 2 of the Municipal Class EA process be carried out in parallel to the Secondary Plan process. TMP alternatives will be developed to address the problem and opportunity statement arising out of the Phase 1 analysis plus baseline future conditions with the preferred alternative. Ultimately, the preferred alternative will result in a suite of transportation infrastructure recommendations and policies to be carried forward for implementation or further study as per EA guidelines and requirements.

4.2 Data Needs

4.2.1 Available Data and Documents from Phase 1 Transportation Study

Table 4-1 and **Table 4-2** summarizes the available documents and turning movement counts (TMCs) from Phase 1 Transportation Study. In addition, the 2012 Commercial Vehicle Survey (CVS) was provided by the Ministry of Transportation Ontario (MTO), which includes daily truck origin-destination trips to or from York Region. The City of Vaughan provided Strava Metro information, which includes bike counts based on activities from people who choose to log and upload their trips. Lastly, York Region Transit (YRT) provided weekday, Saturday, and Sunday transit boardings and alightings by time periods for transit routes in the study area:

- Route 10 Woodbridge, which operates as a DAR service during the weekend;
- Route 165 Weston;
- Route 77/77A Highway 7;
- VIVA Orange; and
- Brampton 501 Züm as daily total only, as ridership by time period is not available.

Table 4-1: Available Documents from Phase 1 Transportation Study

Municipality	
Provincial Planning Context	407 Transitway
Regional Planning Context	York Region Transportation Master Plan (TMP) 2016
	York Region Official Plan
	York Region vivaNext Plan (2017)
	York Region Transportation Mobility Plan Guidelines for Development Applications (2016)
City of Vaughan Planning Context	Vaughan 2013 Transportation Master Plan
	City of Vaughan Official Plan
	City of Vaughan Pedestrian and Bicycle Master Plan (2007 and 2019)
	Vaughan Metropolitan Centre Secondary Plan
	VMC Secondary Plan - Corridor Protection: Colossus Drive Overpass Area (2015)
	VMC and Surrounding Areas Transportation Study (2013)
	7777 Weston Road Area Wide Transportation Study (2012)
Green Direction Vaughan (2009)	
Other Planning Documents	Transportation Demand Management for Toronto-York Spadina Subway Extension

Table 4-2: Available Turning Movement Counts, Availability of Signal Timing Cards and Assumptions

Intersection	Weekday PM Peak Hour Count Date	Weekend Peak Hour Count Date	Signal Timing Card Available	Assumption(s) on Estimation of Missing Signal Timings and Intersection Turning Volumes
Chrislea Rd @ Portage Pkwy / Commercial Access	May 17 , 2011	June 23, 2018	No	120 sec Cycle Length Assumed, May 2011 traffic count was adjusted with an annual growth rate of 1.5% compounded up to 2018 for Weekday PM Peak Hour
Weston Rd @ Chrislea Rd / Fieldstone Drive	June 26, 2018	June 23, 2018	Yes	-
Ansley Grove Rd @ Windflower Gate / Pinedale Gate	June 26, 2018	June 23, 2018	Yes	-
Highway 7 @ Ansley Grove Rd / Whitmore Rd	June 26, 2018	June 23, 2018	Yes	-
Highway 7 @ Nova Star Dr / Commercial Access	June 26, 2018	June 23, 2018	Yes	-
Highway 7 @ Weston Rd	Dec. 20, 2016	June 23, 2018	Yes	-
Highway 7 @ Famous Rd	June 26, 2018	June 23, 2018	Yes	-
Highway 7 @ Colossus Dr / Highway 400 SB Off Ramp	March 21, 2017	N/A	Yes	-
Highway 7 @ Highway 400 NB Off Ramp	May 31, 2016	N/A	No	140 sec Cycle Length Assumed
Weston Road @ Rowntree Dairy Rd./Colossus Drive	June 26, 2018	June 23, 2018	Yes	-
Rowntree Dairy Rd @ Wings Rd / Auto Park Cir	June 26, 2018	June 23, 2018	No	120 sec Cycle Length Assumed
Ansley Grove Rd / Whitmore Rd @ Wings Rd / Trowers Rd	June 26, 2018	June 23, 2018	No	120 sec Cycle Length Assumed
Weston Road @ 407ETR WB On Ramp / Famous Avenue	June 26, 2018	June 23, 2018	Yes	-
Weston Road @ Northview Blvd	June 26, 2018	June 23, 2018	No	140 sec Cycle Length Assumed
Fieldstone Drive @ Windflower Gate/Pottery PI [Unsignalized]	March 4, 2015	June 23, 2018	-	-
Northview Blvd. @ 7777 Weston Road Access [Unsignalized]	N/A	June 23, 2018	-	Assumed from current PM peak volumes of the neighboring intersections, and an older count of July 31, 2012 of another neighboring intersection

4.2.2 Outstanding Data

The following data is required for the next phases of the transportation study:

- Detailed historic collision data over a period of at least 5 years from the City of Vaughan should be collected and reviewed to identify any potential for safety improvement which can be implemented through the Secondary Plan.
- Weekday and weekend peak turning movement counts on intersections along Highway 7 after vivaNext construction is complete. Ideally, over one to two months should pass before data is collected in order to allow enough time for travel patterns to adjust to the new infrastructure. The minimum data to be collected should include 7:00am-9:00am and 12:00pm-6:00pm during weekday, and 3:00pm-7:00pm on Saturday.
- Updated signal timing information, including at intersections where signal timing was not available for this study, and along Highway 7 post-vivaNext construction.

4.3 Proposed Work Plan Input

The following tasks are representative of those that should be carried out in support of the proposed transportation analysis.

Task 1 Data Collection and Review

Task 1.1 Review of the Phase 1 existing conditions assessment.

- Review of existing City, Regional, and Provincial policies as listed in
- **Table 4-1**; and
- Review of available data and the existing condition analysis;

Task 1.2 Collecting additional data, refine Phase 1 Transportation Study

Review available data and collect outstanding data (as discussed in **Section 4.2**).

Due to the limitation of data and the construction on Highway 7, the following analysis is needed to refine the Phase 1 transportation study and to assess the impact of the vivaNext construction on Highway 7:

- Detailed collision analysis of study area intersections
- Conduct new traffic counts post-vivaNext construction and obtain updated signal timing information. Counts should occur at least one to two months following vivaNext construction.
- Conduct updated weekday and weekend intersection capacity analysis using Synchro software based on the TMCs after the construction on Highway 7, and comparison to the traffic conditions prior / during the construction.
- Review and draw comparisons to Phase 1 Transportation Study analysis and confirm or update if necessary Phase 1 study findings.
- Revise or refine Problem Statement if necessary.

Task 2 Identify a preferred primary street network.

- Identify street network options to be assessed / considered.
- Using the baseline land use scenario, conduct a comparative multi-modal transportation analysis of the street network options. The analysis will consist of high-level traffic analysis using EMME link volumes, connectivity index and intersection-density.
- Identify evaluation criteria for the purposes of assessing the street network options to arrive at a preliminary preferred alternative to inform land use options. It is noted that the land use options identified in the Weston 7 Secondary Plan Phase 1 Final Report will be further refined based upon the findings of this analysis.
- Determine the appropriate land use scenarios to be tested in discussion with City staff.
- Identify and include any streets that can be implemented without a class EA, i.e., through the planning act.
- Develop a baseline preferred street network, including streets identified above and currently planned and/or identified improvements, such as vivaNext, Colossus Drive Overpass.

Task 3 Transportation Modelling

The transportation modeling for the transportation analysis will assess the traffic and transit capacity impacts of development alternatives and provide input to the assessment of transportation alternatives to satisfy the requirements of Phase 2 of the TMP process. Upon selection of the preferred alternative, the transportation model will assess mode share scenarios associated with infrastructure recommendations, which will result in the selection of a preferred scenario.

The transportation modelling approach should follow the traditional four-stage process of trip generation, mode share, distribution and assignment. The York Region Transportation Model is an AM Peak Period macro travel demand forecasting model utilizing the EMME platform and will be made available for application to this study. While York Region's EMME model provides critical inputs with respect to regional future changes to distribution and mode shares, this focused planning study should develop a more detailed look at travel demand estimation and analysis as follows:

- Conduct multi-modal trip generation utilizing the ITE Trip Generation Manual (9th Edition) at the block level based on input from the future Weston 7 Secondary Plan Phase 2 study, and future land use forecasts, including 2031 and 2041 AM and PM peak period during weekdays and peak period for Saturdays.
- Estimate mode share based upon existing surveys (if available), Regional mode share shifts from the York Region Transportation model, academic research, and proxy site analysis. The mode share estimation should consider any potential mode shifts based on existing research for different mobility options to provide an indication of the impacts to the transportation system. This includes the impacts of autonomous vehicles, shared mobility (bike share and ride share), on-demand transit, travel demand management (TDM) measures, and parking strategies. For example, research shows for every car2go vehicle, between seven and 11

private vehicles were removed from circulation and reduced household vehicle kilometres travelled (VKT).³

- Develop an EMME based subarea model to distribute and assign vehicle trips to the network. This model should include:
 - Disaggregated zone level (e.g., block or parcel-based) and detailed network to allow for refined analysis for scenario testing.
 - Inputs based on different land use and network scenarios.
- Conduct vehicular traffic analysis to assess the traffic conditions in the 2031 and 2041 AM, PM Peak Period during the weekday and Peak Period on Saturdays.
- Forecast transit ridership in the 2031 and 2041 AM, PM Peak Period during the weekday and Peak Period on Saturdays, conduct transit capacity analysis. If necessary, confirm findings with YRT.
- Develop VISSIM models for the study area and calibrate the models to existing conditions. The assumptions and parameters should be reviewed and approved by the MTO.
- Traffic volumes from the subarea macro model will provide inputs to the VISSIM model, which should be used to examine potential options such as additional access to Highway 400.

Task 4 TMP alternatives

Task 4.1 Do Nothing Scenario

Based on the preferred development alternatives and the baseline preferred street network, identify a Do Nothing scenario upon which to identify potential improvements.

Task 4.2 With-improvement Scenarios

Task 4.2.1 Identify with-improvement scenarios

Identify with-improvement scenarios, including but not limited to Chrislea Road / Fieldstone Drive extension to Ansley Grove Road, additional accesses or ramp modifications to and from Highway 400, and reconfigure Highway 7 and Famous Avenue.

Task 4.2.2 Conduct detailed multi-modal transportation analysis

Conduct multi-modal transportation analysis to confirm the needs to the with-improvement scenarios, this includes:

- Develop traffic forecast (trip generation, distribution, and assignment) based on the preliminary land use and density forecast;
- Model 2031 and 2041 conditions for roads in the study area;

³ Martin E, Shaheen S. Impacts of Car2Go on vehicle ownership, modal shift, vehicle miles traveled, and greenhouse gas emissions: an analysis of five North American Cities. Transportation Sustainability Research Center, UC Berkeley. 2016.

- Vehicular screenline analysis with volume to capacity (V/C) ratios;
- Transit screenline and V/C analysis along selected transit routes;
- Intersection capacity analysis for the 2041 condition for critical boundary and key internal intersections (AM peak, PM peak, and Saturday peak) utilizing Synchro micro simulation software;
- Level of service (LOS) and delay calculations for vehicle and transit mode (AM peak, PM peak, and Saturday Peak);
- The impact for options such as partial ramp access Portage Parkway utilizing the VISSIM model developed for the study area;
- Assessment of the pedestrian and bicycle network, including pedestrian level of service (PLOS) and bicycle level of service (BLOS) evaluation and watershed analysis. The methodology used in the Phase 1 transportation study is documented in the **Needs Assessment Report**; and
- Other metrics as identified.

Task 4.3 Identify preferred alternative

- Based on the multi-modal transportation analysis, identify the preferred transportation scenario.

Task 4.4 Consultation

- Consultation with relevant stakeholders, including York Region, YRT, YRTCC, and MTO on the analysis; and
- Public consultation, following the requirements of the Phase 1 and 2 of the EA process.

Task 5 Implementation and Phasing

Task 5.1 Identify future actions or studies for implementation

- Identify future actions or studies to implement the preferred alternative (i.e., Phase 3 and 4 in the EA process)

Task 5.2 Recommend updates to Official Plans

- Based on the preferred alternative, recommend updates to the City of Vaughan Official Plan and the City and Region's Cycling Master Plan

Task 5.3 Recommend TDM measures, parking strategies, additional policies and programming for the study area.

- **Transportation Demand Management (TDM) and Parking Strategy:** TDM measures and Parking Management work together to encourage non-vehicular mode choices, reduce the number of single occupancy vehicles, and release the peak period pressure on the transportation network. Recognizing the study area's close proximity to transit, especially to VIVA service on Highway 7 and the Vaughan Metropolitan Centre Subway station, and building on the review of TDM measures in

the Phase 1 transportation study, suitable TDM measures and parking strategies should be recommended to:

- Encourage the use of sustainable modes, including transit, walk, and cycle;
 - Reduce the use of SOV and parking lots for SOV, and encourage parking facilities for carpool trips; and
 - Identify potential locations for public and private shared parking facilities (e.g., on-street, parking lots, parking structures) and required supply.
- **Mobility as a Service (MaaS):** MaaS recognizes the need towards mobility solutions that are provided as a service in order to reduce the dependency on private vehicle ownership. The Phase 2 and 3 transportation study should explore policies and programming in order to incorporate the following topics:
 - Autonomous vehicles, ride-sharing, and bike-sharing services into the urban landscape and infrastructure requirements;
 - Autonomous shuttles / micro transit to or from the study area and connecting destinations such as the VMC subway station, senior homes, shopping destinations; and
 - Using MaaS as a solution to address first and last mile challenges.

Task 5.4 Funding sources

- Identify any funding sources to implement the recommended transportation network, TDM measures, and parking strategies.

BACKGROUND REPORT AND APPENDICES

APPENDIX 2

MAY 10, 2019





inclusive • connected • future-friendly

WESTON 7 SECONDARY PLAN

Background Report

October 29, 2018





TABLE OF CONTENTS

EXECUTIVE SUMMARY	01
SECTION 1: INTRODUCTION	08
SECTION 2: PLANNING FOR CHANGE	16
SECTION 3: STUDY AREA ANALYSIS	44
SECTION 4: ENGAGEMENT SUMMARY	60
SECTION 5: TRENDS IN COMMERCIAL CENTRE INTENSIFICATION	70
SECTION 6: SUMMARY OF CONSULTANT REPORTS	82
SECTION 7: NEXT STEPS	94

EXECUTIVE SUMMARY

The City of Vaughan is growing and changing. A new subway station at the Vaughan Metropolitan Centre (VMC) opened in 2018; the Highway 7 bus rapid transitway, VivaNext, will be fully operational by 2019; tall buildings are beginning to dot the landscape at locations connected to new transit infrastructure; aging, low-density, single-use parcels of land are beginning to evolve into higher density mixed use developments across the City, particularly in the City's planned centres where growth and intensification are directed. Vaughan is at the precipice of a long term transformation into a place of greater development intensity, connectivity, and urban place-making.

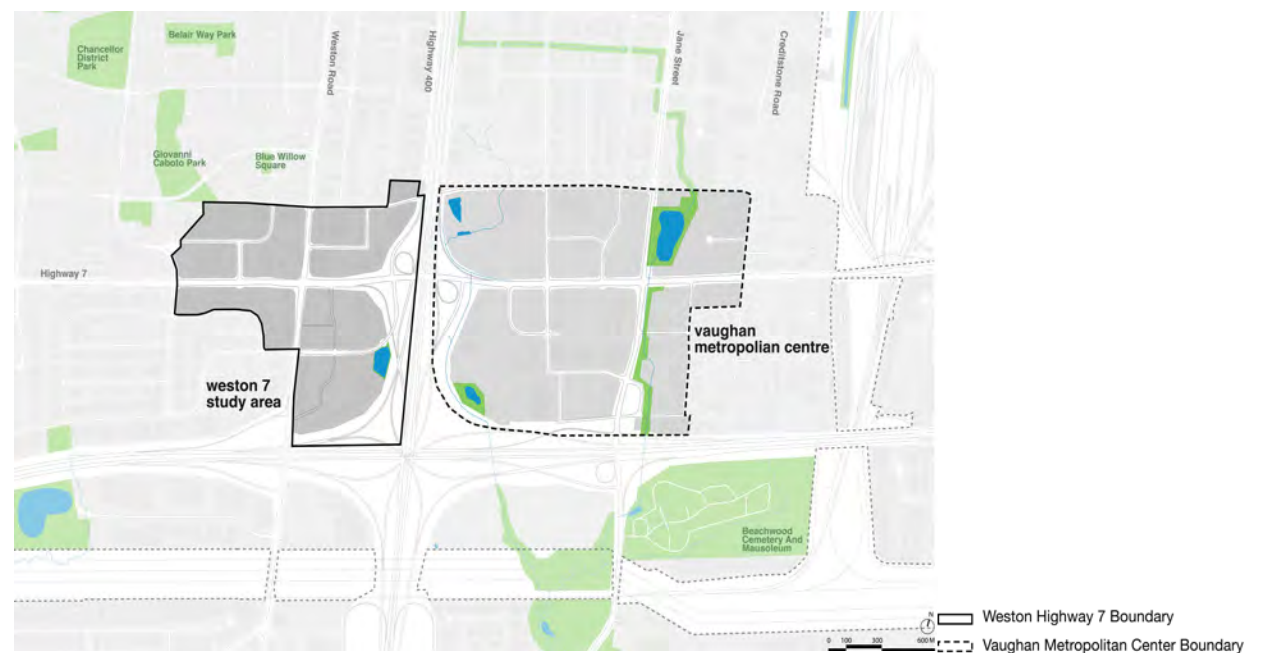




By 2031, the City is expected to accommodate approximately 167,300 new residents and 103,900 new jobs, largely in areas of the City that are already built up. The City of Vaughan has already advanced the thinking about how to accommodate this anticipated growth, through the identification of a number of strategic growth areas. One such location identified for growth is the Weston Road and Highway 7 Secondary Plan area, identified on Schedule 14 of the VOP 2010 as a 'required Secondary Plan area'. The area is 129 hectares in size and is positioned across Highway 400 from the centre of the City's anticipated growth, the Vaughan Metropolitan Centre (VMC). The Weston 7 area is identified as a Primary Centre in the VOP 2010 and intended to become

a place to realize a connected, sustainable, mixed use, vibrant community that is transit oriented, pedestrian friendly and a distinct place of major activity.

To effectively plan for the long term future of Weston 7, the City of Vaughan has initiated a Secondary Plan Process. The first step in this process is a three stage study that will create a strategy to define all the elements needed for successful growth: new roads and active transportation routes, new open spaces and parks, policies to establish height and density of new development, and hard and soft infrastructure requirements. Ultimately the process will result in the creation of a Secondary Plan to formally guide



Study Area

the evolution of Weston 7.

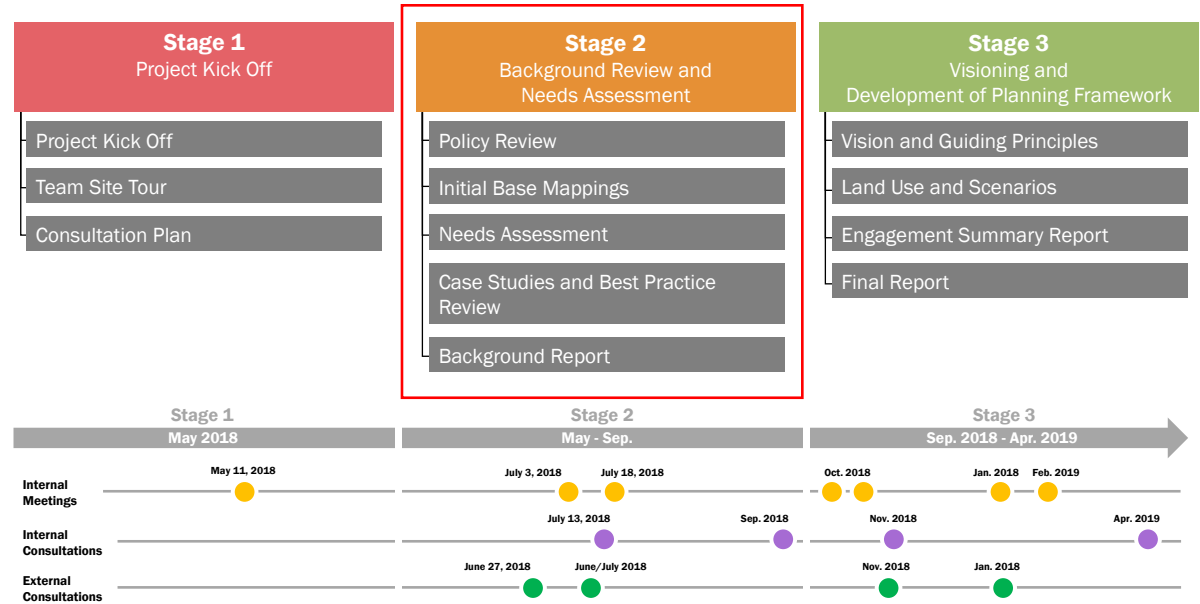
Phase 1 of the Secondary Plan process was awarded in April 2018 and is being undertaken by the following consultant team:

- **Urban Strategies Inc.** as project lead planning and urban design expertise;
- **HDR** providing traffic and active transportation planning analysis and guidance;
- **Hemson** providing expertise in land economics and growth management;
- **The Municipal Infrastructure Group (TMIG)** providing analysis and guidance on servicing and stormwater; and
- **Urban Equation** providing sustainability analysis and a community energy plan.

Phase 1 of the Secondary Plan development process is focused on a background review and needs assessment of the Weston 7 area, the development of a vision, and the creation of land use alternatives that describe how the area may achieve its policy direction in the future. This Background Report represents the first formal document developed as part of Phase 1 of the Secondary Plan development process and summarizes the key findings of the consultant team's background work.

The following are highlights of the detailed technical analysis and site evaluation that is contained in the background report:

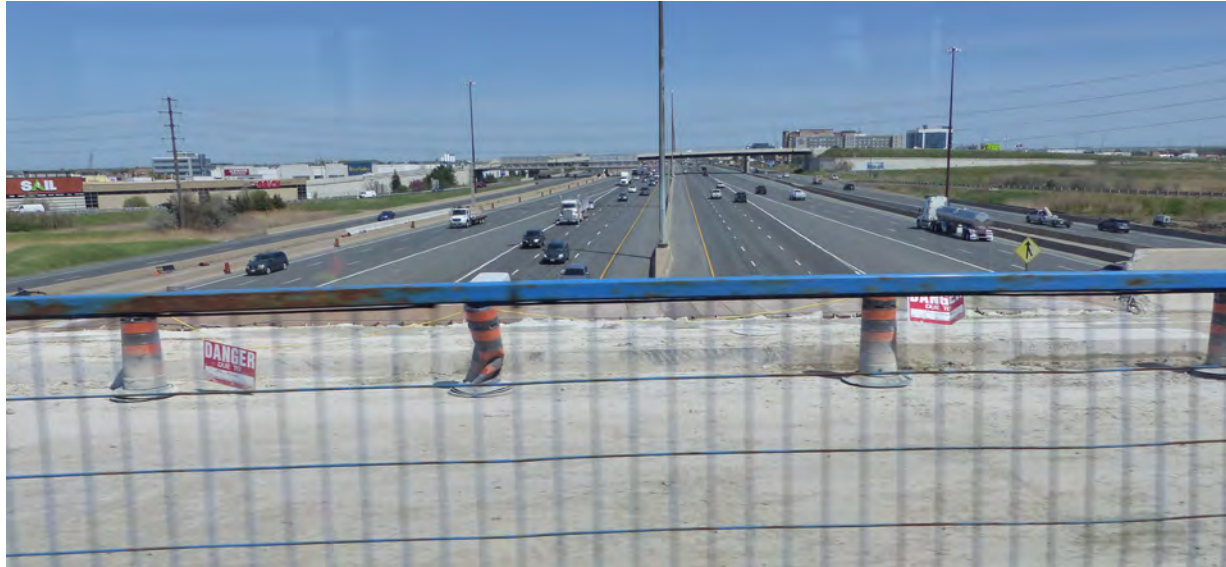
Three-stage, 12-month work plan



Study Area Analysis

Weston 7 is intended to become a location for compact, mixed use growth, however, its current conditions still reflect the area's suburban commercial character. The Weston 7 Secondary Plan Area (SPA) is currently characterized by single storey low density retail commercial buildings and associated surface parking lots, with the exception of one recent high-density residential development at Weston Road and Highway 7. Thirty-three

hectares of surface parking dominate the site. The sizes of the structuring blocks are large and the area is lacking a fine-grained network of streets. The area also exhibits limited pedestrian infrastructure and amenities. With regards to barriers, Highway 7, planned as a 60 metre right-of-way, is a barrier between the north and south portions of the Study Area; Weston Road, forming part of the Regional Transit Priority Network in the VOP 2010, is a 40 m



Highway 400

road and heavily used corridor in this area of the City, is difficult to cross and acts as a barrier for east to west movements; Highway 400, spanning approximately 300 meters in width, creates a large barrier between the Weston 7 area and the VMC. Opportunities for the future of Weston 7 arising from the existing context include providing greater connectivity to the existing neighbourhoods to the north and west, providing ridership for planned rapid transit improvements. In addition, an open space network exists to the northwest of the site, which could provide an opportunity for connection and enhancement of open space, of which there is currently none, in the Weston 7 area.

While there are significant constraints to the site and, given the commercial nature of many of the land uses, full growth potential may be realized beyond 2041 (Growth Plan planning horizon).

There is a significant amount of opportunity and relatively unencumbered land to redevelop and contribute to a complete, mixed used community. Additionally, there are landowners with significant interest in the redevelopment and intensification of properties in the Weston 7 area. Greater mobility choices could potentially alleviate the area's significant traffic congestion issues. A complete Study Area analysis is provided in the body of the report in Section 4.

Engagement Summary

The Weston 7 Secondary Plan Phase 1 process features an engagement process for internal stakeholders, external key stakeholders and the general public. Although no formal decisions regarding land use policy are being made as part of the Phase 1 work, inputs from the public and



Roundtable Summit: discussing opportunities



Roundtable Summit, a cross section of stakeholders



Members of the public report back on their vision boards



Participants working collaboratively on vision boards

key stakeholders are being used to help inform the development of land use alternatives, based on identified constraints and opportunities, future development plans of landowners, and community ideas and visions for the area.

Engagement for the project to date includes:

- Roundtable Summit Meeting on June 13, 2018 with representatives from City of Vaughan departments including Policy Planning, Environmental Sustainability, Cultural Heritage, Development Planning, Economic Development, Infrastructure Delivery, Parks Development, Public Libraries, Development Engineering. The meeting also included representatives from York Region, Toronto and Region Conservation Authority, VivaNext, York Region Transit, as well as the Public and Catholic School Boards.
- Ideas Workshop on June 27, 2018, attended by members of the public and development

industry representatives.

- Eleven Key Stakeholder interviews with area landowners and their representatives held in June, July, and August 2018.
- Four interviews with area and Regional Councillors.
- Several project website updates providing information about the project.

Future engagement planned for the project includes:

- Community vision workshops- November 2018
- Land Use Alternatives workshops- January 2019

Each of the stakeholder groups provided unique insights and perspectives on the current status of the Weston 7 area and what the future could hold with regards to change. While each stakeholder group brings a different lens to the



Participants discuss the areas they visit in Weston 7

process, in general there is a common desire for a comprehensive plan that addresses issues such as: development density, appropriate building heights, increased community amenity and character, natural heritage and open space connectivity, traffic congestion and improved transportation for a variety of modes and a transparent and collaborative process to determine the Plan. A complete review of the process and feedback themes from the engagement are detailed in the body of the report in Section 4.

Intensification Trends for Commercial Centres

In many cities and towns in the Greater Golden Horseshoe, commercial centres are becoming prominent sites of intensification and redevelopment, as directed by Provincial, Regional, and Local policy planning frameworks. Where paired with rapid transit infrastructure, the re-imagining of commercial centres has begun to structure a new pattern in suburban redevelopment. In Section 5 of the report, opportunities and challenges of suburban transformation are explored and four case studies are presented to explore various lessons learned and approaches to similar redevelopment in other contexts including: Brentwood Station in Calgary, Golden Mile in Scarborough, Surrey City Centre in the Greater Vancouver area and ConsumersNext in the City of Toronto.

Technical Reports

As part of the Phase 1 study, background reports were prepared by the consultant team including:

- Transportation Needs Assessment Report, HDR;
- Population and Employment Outlook and Commercial Use Assessment, Hemson Consulting;
- Sustainability Analysis, Urban Equation;
- Community Energy Plan, Urban Equation;
- Planning Policy Analysis, Urban Strategies;
- Community Facilities and Services Study, Urban Strategies;
- Preliminary Water, Wastewater and Stormwater Servicing Analysis; and
- Telecommunications Memo, RTG Systems.

Each of the consultant reports is summarized in greater detail in Section 6 and available in full in the Background Report Appendices.

Next Steps

The Background Report includes a summary of a range of baseline conditions and preliminary findings about the Weston 7 area. Some of the key findings that will be critical to the subsequent stages of work include:

- Define the appropriate people and job targets for the Weston 7 area in relationship to its role in the urban structure and the overall network of Major Transit Station Areas (MTSAs) in the City of Vaughan.
- Reflect principles of sustainability in urban design strategies and policy recommendations for the Weston 7 area.
- Identify strategies to accommodate growth and address the high levels of traffic congestion including the creation of a draft new street network and transportation demand management strategies to influence movement patterns over time.
- Determine the appropriate open space network to frame development.
- Clearly define Weston 7's role and character in the City and in relationship to the VMC.

The work from this stage of research and analysis will inform the next stage of work in the Secondary Plan development process, where a vision for the area is established, along with development principles. From there, a number of land use alternatives will be created to illustrate various ways that development can take shape in the future. The Final Report will provide an analysis of the alternatives and policy directions.



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SECTION 01

INTRODUCTION



INTRODUCTION

The City of Vaughan has initiated a process to develop a Secondary Plan for the area surrounding Weston Road and Highway 7. The Secondary Plan process has been divided into three phases; this Background Report has been prepared as a part of Phase 1, which is focused on defining the role of the Weston Road Highway 7 area as a Primary Centre and establishing a vision and land use alternatives that will guide change and the scope of subsequent work needed to complete the Secondary Plan. The selection of a preferred land use concept and Secondary Plan policies will be addressed in Phases 2 and 3 of the Secondary Plan process, which will be awarded by the City of Vaughan through a competitive process under a separate contract.

1.1. Introduction to the Weston 7 Secondary Plan Study

The Weston 7 Secondary Plan Area (Weston 7 SPA) is defined as a Primary Centre in the City of Vaughan's 2010 Official Plan (VOP 2010). Primary Centres are locations within Vaughan's urban structure that have been identified for intensification and a greater mix of land uses. A Secondary Plan allows for the effective direction of land use, built form and urban design, and will ensure this growth, intensification, and greater mix of uses is planned logically to support the investments in higher order transit along the Highway 7 corridor and the area's role as a Primary Centre.

The 129 ha plan area is located at the intersection of Weston Road and Highway 7 in southern Vaughan, and includes all 4 quadrants of this intersection. It is bounded by Fieldstone Drive, Chrislea Road, and Portage Parkway to the north, the Highway 400 corridor to the east, the Highway 407 corridor and Wings road to the south, and Ansley Grove road, Whitmore Road, and Wings Road to the west.

The plan area is located immediately to the west of the Vaughan Metropolitan Centre (VMC). The VMC is identified as an Urban Growth Centre in the Growth Plan (2017).

Today, Weston 7 functions as a regional commercial centre, characterized by low-density, auto-oriented uses situated on relatively large blocks and land parcels. Businesses in the area are primarily large format retail and entertainment uses with extensive surface parking areas.

Density Targets Used in the Weston 7 Secondary Plan

The purpose of the Background Report is to explore a range of factors that will influence future growth in the Weston 7 study area. Part of the information conveyed in the Background Report are density targets, numbers that estimate the potential people and job growth that could occur at this location.

The density targets included in this study reflect direction for growth found in the existing policy framework as well as evaluate densities beyond what is currently anticipated.

The in-force policy framework informing the density targets includes:

- Minimum density target of 160 people and jobs per hectare for Major transit Station Areas served by light rail transit or bus rapid transit (Growth Plan 2017. 2.2.4.3.b) ;

- A long term density target of 2.5 FSI for Key development areas (Intensification Areas on Regional Corridors) (Official Plan Policy 2.2.5.11.); and
- Contribution the Local Municipal Intensification Targets set by the Region of York (York Region Official Plan 5.1.2, and 5.3.3)

Densities explored in the Background Report that go beyond those identified in the current planning framework are included in this study as a proactive measure in light of the upcoming York Region Official Plan review and City of Vaughan Official Plan review., and are not intended to preclude any findings of these reviews or the City's or Region's ongoing study of the Major Transit Station Areas, nor any future Official Plan Review process

These processes are outlined in the timeline found in Figure 1 below, which illustrates an estimated planning policy review timeline based on information available at the time of this background report.

The ultimate Weston 7 Secondary Plan policies will conform with all higher order planning policies in force at the time of its approval, including the Provincial Policy Statement, The Growth Plan for the Greater Golden Horseshoe, the York Region Official Plan, and the City of Vaughan Official Plan.

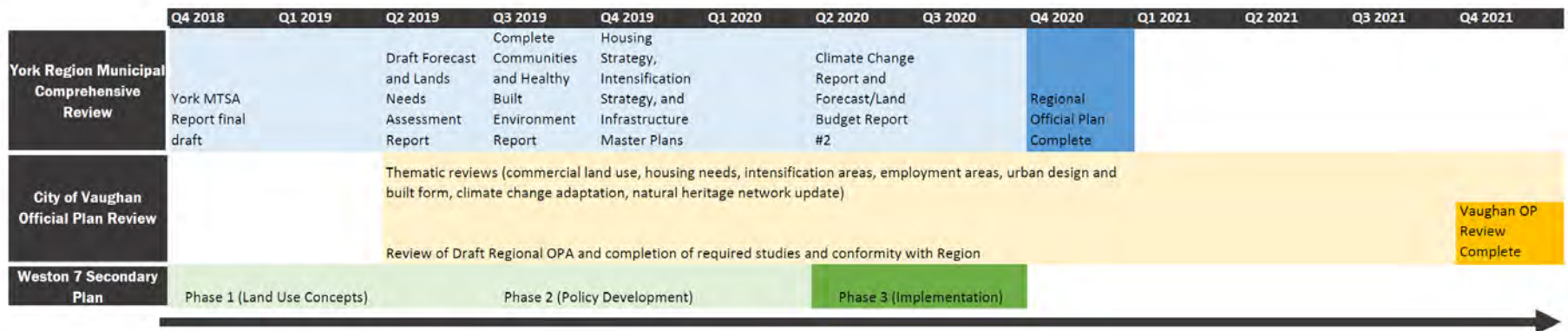


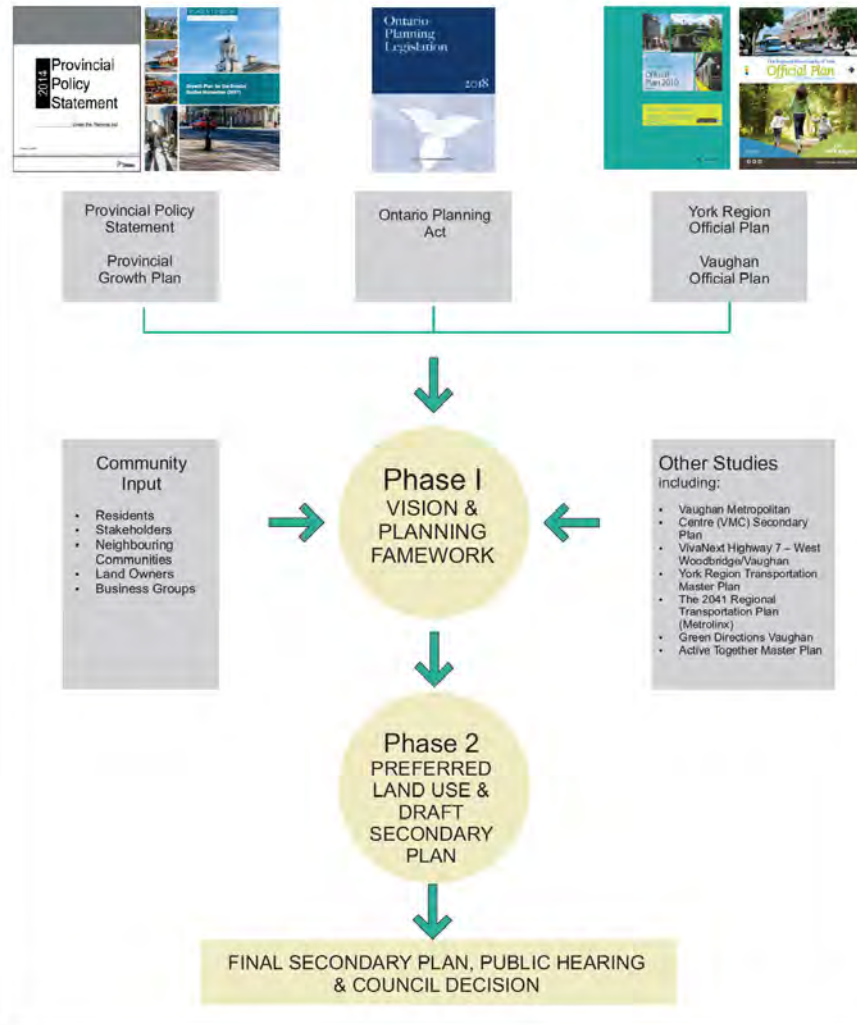
FIGURE 1. Estimated Policy Review Timeline



FIGURE 2. Weston Highway 7 Secondary Plan Study Area

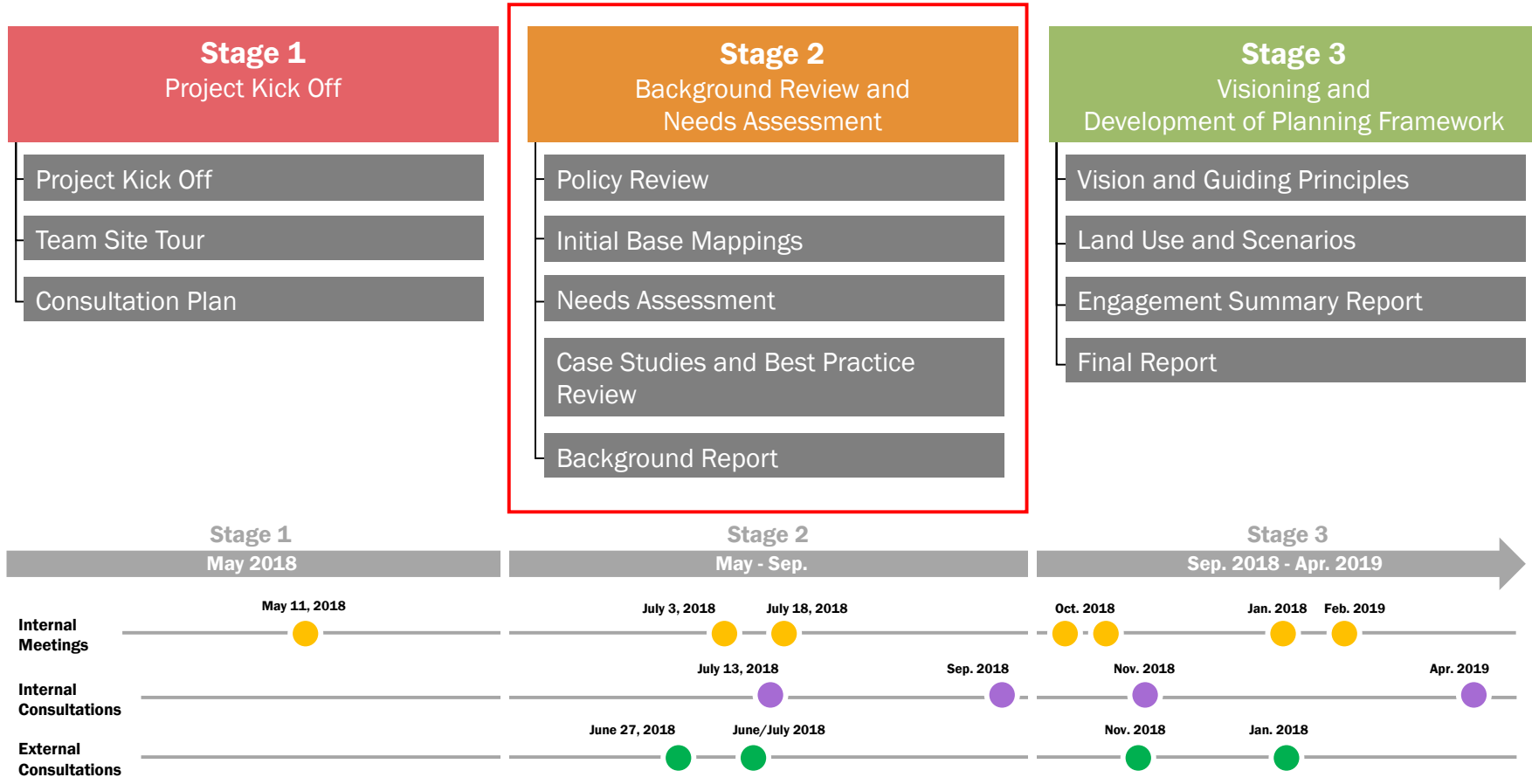


HOW DO WE DEVELOP THE WESTON 7 SECONDARY PLAN?



Weston 7 Secondary Plan Process Source: City of Vaughan

Three-stage, 12-month work plan



1.2. The Consultant Team and Project Timeline

The City of Vaughan has engaged a team of consultants, led by Urban Strategies Inc., for Phase 1 of the Weston 7 Secondary Plan process. This Background Report has been developed by the following consultant team:

- Urban Strategies Inc. as project lead and providing planning and urban design expertise;
- HDR providing traffic and active transportation planning analysis and guidance;
- Hemson providing expertise in land economics and growth management;
- The Municipal Infrastructure Group (TMIG) providing analysis and guidance on servicing and stormwater; and
- Urban Equation providing sustainability analysis and a community energy plan.

The consultant team is working together with the City of Vaughan through the Policy Planning Division to deliver this project. The project timeline shown on the opposite page provides a snapshot of the key stages of work, deliverables and consultation events.

1.3. Report Purpose and Contents

This Background Report provides a comprehensive overview of baseline conditions in the Weston 7 SPA gathered through an initial needs assessment, document review, file analysis, and early stakeholder consultation. Building on this information, this report also includes high level directions that will inform the development of land use alternatives in subsequent stages of the project.

This Background Report provides a summary of:

- The site context, opportunities and constraints;
- A summary of the engagement process to date and key emerging themes;
- Precedent research on the redevelopment of low density suburban development where rapid transit has been introduced;
- A summary of the key findings of the supporting background studies prepared by Urban Strategies, HDR, Hemson, TMIG, Urban Equation and RTG; and
- A summary of key conclusions, questions and directions for the next stages of work prepared as part of the Background work.

Full technical reports are included as appendices to this document.



PETRO-CANADA

7-11
ACE
Canadian Tire
Wash
60¢ Fuel
1.47¢/L
AT

DIESEL



SECTION 02

PLANNING FOR CHANGE

2.1 Land Use Planning Context

The Province, York Region, and City of Vaughan’s planning policies direct growth and intensification to the Weston 7 SPA. Table 1 Provides a summary overview of relevant policies, guidelines and resources related to Weston 7. The following section provides a high-level review of key land use designations and policy direction. A complete analysis of the planning context is provided in the Planning Policy Review found in Appendix 5.

Table 1. Relevant Provincial and Municipal Policies, Guidelines, and Resources

Planning Policy or Guideline Document	Directions
Policies	
Provincial Policy Statement, Ontario (2014)	<p>Description: The Provincial Policy Statement (PPS), enacted in April 2014, provides policy direction on matters of provincial interest related to land use planning and development.</p> <p>Directions: The most relevant policy directions in the PPS include:</p> <ul style="list-style-type: none"> • Policy 1.1.2 encourages intensification and redevelopment to accommodate an appropriate range and mix of employment opportunities, housing and other land uses. • Policy 1.1.3.2a states that land use patterns within settlement areas are to be based on densities and a mix of land uses which efficiently use land and resources and are transit-supportive, where transit is planned, exists or may be developed. • Policy 1.6.7.4 encourages densities and land use patterns that minimize the length and number of vehicle trips and supports the use of public transit and active transportation. • Section 1.1.3.4 states appropriate development standards should be promoted which facilitate intensification, redevelopment and compact form, while avoiding or mitigating risks to public health and safety. • Section 1.8.1 directs planning authorities to support energy conservation and efficiency through land use and development patterns which promote compact form and a structure of nodes and corridors, and the use of active transportation and transit in and between residential, and employment (including commercial and industrial) areas.

Planning Policy or Guideline Document	Directions
<p>Growth Plan for the Greater Golden Horseshoe, Ontario Ministry of Municipal Affairs (2017)</p>	<p>Description: The Growth Plan for the Golden Horseshoe (“Growth Plan”), which took effect in July 2017, is a Provincial plan that directs how regional growth in the Greater Golden Horseshoe should be managed until 2041. The Growth Plan provides people and jobs growth targets for municipalities to meet, as well as policy direction for what qualities growth areas should meet.</p> <p>Directions: The most relevant policy directions in the Growth Plan include:</p> <ul style="list-style-type: none"> • Section 2.2.1 directs new growth to built-up areas, and to strategic growth areas in particular. • Section 2.2.4 includes specific direction in how Major Transit Station Areas (MTSAs) and Priority Transit Corridors (PTCs) are to be planned, calling on these areas to be transit supportive, incorporate a diverse mix of uses including affordable housing, and enable multi-modal transportation options to transit stations. • Policy 2.2.4.3a directs that MTSAs and PTCs will be planned for a minimum density target of 160 residents and jobs combined per hectare for those that are served by light rail transit or bus rapid transit • Policy 2.2.4.4 indicates that, for upper and single-tier municipalities council may request an alternative to the applicable target established in policy 2.2.4.3 through a municipal comprehensive review under some circumstances
<p>York Region Official Plan (2010)</p>	<p>Description: The 2010 York Region Official Plan is the overall planning tool to guide growth and development in York Region, and sets the stage for detailed planning by local municipalities.</p> <p>Directions: The most relevant policy directions in the YROP include:</p> <ul style="list-style-type: none"> • Section 5.4.31 of the YROP instructs lower-tier municipalities to direct the most intensive and widest range of uses within the REgional Corridors to specific intensification areas, identified as Key Development Areas, which include MTSAs • Section 5.4.6 instructs local municipalities to prepare comprehensive secondary plans for REgional Centres and Key Development Areas. • Section 5.4.34 indicates that Key Development Areas will support an overall long term density target of 2.5 floor space index for developable areas. • Section 3.5.6 directs a minimum of 35% of new housing units in REgional Centres and Key Development Areas to be affordable

Planning Policy or Guideline Document	Directions
<p>City of Vaughan Official Plan (2010)</p>	<p>Description: The City of Vaughan Official Plan 2010 (VOP 2010) forms a part of the City's overall Growth Management Strategy. The Official Plan is the primary planning tool used to guide development in Vaughan to 2031.</p> <p>Directions: Weston 7 is designated as a Primary Centre within Vaughan's Urban Structure. Land Use Designations within this Weston 7 are Mid-Rise Mixed-Use, High-Rise Mixed-Use and Community Commercial Mixed-Use. Overarching policies to implement the City of Vaughan's new direction include a range of policies directly relevant to the Weston 7 Secondary Plan. These include:</p> <ul style="list-style-type: none"> • 2.1.3.2 (b): directing a minimum of 29,300 residential units through intensification within the built boundary; • 2.1.3.2 (c): identifying <i>Intensification Areas</i>, consistent with the intensification objectives of this Plan and the Regional Official Plan, as the primary locations for accommodating <i>intensification</i>; • 2.1.3.2 (h): identifying a hierarchy of mixed-use centres to be developed in a compact form and at appropriate densities to support transit service and promote walking and cycling; • 2.1.3.2 (i): promoting public transit use by encouraging transit-supportive densities and an appropriate mix of uses along transit routes, and particularly at Viva stations, GO stations and future rapid transit stations; • 2.1.3.2 (j): providing for a diversity of housing opportunities in terms of tenure, affordability, size and form; • 2.1.3.2 (k): establishing a culture of design excellence with an emphasis on providing for a high quality public realm, appropriate built form and beautiful architecture through all new development; • 2.1.3.2 (l): ensuring environmental sustainability through the protection of natural features and ecological functions and through the establishment of green development standards to be achieved by all new development; • 2.1.3.2 (m): developing a linked system of active and passive parks, greenways and Natural Areas throughout the City; • 2.1.3.2 (o): ensuring development is phased in an appropriate manner to allow for the creation of complete communities and that such phasing is coordinated with infrastructure investments made by the City and York Region; and • 2.1.3.2 (p): planning and designing communities in a manner that facilitates inclusivity and accessibility for residents, workers and visitors.
<p>City of Vaughan Zoning By-Law 1-88</p>	<p>Description: The City of Vaughan Zoning By-Law 1-88 identifies the as-of-right land use, density and height permissions as well as a variety of built form standards for new development.</p> <p>Directions: While current zoning in place for properties located in the Weston 7 area is not reflective of the intent of currently in-force higher level policy, existing zoning allows for primarily low-intensity commercial, in addition to some employment and open space parcels. Commercial Zones in the area include C1, C2, C5, C6 and C7, which all limit heights to 11m, and lot coverage to between 30% and 50%. Some parcels are zoned C9 and C10, allowing for heights up to 25m.</p>

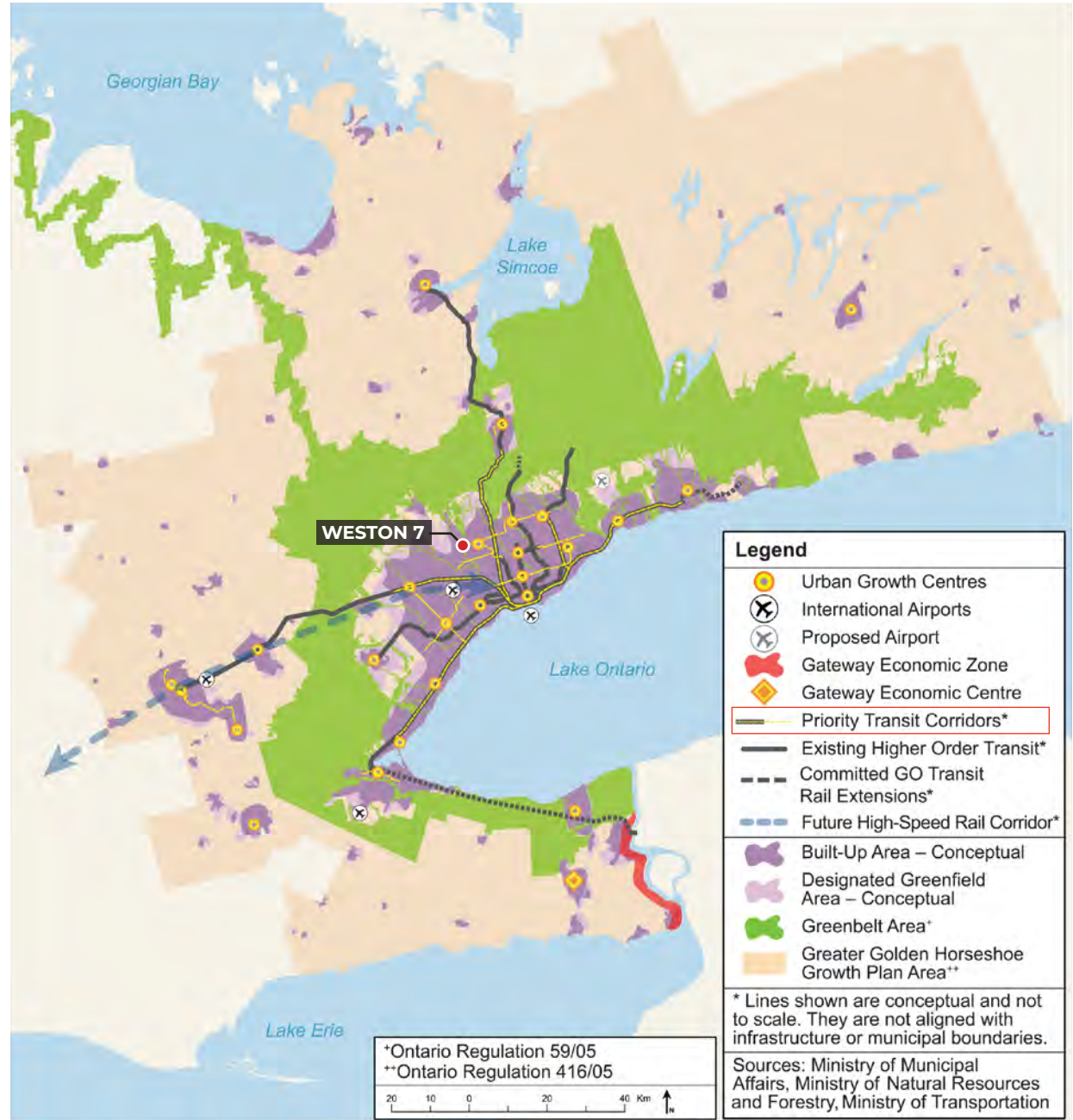
Planning Policy or Guideline Document	Directions
Guidelines and Resources	
York Region Best Practices for Planning Centres and Corridors	Description: The York Region Best Practices for Planning Centres and Corridors document does not provide policy direction or guidelines, but is intended as a resource to assist with planning and developing centres and corridors, through an overview of the context, key challenges and approaches to address these challenges, and case study examples.
City of Vaughan Active Together Master Plan (2018)	Description: The City of Vaughan's 2018 Active Together Master Plan (ATMP) is used to guide City departments in the provision of parks and open space areas, recreation programs and facilities, libraries, and other community services and facilities. In addition to documenting the existing inventory of community assets, the ATMP also establishes provision targets to maintain the high quality of life in the City of Vaughan as the City continues to grow.
City of Vaughan Parks Redevelopment Strategy	<p>Description: The City of Vaughan Parks Redevelopment Strategy (Parks Strategy) provides a decision-making framework to establish priorities for park redevelopment in the City in order to ensure resources are targeted where they are needed most. The Parks Strategy recognizes that parks are a shared resource, and are an important element in creating healthy, complete communities. The goals of the Parks Strategy are:</p> <ul style="list-style-type: none"> • “To ensure that the City’s parks and open space facilities continue to be responsive to the current and future needs of Vaughan communities in a responsible and cost effective manner.”; and • “To provide a comprehensive strategy for making investments into the renewal of parks and open space facilities that support an appropriate level of service provision and the City’s commitment to Service Excellence.”
Ontario Transit Supportive Guidelines (2012)	Description: The Transit-Supportive Guidelines produced by the Ontario Ministry of Transportation (2012) are not a statement of provincial policy, but identify tools to meet the objective of building transit-supportive communities, a key goal outlined in the Provincial Policy Statement and Growth Plan. The Transit Supportive Guidelines contain strategies, case studies and resources to promote development patterns that make transit less expensive, less circuitous and more convenient, with an overarching goal to enhance service and make transit more appealing to potential users.
York Region Transit Oriented Development Guidelines (2006)	Description: The purpose of the Regional Transit-Oriented Development Guidelines (2006) is to advance the implementation of York Region’s planned urban structure of Regional Centres, linked by Regional Corridors, served by public transit. These guidelines reflect the vision articulated in the Regional Official Plan to develop in a way that is compact, well-designed, mixed-use, pedestrian-friendly and transit-supportive.

Planning Policy or Guideline Document	Directions
City of Vaughan Community Improvement Plan By-law 177-2015	Description: The City of Vaughan Council enacted the Community Improvement Plan (CIP) bylaw 177-2015 in November 2015. The bylaw was developed in response to the fact that primary centres and intensification corridors are “fundamental building blocks of the city’s growth management strategy, and essential to the long-term economic vibrancy of the City as an office employment centre”. The CIP aims to incentivize office development in the VMC and Weston 7 areas.
Vaughan City-Wide Urban Design Guidelines	<p>Description: The City of Vaughan’s City Wide Urban Design Guidelines (UDG) were adopted by Vaughan Council in January 2018. The UDG provide performance-based directions for building and site design.</p> <p>Directions: As stated by the UDG, development in Vaughan is guided by the following principles:</p> <ol style="list-style-type: none"> 1. Reflect Vaughan’s unique context by promoting a green City development approach and contextual analysis that responds to sense of place 2. Promote Mid-Rise development as the ‘missing middle’ to connect nodes including historic settlement areas and employment areas 3. Encourage creativity and variety through context specific guidelines that respond to adjacent land uses, built form conditions and natural and cultural heritage 4. Frame and activate the public realm 5. Create a balance between built form and open space 6. Address interim development and changing conditions 7. Promote active transportation and healthy environments.
Vaughan City-Wide Streetscape Implementation Manual	Description: The Vaughan City Wide Streetscape Implementation Manual (Streetscape Manual) is an integrated design and financial framework intended to manage the design and costing of streetscapes in intensification areas. The Streetscape Manual does not address roadways or street cross-sections, but rather the public realm component- from the curb to building frontage. The intent of these streetscape improvements is to support active transportation, provide consistent quality of design, and design streets that are appropriate to their context.

Planning Policy or Guideline Document	Directions
<p>Green Directions Vaughan</p>	<p>Description: Green Directions is Vaughan’s city-wide sustainability plan, intended to help shape future development in Vaughan in a way that achieves a healthy natural environment, vibrant communities and a strong economy. Six goals structure the Green Directions document including:</p> <ol style="list-style-type: none"> 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

2.1.1 The Growth Plan

The Growth Plan for the Greater Golden Horseshoe 2017 is the Province's primary planning document to guide growth and intensification in the Greater Golden Horseshoe (GGH). Municipalities all over the Region must take direction from the Growth Plan for how to plan for growth in their communities. The overall objective of the Growth Plan is to create complete, healthy communities that prioritize intensification of specially identified areas close to public transit infrastructure make efficient use of land and infrastructure and support transit viability. Weston 7, located on VivaNext's Highway 7 Rapidway and only 800 meters from the northern terminus of TTC's Subway Line 1, is a strategic place for intensification along transit as described in the Growth Plan. The Growth Plan identifies Highway 7 as a 'Priority Transit Corridor', and the Plan Area will need to be planned to support intensification based on its role as a Primary Centre in the city's urban structure. The area should be developed as a complete community providing the necessary infrastructure, facilities and services to support development within this strategic growth area.



Weston 7's location in the context of the Growth Plan for the Greater Golden Horseshoe



FIGURE 3. MTSAs are generally defined as the area within an approximate 500 metre radius of a transit station, representing about a 10-minute walk

The Growth Plan also identifies Major Transit Station Areas (MTSAs) and Priority Transit Corridors (PTCs), which must be planned to be transit supportive, and incorporate a diverse mix of uses including affordable housing, achieve multi-modal access to stations, and provide connections to nearby major trip generators. Reflecting the two VivaNext rapid transit stops in the Study Area, the Weston 7 SPA includes two Major Transit Station Areas, which are targeted places for employment and residential growth that include a requirement to plan for 160 people and jobs per hectare. Matching transit infrastructure with greater population and employment densities is a key principle of the Growth Plan and Major Transit Station areas will play a large role in supporting transit use and improving livability of new communities.

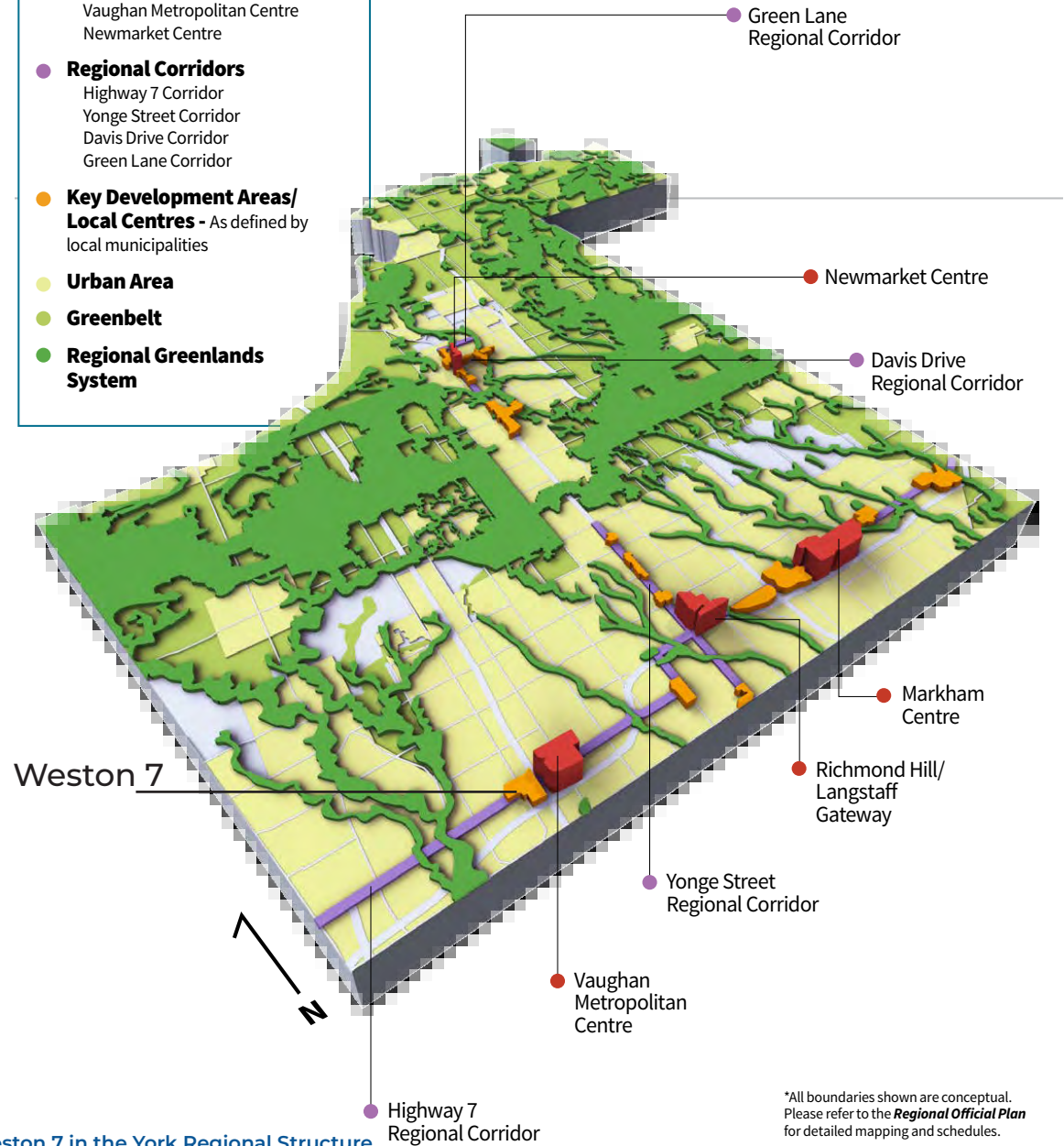
2.1.2 York Region

The 2010 York Region Official Plan (YROP) is the overall planning tool to guide growth and development in York Region, and sets the stage for detailed planning by local municipalities. The YROP identifies the VMC as a 'Regional Centre' and Highway 7 as a Regional Corridor, seen in the York Regional Structure diagram (right) Regional Centres and Corridors form part of a larger regional system of urban growth centres and intensification corridors, which are vital to the long-term prosperity and identity of communities within the Region. As a Key Development Area, Weston 7 will be a focus area for growth and development within the City of Vaughan.

The section of Highway 7 that runs through Weston 7 is designated as a corridor, seen in the York Regional Structure diagram (right). Regional Centres and Corridors form part of a larger regional system of urban growth centres and intensification corridors, which are vital to the long term prosperity and identity of communities within the Greater Toronto area. The YROP 2016 instructs lower-tier municipalities to direct the most intensive and widest range of uses within the Regional Corridors to specific intensification areas, identified as Key Development Areas, including Weston 7. The York Region requires Secondary Plans to be developed for Key Development Areas, a process which the City of Vaughan has initiated through this three Phase Secondary Plan development process. As stipulated by the Region, Secondary Plan areas within Key Development Areas shall include minimum density requirements and targets, and will also establish a fine-grained street grid, a pedestrian-oriented built form and will seek to concentrate development close to rapid transit stations.

The York Region Structure

- **Regional Centres**
 - Markham Centre
 - Richmond Hill/Langstaff Gateway
 - Vaughan Metropolitan Centre
 - Newmarket Centre
- **Regional Corridors**
 - Highway 7 Corridor
 - Yonge Street Corridor
 - Davis Drive Corridor
 - Green Lane Corridor
- **Key Development Areas/ Local Centres** - As defined by local municipalities
- **Urban Area**
- **Greenbelt**
- **Regional Greenlands System**



Weston 7 in the York Regional Structure

*All boundaries shown are conceptual. Please refer to the **Regional Official Plan** for detailed mapping and schedules.

2.1.3 The City of Vaughan Official Plan

The City of Vaughan Official Plan (VOP 2010) reflects the Provincial and Regional direction for Weston 7 to be a place for growth and transit-supportive intensification. In VOP 2010, the City planned for growth in the Weston 7 Secondary Plan area by identifying land uses for intensification that included Mid-Rise Mixed-Use, High-Rise Mixed-Use and Community Commercial Mixed-Use to establish the intention for future growth and change in this area. VOP 2010 includes a requirement for a comprehensive Secondary Plan for this area to guide future development, determine the appropriate hard and soft services, amenities, urban form, sustainable initiatives and housing options to develop a complete community. The outcome of this study will result in recommendations for the policy development phase of the Weston 7 Secondary Plan. This will be based on three land use scenarios tested against land use, height and density, sustainability, multi-modal transportation, parks and open spaces, economic needs, and smart intensification principles. The VOP includes a requirement for a comprehensive Secondary Plan to guide future growth and development. The outcome of this study may be recommendations to modify or update the land use designations to better plan for Weston 7's future growth.

Primary Centres are locations for intensification, accommodating a wide range of uses in the form of mainly mixed-use mid rise and high-rise buildings that provide for residents' daily needs for living and working in close proximity to transit. They are to be developed as transit-supportive, pedestrian friendly places that support the current and future residents of Weston 7 while supporting residents of both the VMC and neighbouring community areas.

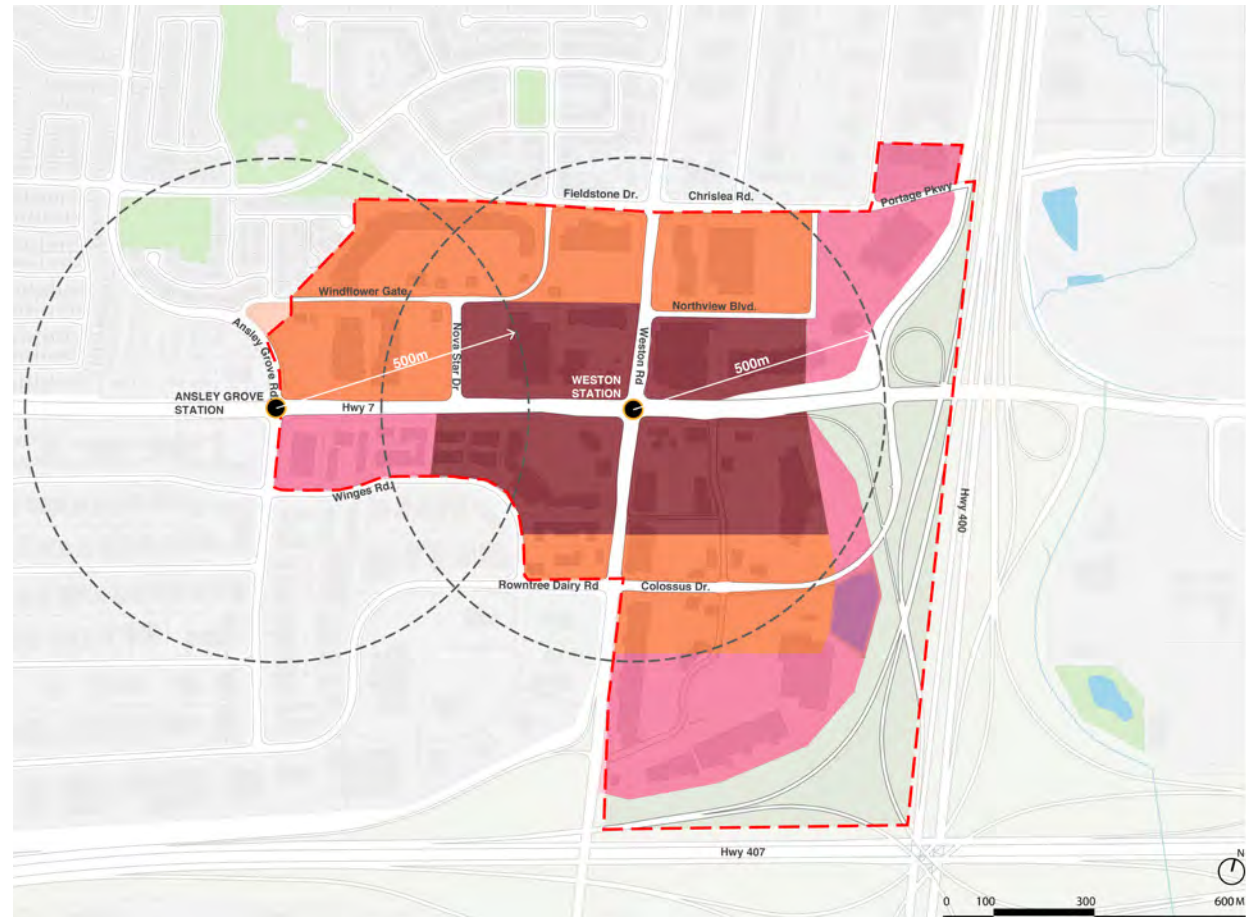


FIGURE 4. Land Use Designations

- Study Area
- VIVA Next Stops
- 500m Buffer from Stations
- Mid-Rise Mixed-Use
- High-Rise Mixed-Use
- Community Commercial Mixed-Use

2.1.4 Vaughan Metropolitan Centre

To the east of Weston 7 is the City of Vaughan's primary growth node, the VMC. Growth in the VMC is strong. As reported in a staff report to Council in April of 2018¹, if all currently approved and proposed development is realized, it will represent more than 19,224 residents and 9,700 units in the VMC, achieving 81% of residential units and 77% of population targets identified for the 2031 planning horizon far earlier than expected. This is primarily due to the fact that recent approvals far exceed densities and building height recommended for the VMC established through its Secondary Plan process (Figure 13). Increased density will have impacts on the transportation and servicing capacity of the area, which has not yet been studied. With regards to office, 53,000 m² of new commercial office space has been approved in the VMC, representing 2,000 job or 36% of the 2031 office space target. A key consideration for the planning of Weston 7 will be to encourage the appropriate amount of growth while not taking market share away from the VMC, which is at the top of the growth area hierarchy in Vaughan.



Selection of built or planned new development in the VMC¹



The mobility hub at the VMC takes shape¹

¹ VMC Development Activity Update. VMC Sub-Committee Report. April 2018

2.1.5 Age of Development

As illustrated in Figure 5, the majority of development in the SPA is relatively new with most occurring since the 1990s. The oldest buildings include the gas station and auto dealership properties located at the intersection of Weston Road and Highway 7, which were built between 1970 and 1980. The smaller employment and commercial units in the southwest of the SPA were built in the 1980s. The newest development in the area includes a high-density mixed use complex located at the northeast corner of the intersection of Highway 7 and Weston Road. While preliminary discussions with landowners in the area indicates a general interest in redevelopment and intensification, most locations are not likely to redevelop in the short term. Proposed phasing of development in the Weston 7 Secondary Plan will need to take advantage of short-term opportunities for transformation, while focusing on the comprehensive long-term vision for intensification of the area.

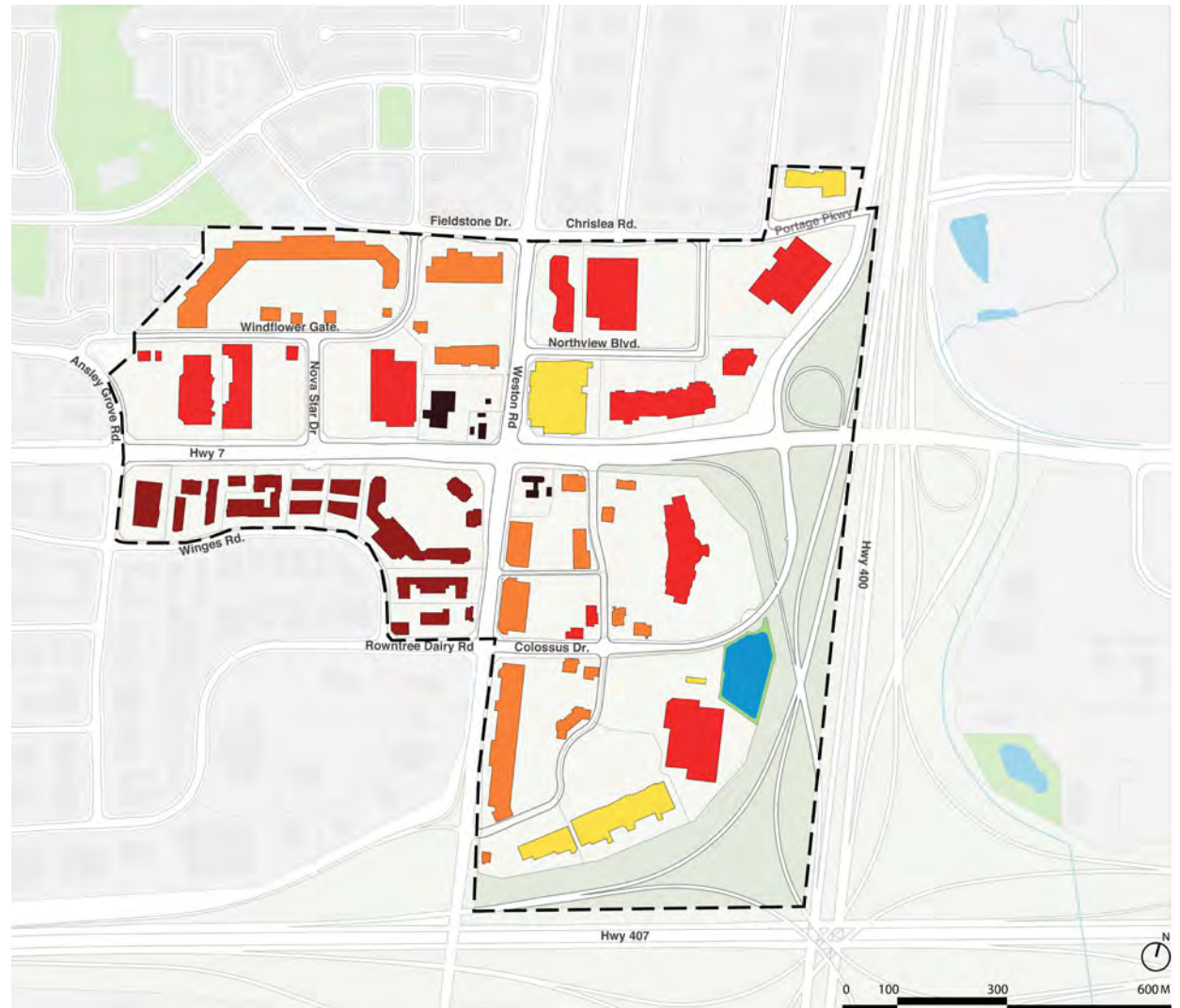


FIGURE 5. Age of Development



2.1.6 Relevant Weston 7 and Vaughan Metropolitan Centre Approved and Proposed Development

Weston 7

1. 222 Rowntree Dairy Road

(Active Development Application)

Site plan application for a two-storey office addition of 120 m² to an existing two-storey training centre, and a proposed two-storey second floor office expansion.

2. Centro Square

(Completed/Under Construction/Approved)

Two residential apartment towers of 30 and 33 storeys and approval for 800 units. The development also includes a 10 storey office component of 14,357 square meters and commercial uses of up to 11,402 square meters.

3. 3940 Highway 7

(Proposed- In Progress)

Site plan application to permit a single-storey, 850 m² commercial building with four retail units.

4. 15 Jevlan Drive and 156 Chrislea Road

(Proposed- In Progress)

Rezoning application from General Employment to Employment Commercial Mixed-Use to permit service and retail uses along with existing employment uses.

Vaughan Metropolitan Centre

5. The Met

(Completed/Under Construction/Approved)

6. N/E Block

(Active Development Application)

7. Transit City

(Completed/Under Construction/Approved)

8. YMCA/Library/Office

(Completed/Under Construction/Approved)

9. Temporary Parking Lot

(Completed/Under Construction/Approved)

10. Transit Square

(Completed/Under Construction/Approved)

11. KPMG

(Completed/Under Construction/Approved)

12. Icona Condos

(Completed/Under Construction/Approved)

13. Quadreal Block 3

(Active Development Application)

14. Quadreal Block 2

(Active Development Application)

15. Vaughan City Square

(Active Development Application)

16. (Unlabeled)

(Completed/Under Construction/Approved)

17. 2901 Highway 7

(Active Development Application)

18. ZZEN Developments

(Active Development Application)

19. Midvale Estates

(Active Development Application)

20. Expo City

(Completed/Under Construction/Approved)

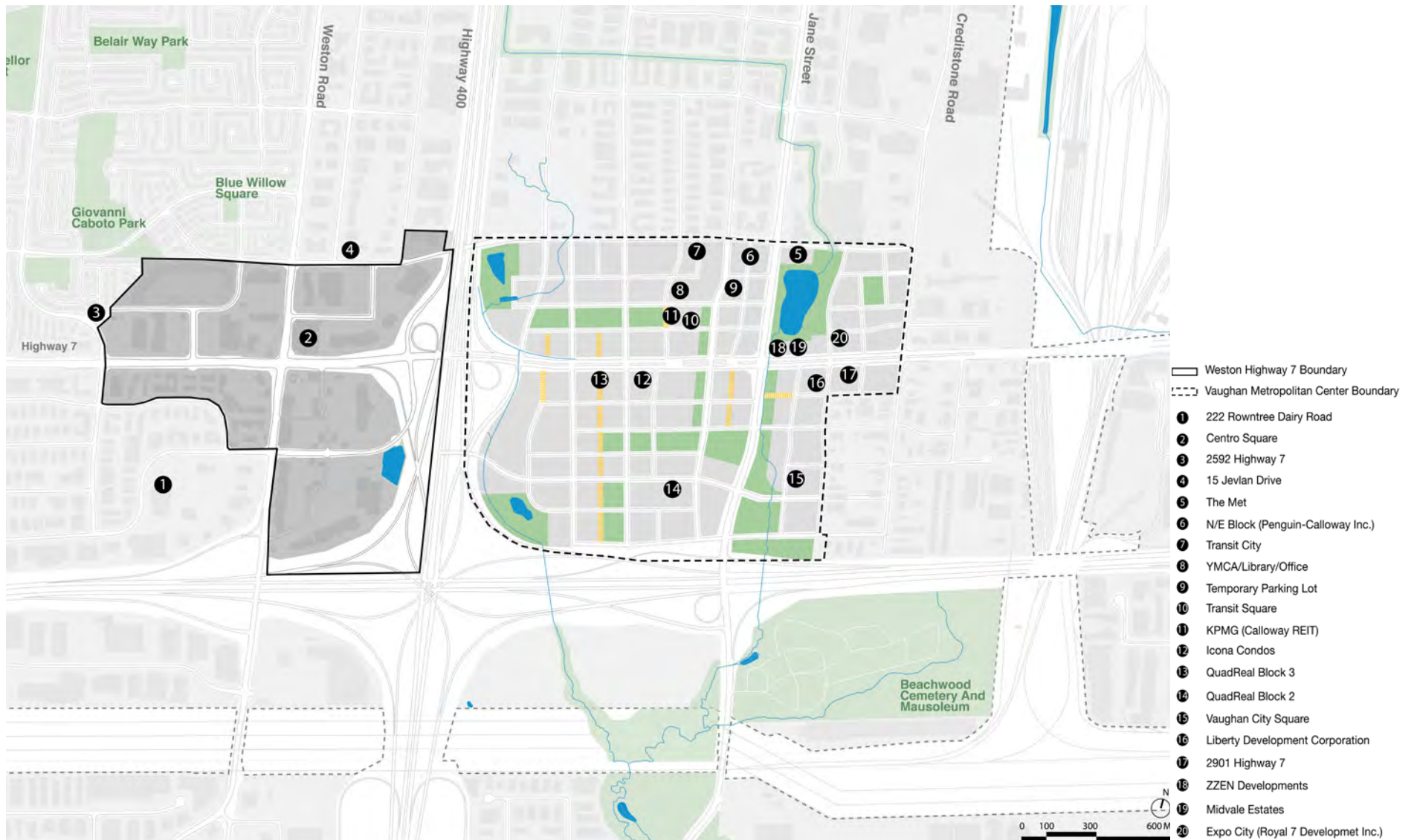


FIGURE 6. Recent Approved and Proposed Development in Weston 7 and VMC

2.1.7 Public Transportation

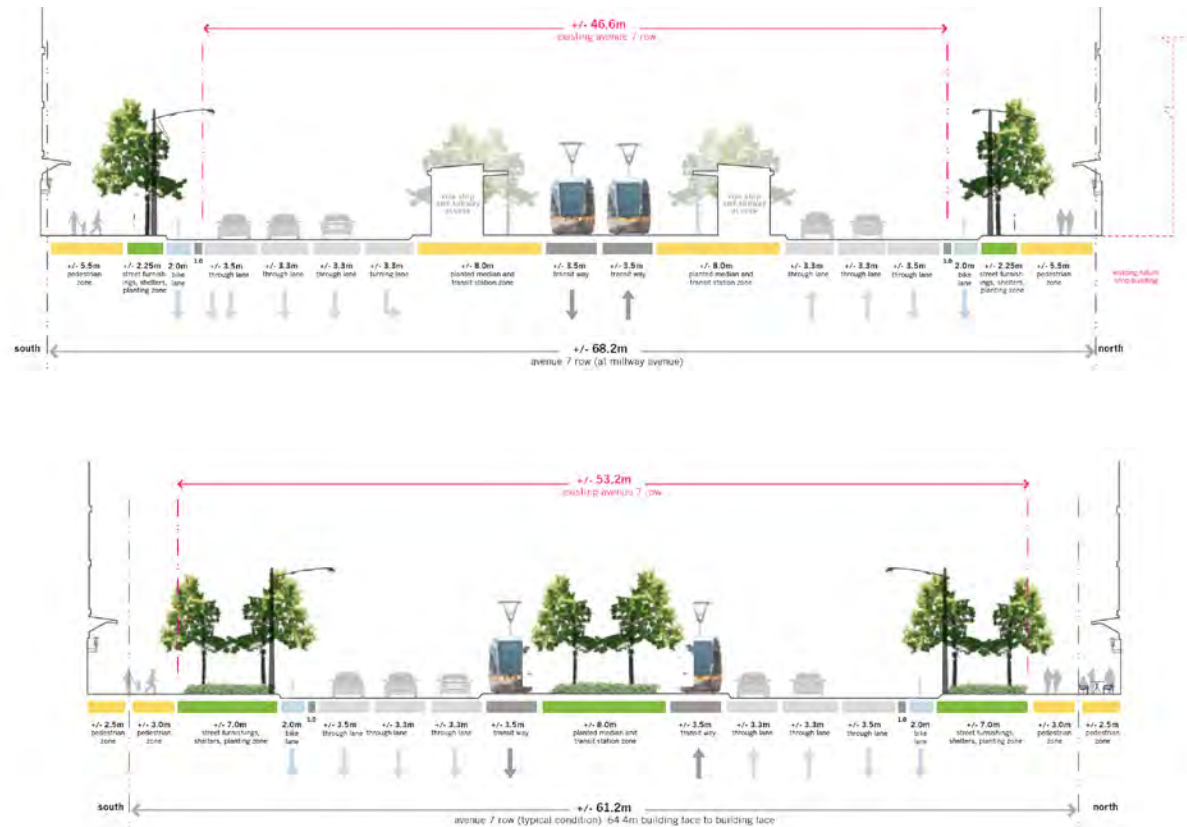
The Weston 7 SPA is currently served by public transit including the following:

VIVA Orange: VIVA is York Region’s bus rapid transit service, launched in 2005 and designed to provide high-frequency, limited stop transit service on five major corridors in York Region, operating with transit priority in mixed traffic, as well as dedicated bus lanes in some locations. VIVA buses operate daily, running approximately every 15 minutes during peak hours and approximately every 20 minutes during the off peak. VIVA Orange runs along Highway 7, terminating at Martin Grove in the west and Richmond Hill Centre in the east. The BRT service also connects with the TTC Subway system, Brampton’s ZÜM transit, and local York Region Transit buses.

ZÜM 501, 501A and 501C: ZÜM is the City of Brampton’s bus rapid transit system, and the 501 route provides connections to Downtown Brampton, York University, and the VMC.

YRT Route 10: Provides local, conventional transit service between the VMC and Woodbridge. The service operates on a regular schedule approximately every 37 minutes on weekdays, and as a ‘dial-a-ride’ service on weekends.

YRT Route 77: Provides local, conventional transit service along Highway 7 between Vaughan Valley Boulevard and Finch GO bus terminal.



VivaNEXT Sample BRT Cross-sections (Millway Avenue), Vaughan Metropolitan Centre Secondary Plan

YRT Route 165: Provides local, conventional transit service connecting Pioneer Village Bus Terminal in the south with Major Mackenzie Drive in the north.

In addition to those routes listed above, the neighbouring VMC is served by the following routes:

TTC Subway Line 1: The VMC is the northern terminus of the west leg of the TTC Line 1 Subway, which connects to the TTC network and Union Station.

YRT Route 20: Provides local, conventional transit service along Jane St. between Mosque Gate and Teston Road in the north, and Pioneer Village Bus Terminal in the south.

YRT Route 26: Provides local, conventional transit service between the community of Maple and Vaughan Mills Shopping Centre, connecting to the VMC during peak hours

On-demand Blue Willow Community:

Provides on-demand bus service operating on Wednesdays from 10:00 am - 2:00 pm, offering connections to VMC and a variety of local travel destinations.

VivaNEXT Highway 7 West Woodbridge/Vaughan: A section of rapidway along Highway 7 is under construction and scheduled to open for service by the end of 2019, including a stretch from Bruce Street to Edgely Boulevard.

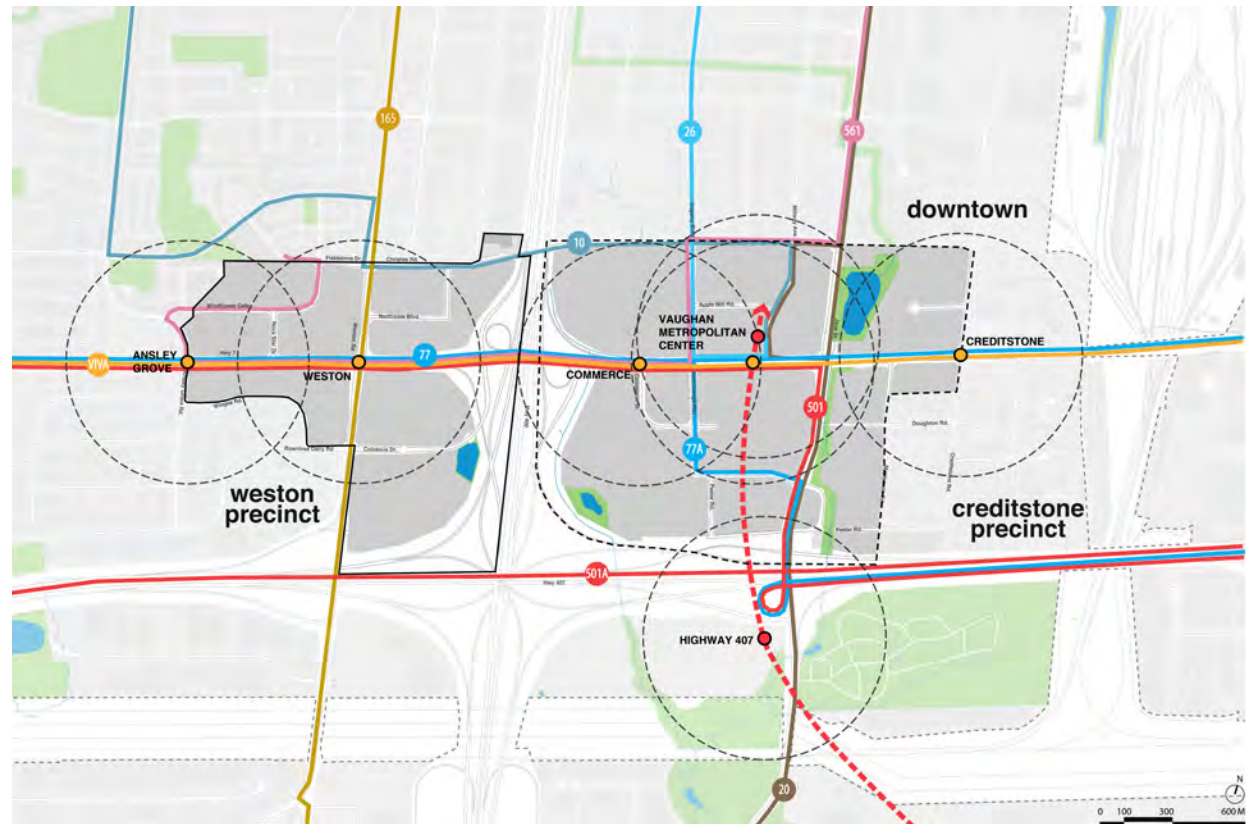


FIGURE 7. Major Transit Routes



2.2. Planning Issues and Opportunities

The Weston 7 SPA has a number of issues and opportunities that will frame how the next stages of work will unfold. The following is a summary of the primary issues and opportunities facing the area.

2.2.1 Opportunities

Sustainable Communities

At this early stage of planning for future development, there is a great opportunity to build in progressive sustainable development practices and policies to shape Weston 7's future and add to the City's objective to cultivate an environmentally sustainable City. As outlined in the Sustainability Analysis (Appendix 3), key themes such as green buildings, sustainable water management, energy efficiency, climate change adaptation, and sustainable waste management should be put at the forefront of how the Secondary Plan takes shape to ensure that sustainable thinking is embedded into the process early on. 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. Policies guiding development in Weston 7 should contemplate promoting these types of sustainable practices.

The Sustainability Analysis and Community Energy Plan have been created to begin this conversation and the recommendations from their work, summarized in Section 6 and included in Appendices 3 and 4, will inform the Secondary Plan development process going forward.



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.



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



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.



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



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

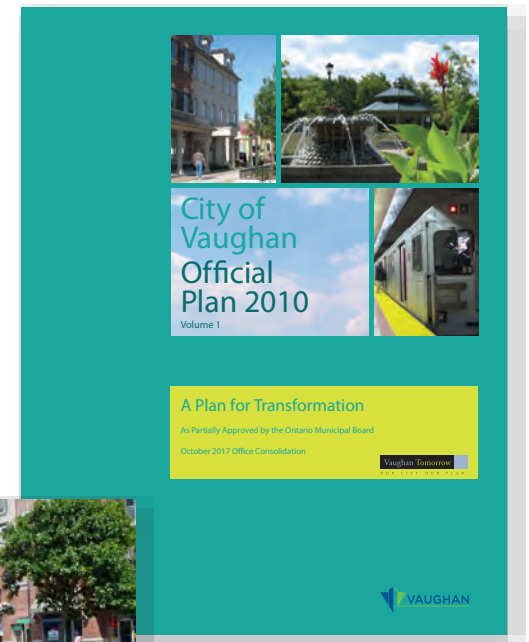


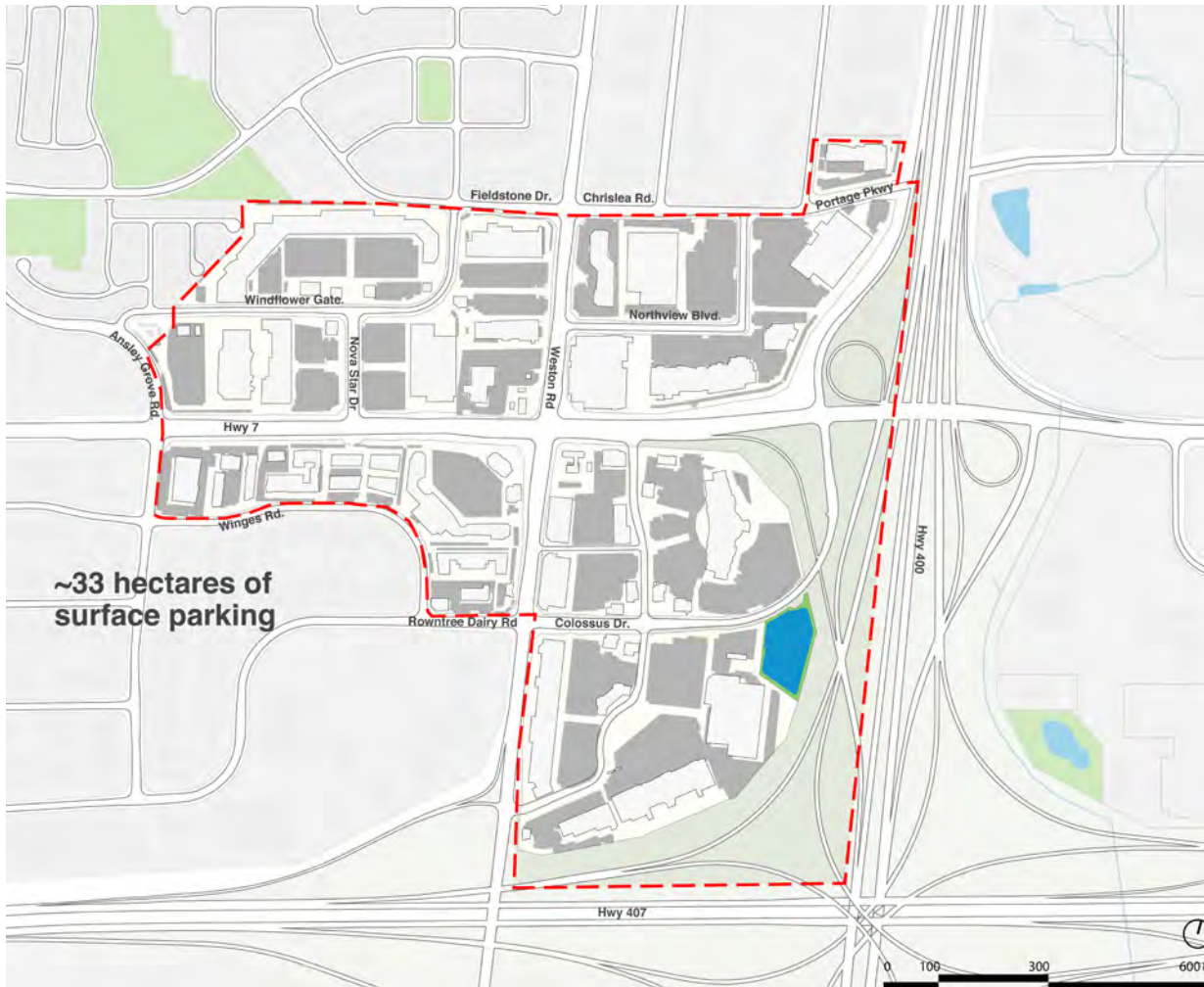
Filter, or buffer, strips are land areas of planted vegetation are best suited for treating stormwater runoff from parking lots, roads, and roof downspouts.

Credit: Urban Equation, Sustainability Analysis

A Place for Growth

The greatest opportunity for the Weston 7 SPA is that it is identified as an area for growth from the Provincial policy direction through to the City of Vaughan Official Plan. Primary Centres are locations for intensification, places where rapid transit services intersect with nodes of retail and commercial development, and where there is high redevelopment potential for mixed use transit-oriented development. Change is desirable at this location and there is strongly supportive policy context for transformation of the area into a more complete, connected community, as detailed here and in the Planning Policy Review technical report found in Appendix





Developable Land

In addition to the policy direction to support future intensification and growth, the available land base at Weston 7, including 33 hectares (82 acres) of surface parking lots and the current low density uses, represents an opportunity for redevelopment of the area. Today, Weston 7 is largely defined by isolated single use existing development including low density commercial buildings, including Costco, Cineplex, Home Depot, Fortinos and others, as well as smaller employment uses for warehousing and wholesaling and limited residential development. The large impermeable blocks have great potential for change and transformation into more compact, mixed-use transit-supportive development which includes open space.

FIGURE 8. Surface Parking Areas in Weston 7

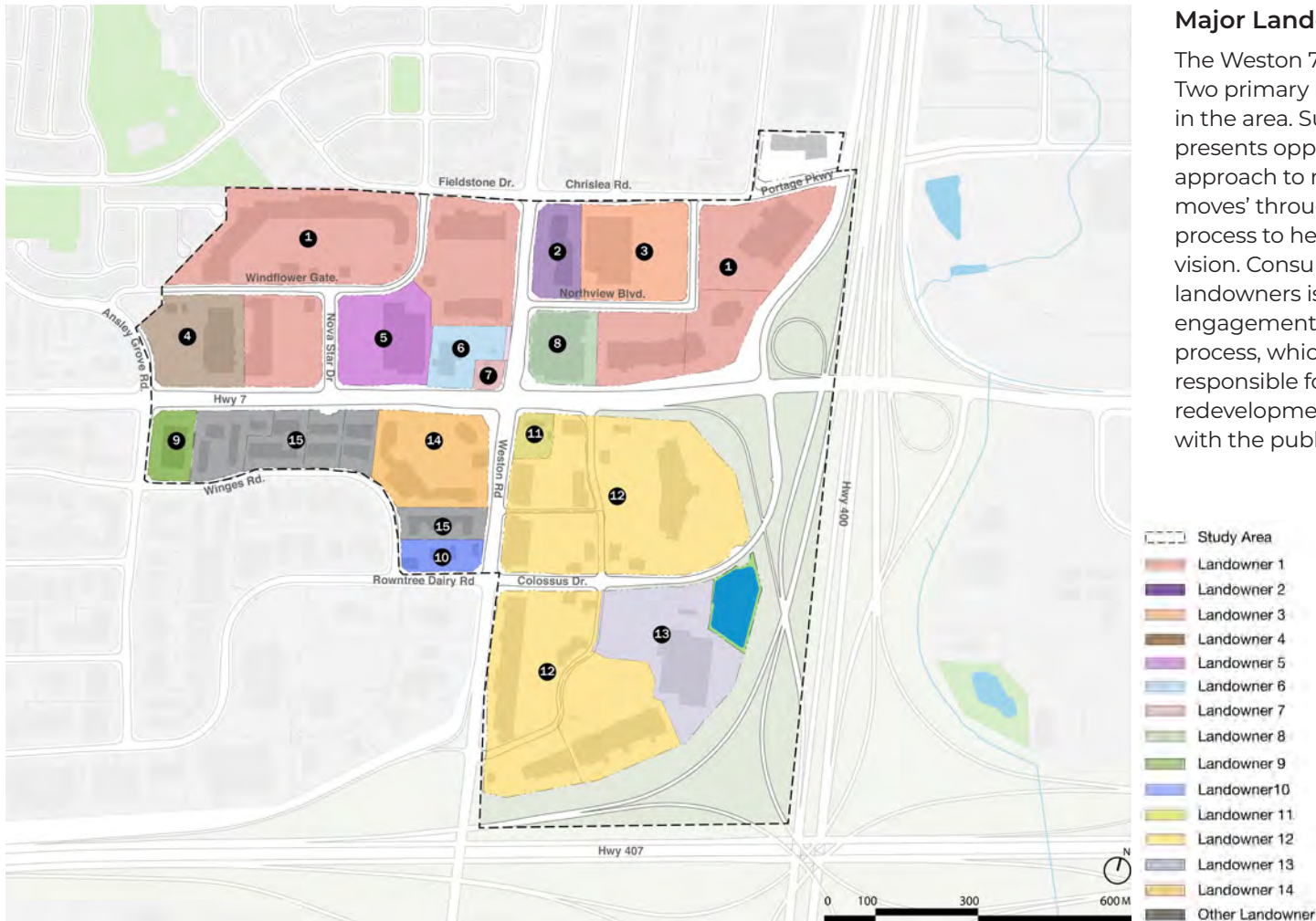


FIGURE 9. Landowners

Major Landowners

The Weston 7 SPA includes over 20 landowners. Two primary land owners hold 43% of the land in the area. Such a land ownership structure presents opportunities for a comprehensive approach to redevelopment, allowing for 'big moves' through the development approvals process to help achieve the Secondary Plan's vision. Consultation with all of the private landowners is an important part of the engagement strategy for the Secondary Plan process, which will ensure that those ultimately responsible for implementing change through redevelopment have a voice at the table, along with the public and other stakeholders.

2.2.2 Planning Issues

Streets and Blocks

The existing road network of the Weston 7 SPA is auto-centric, and does not currently support alternate modes of transportation. To transform large, single-use blocks, improvements must be made to the connectivity and movement system within the Site Plan Area (SPA) and beyond. To develop a thriving commercial centre and support the Highway 7 VivaNext Rapidway, improvements to circulation are needed to enhance site access and improve movement choices. The widths of the existing rights of way present further challenges in this regard. Weston Road (a 40m right-of-way) and Highway 7 (a 60 m right-of-way) transect the site from north-south and east-west directions. Road widths of these magnitudes tend to create environments that are hostile to pedestrians and cyclists, both in perception and reality, thereby creating barriers. In addition to the experiential factors, the distance between the two sides of these major corridors present practical challenges for crossing, often requiring pedestrians and cyclists to cross in multiple stages. A fine-grained pattern of streets and blocks will help to establish Weston 7 as a thriving, pedestrian-oriented mixed-use centre, by creating porosity and enhanced urban realm to give pedestrians convenient options and alternative routes. Weston 7 streets would follow the new service level standards for urban streetscapes established through Vaughan's City-Wide Streetscape Implementation Manual.

Distinguishing Weston 7 From the Vaughan Metropolitan Centre

The Highway 400 corridor represents a significant barrier between Weston 7 and the VMC, and as such, they must be considered as distinct, but inter-related centres. Along the Highway 7 corridor, the ramps to and from Highway 400 create an 800 metre separation of existing and future development that can not be reduced. Weston 7 and the VMC are adjacent to another across this considerable gap created by the Highway 400 corridor.

The VMC is the primary node for intensification and mix of uses in the City of Vaughan's urban structure. The VMC Implementation plan was identified as a priority project for the 2014-2018 Term of Council. The VMC is planned to function as Vaughan's downtown, including the widest mix of uses, including office employment uses, as well as the greatest densities of population and jobs within Vaughan's urban structure. Weston 7 is currently a Primary Centre located along a primary transit corridor, will also form an important area of intensification. However, the levels of intensification should not be the same as those of the VMC. Weston 7 currently functions as a successful retail and entertainment centre, and this function is very likely to continue into the future. The Weston 7 Secondary plan will need to recognize and support this function as the area continues to intensify and redevelop.

Ongoing intensification and redevelopment will need to maintain an awareness of the

relationship between these two centres and balance the approved development. While both Weston 7 and the VMC physically have the space to accommodate a great deal of intensification, market forces and development across the City must be considered when thinking about the future absorption of new residential units, office and commercial space. As highlighted in Hemson's Population and Employment Outlook and Commercial Use Assessment memo (Appendix 2), if Weston 7 is planned to achieve 160 persons and jobs per ha by 2041, as directed in the Growth Plan, and the current applications submitted for the VMC are approved and constructed during the next 20 years, Weston 7 and the VMC will account for 70% of the forecast for all of the apartments in the entire City of Vaughan to 2041. Balancing growth to allow for all of the City's primary growth areas to succeed in the long term will be an important consideration for future phases of this study.

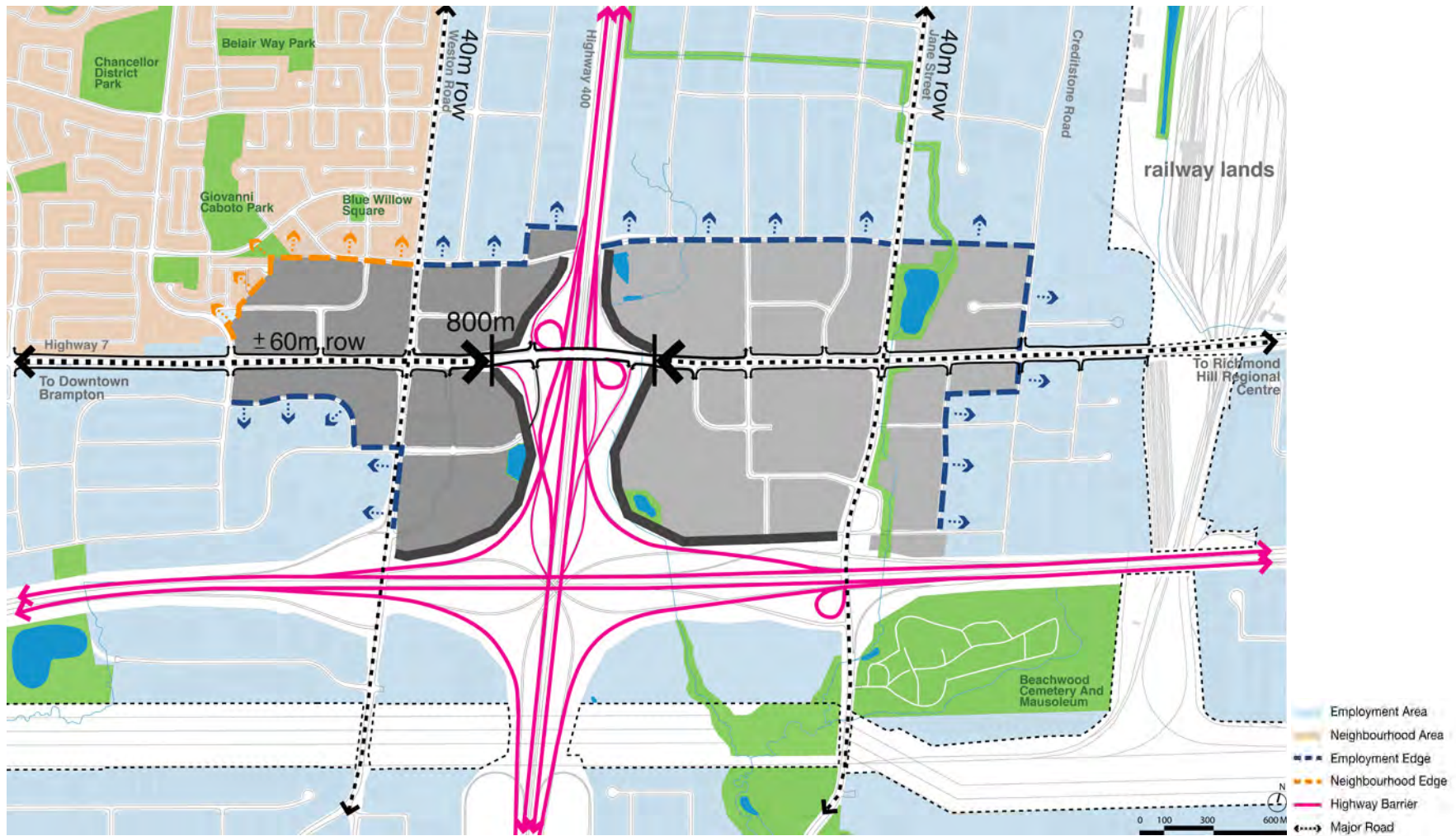


FIGURE 10. Planning Issues

Open Spaces

Open space in the Weston 7 SPA today is limited. There are no public parks or natural heritage areas within the Study Area. A managed and fenced stormwater management pond is located in the south east portion of the Study Area. Two parks are located to the north of the SPA- Giovanni Caboto Park (6.72 ha), and Blue Willow Square (0.64 ha). Within a two kilometre walkshed, there are nine parks, totaling 28.5 hectares; all of which are located in the northwest section of the walkshed, a residential area. The Active Together Master Plan recommends all residential areas be within 500m (walking distance) of a park. However, the majority of the SPA is not within walking distance of a park. Figure 11, Major Parks and Open Spaces, shows the properties within the SPA that are within 500m of the parkland.

The planned landscape improvements associated with the development of the Highway 7 corridor present a limited opportunity to contribute to a network of green spaces in the SPA. In addition, many of the existing streets in the area include tree-lined boulevards. Future open space planning in the area should take advantage of these existing assets and planned improvements to create a green space network through the plan area. While they may contribute to an overall network of open spaces, it should be noted that landscaped areas along Highway 7 are not a replacement for public park and open space. The VMC includes a number of new parks and environmental open spaces such as Edgeley Pond and the Black Creek Greenway that frame new development blocks. Weston 7 will require its own strategy and direction to create a meaningful open space network that contributes to the areas quality of life. The future phases of work will begin to define strategies to achieve an open space network to support development.

Transition to Adjacent Uses

The Weston 7 area interfaces with both employment areas (to the north, west, and south), and established residential areas to the north and west. The existing stable residential area of the community of Woodbridge to the northwest of the Weston 7 area consists primarily of low density single family homes and townhomes. The Weston 7 interface with this neighbourhood to the north will require a sensitive transition between higher densities and heights in the centre of the plan area to edge areas. Areas located to the north, south, and west of the Weston 7 area are protected as employment lands, and may only be redesignated through a municipal comprehensive review (MCR). In addition, the light industrial and auto-oriented character of the employment lands to the south and west are located directly adjacent to the plan SPA with no natural 'buffers', and as such, the transition between the two areas will be an important consideration in minimizing potential land use conflicts.

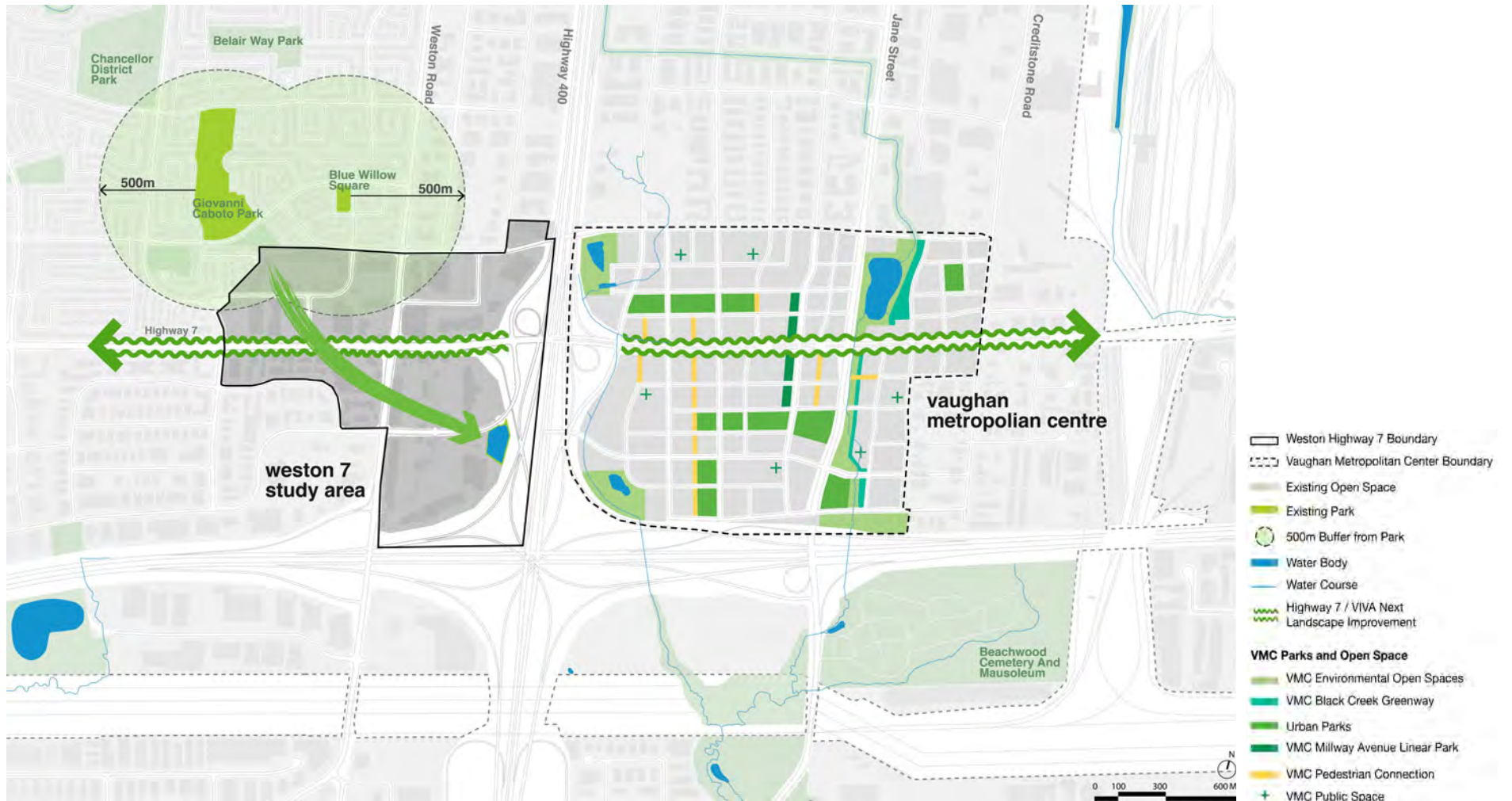


FIGURE 11. Major Parks and Open Spaces

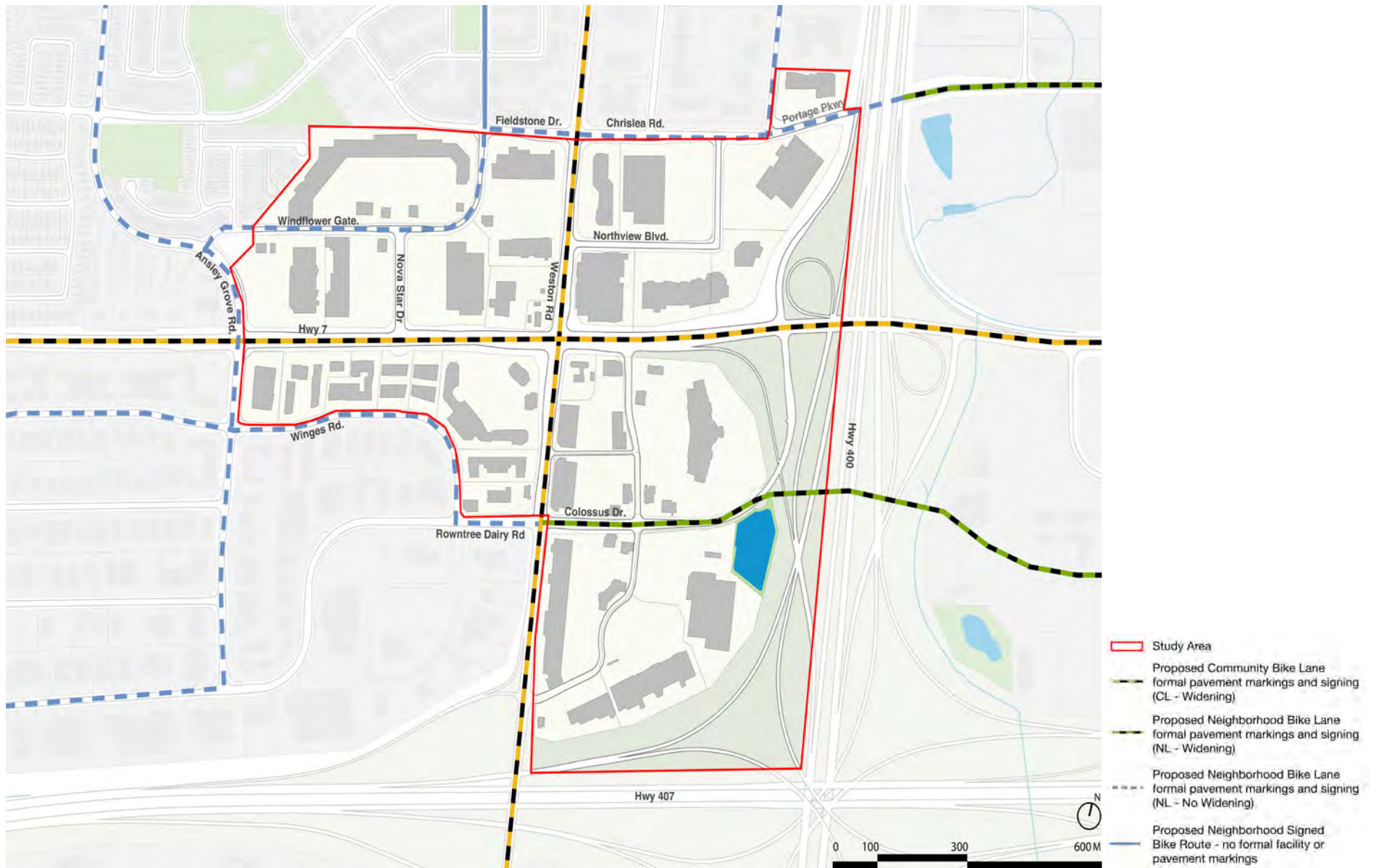


FIGURE 12. Active Transportation

Active Transportation

Weston 7 has no existing bicycle infrastructure in place, however there are a number of planned routes that engage the Study Area. While a planned intention for active transportation is a first step forward, making an built environment that is conducive to cycling and streets that feel safe is important part of making active transportation a viable mobility choice. Through refinements to the street network and changes to the quality and character of the streets, active transportation in Weston 7 could become a preferred way to travel.



Active transportation along Highway 7, bottom right and top centre; New bike lanes in the VMC, right.



PETRO-CANADA

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SECTION 03
**STUDY AREA
ANALYSIS**

STUDY AREA ANALYSIS

The following section provides a detailed analysis of the Weston 7 SPA through a number of lenses. The analysis presented in this section reflects a range of considerations and is based on an underlying goal and associated assumptions – as supported by the higher-level planning framework – **that future development in the area will be higher density, involve a greater mix of uses, will support transit infrastructure along Highway 7, will incorporate green infrastructure, and will be supportive of active transportation.** The discussion found in this analysis is intended to help develop a holistic understanding of issues and considerations for the Secondary Plan area and is focused on a review of the site context and existing conditions and a description of key issues and opportunities that touch on topics related to planning, transportation, sustainability, land economics, servicing and urban design.

3.1. Site Context

3.1.1 Existing Conditions

The Weston 7 area today functions as a commercial centre of regional significance. It is a destination for shopping and entertainment uses for people across Vaughan, and York Region, North York and Toronto, different in its role and character in the City from the neighbouring Vaughan Metropolitan Centre (VMC). Day to

day and specialized shopping needs are met in the Weston 7 area, making it an active, healthy commercial node, at the edge of the established Woodbridge neighbourhood.

Weston 7 Today:

- 129 hectares of Study Area
- 33 hectares of surface parking
- 36 parcels of land
- Predominant age of development is 1990's and prior
- 160 people and jobs per hectare expected by 2041
- 2019 Opening date of Highway 7 Viva Rapidway
- Major Commercial Uses include:
 - Fortinos
 - Canadian Tire
 - Costco
 - LCBO
 - SAIL
 - The Brick
 - Colossus Theatre
 - Nations
 - Golf Town
- Marshalls
- Indigo
- Homesense
- Staples
- Restaurants include:
 - Baton Rouge Steakhouse
 - The Burger's Priest
 - California Sandwiches
 - Earls
 - Five Guys
 - Jack Astor's
 - La Paloma
 - Moxie's
 - Pho Tan Dinh
 - Pizza Al Metro
 - Tim Hortons
 - Scaddabush
 - Shoeless Joes
 - Spoon & Fork



From top left: Piazza Del Sole, Home Depot, Colossus Theatre, SlumDog Bar and Grill, Famous Avenue, Golf Town and other recent Commercial uses, Sleep Country and LCBO, Costco, and SAIL from Northview Blvd.

Low Density Commercial

This area is predominately large format destinations and large associated parking lots. Most people are using automobiles to access the area and few are walking. The predominance of parking areas and street connections results in few options for how people and vehicles travel through the area, and there is very little pedestrian activity and significant traffic congestion along the major routes of Highway 7 and Weston Road. Blocks are very large and missing a fine grained street network that would make walking easy and desirable.

The photos at right illustrate a portion of Piazza Del Sole along Windflower gate in the north west portion of the Study Area. While sidewalks and a wide boulevard are present along Windflower Gate, there are not many people choosing to walk in the area.



Looking north from Windflower Gate into Piazza Del Sole



A wide boulevard and sidewalk along Windflower Gate



A four-way stop intersection along Windflower Gate

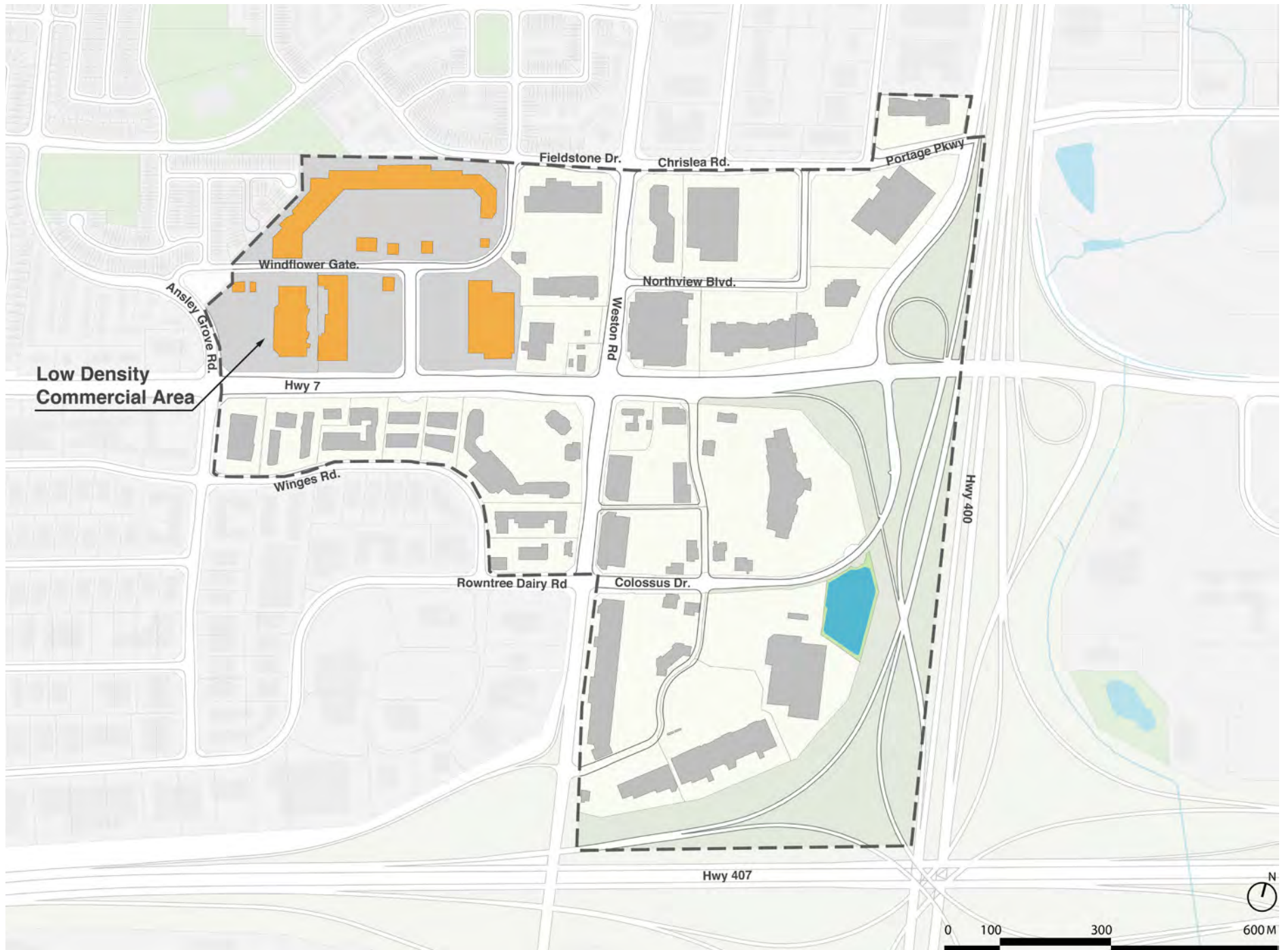


FIGURE 13. Piazza Del Sole, Fortinos, and Canadian Tire are predominate uses in the north west portion of the Study Area

Recent Mixed Use Development

One high-density mixed use development at the north east corner of Weston Road and Highway 7 was approved by Council in 2014 and is now nearing complete occupancy. The development, known as Centro Square, includes two residential apartment towers of 30 and 33 storeys and approval for 800 units. The development also includes a 10 storey office component of 14,357 square meters and commercial uses of up to 11,402 square meters. Centro Square's built form is reflective of the pattern seen in the VMC, including a retail/commercial and office podium with residential towers above.



Elevated private outdoor amenity space



Centro towers are 30 and 33 storeys in height



A 10 storey office component to the Centro development fronts Northview Blvd.

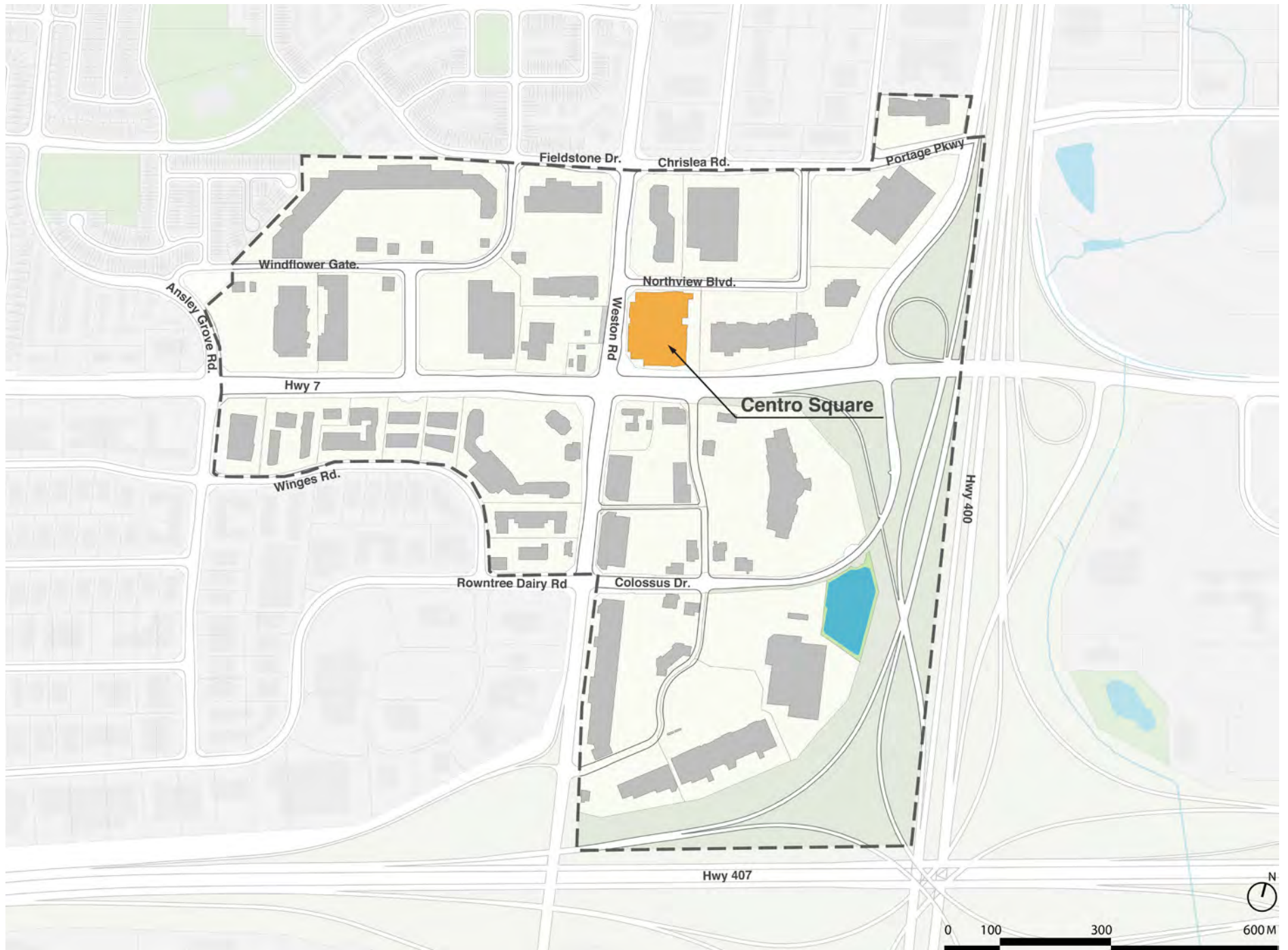


FIGURE 14. Centro Square is at the north east corner of Weston Road and Highway 7

Existing Stable Neighbourhood

Immediately northwest of the Weston 7 SPA is a well-established low density residential neighbourhood comprised of mainly single family detached homes and townhouses. A Neighborhood Park, Giovanni Cabotto Park and a parkette, Blue Willow Square, exist to the north and west of the Study Area boundary and serve the area residents. There are no existing public parks and open spaces in the Weston 7 SPA today. Later stages of work will contemplate how to create appropriate open space in the Weston 7 area and may create a link to existing open space assets in neighboring areas. Land use alternatives will also explore how new built form in the Weston 7 area will appropriately transition to the existing neighbourhoods.



Giovanni Caboto Park, co-located with Blue Willow Public School



An established neighbourhood abuts the Weston 7 SPA

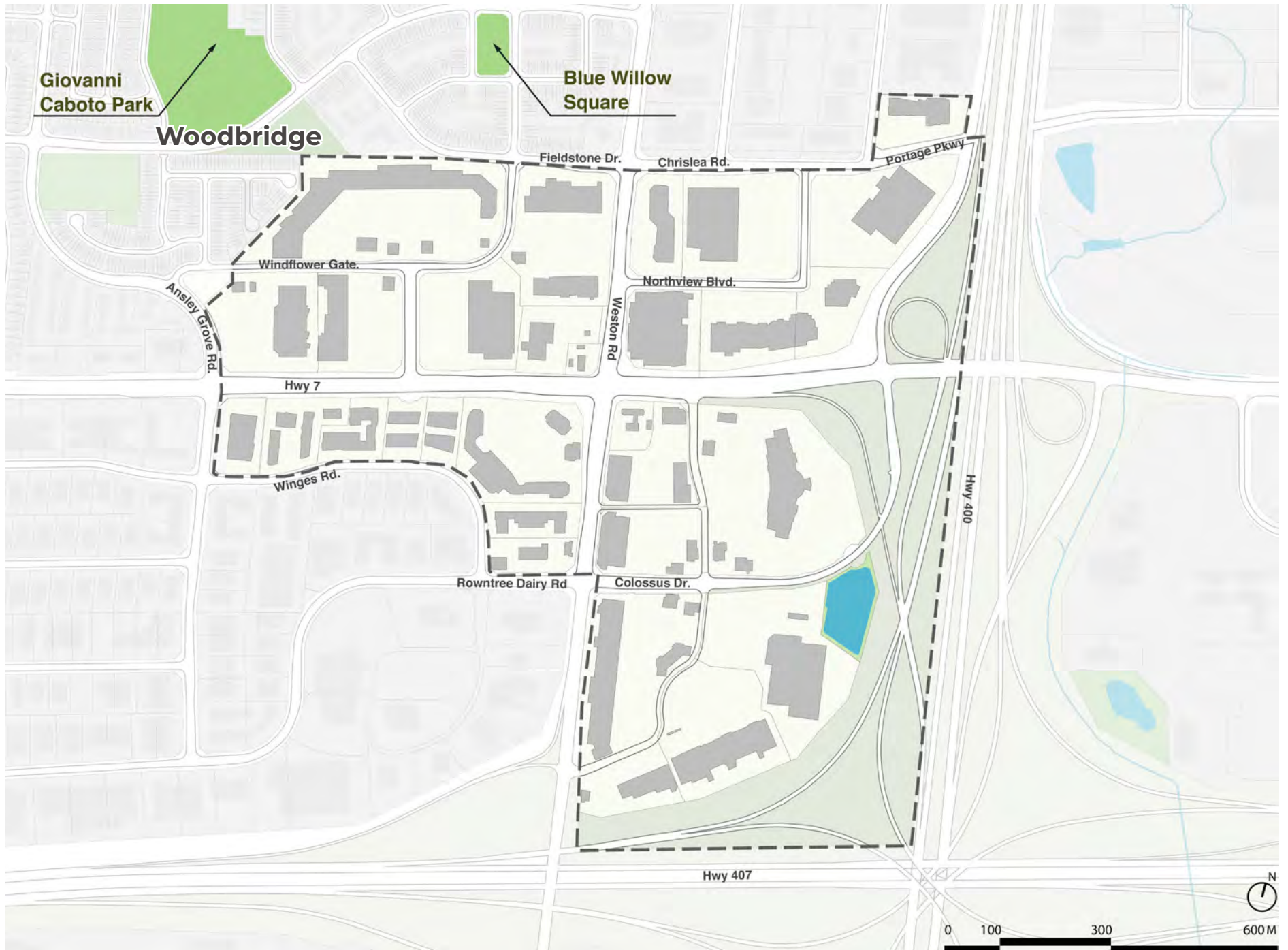


FIGURE 15. Established neighbourhoods and Giovanni Caboto Park are found outside the Study Area to the north and west

Employment Uses and Stormwater Management

Employment lands border the Study Area to the south and include a range of commercial enterprises in buildings that are well tenanted and active. Understanding how intensification in the Weston 7 Secondary Plan Area (SPA) effectively transitions and relates to surrounding areas will be explored in land use alternatives created in a subsequent stage of work.

A large storm water facility is also part of the south portion of the Weston 7 SPA. The VMC provides a strong example of how an existing natural feature, Black Creek, was used to frame and anchor character areas and redevelopment blocks, turning a stormwater feature into an amenity. The land use alternatives will explore opportunities to enhance and build on this natural feature in the Weston 7 area.



Designated employment lands about the Weston 7 SPA along the south side of Wings Road



An engineered stormwater management pond south of Colossus Drive abuts the Highway 400 Corridor

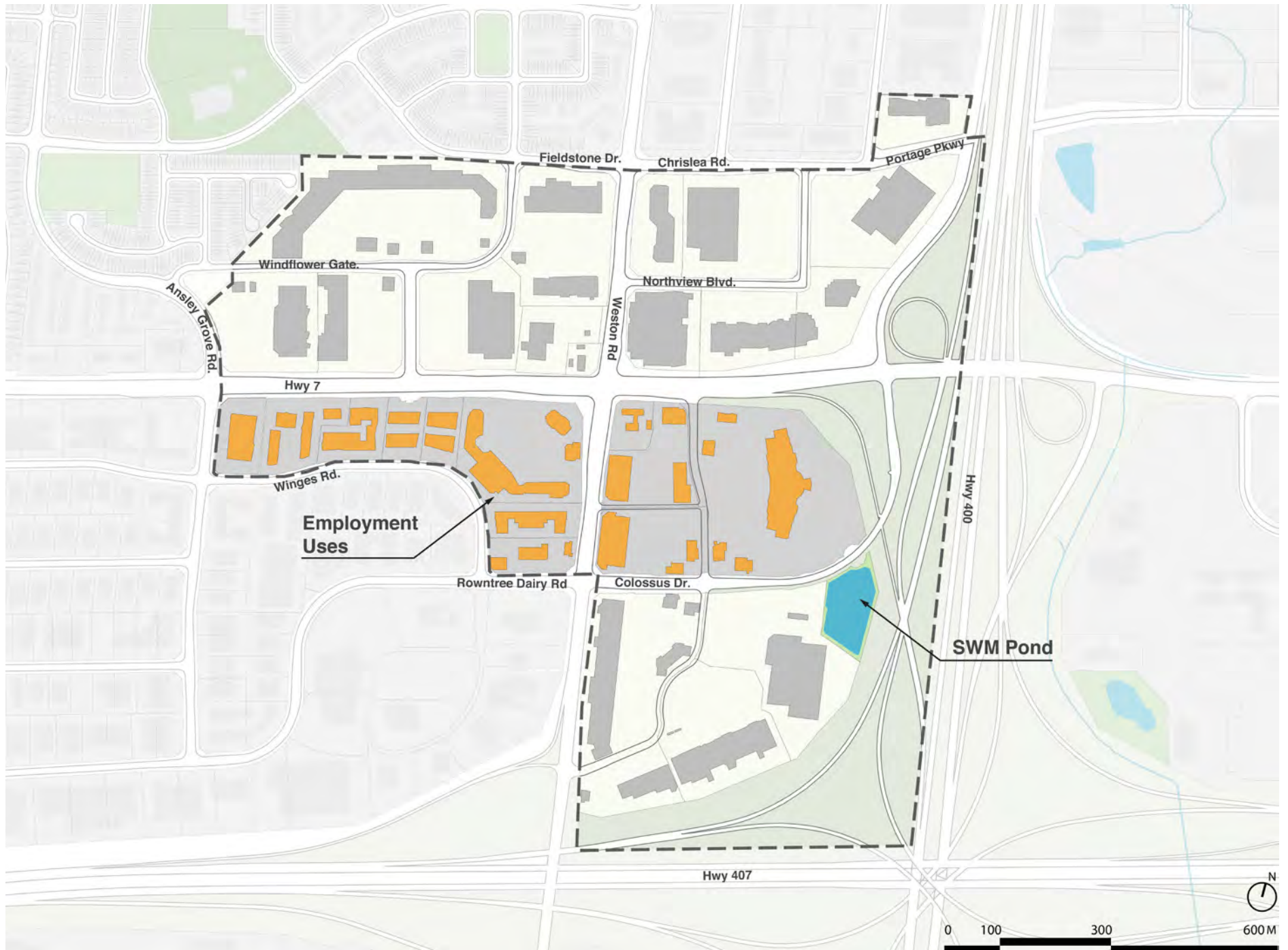


FIGURE 16. The south portion of the Study Area includes a mix of older commercial areas bordered by employment areas

Recent Commercial Development

Some of the commercial development in the south east quadrant of the Weston 7 area is relatively new, as opposed to older building stock along the south side of the Highway 7 corridor. Consideration to phasing and development timing for existing landowners will be considered in the final recommendations of Phase 1 of the Secondary Plan development process.



A restaurant cluster at Colossus Drive and Famous Avenue is a popular destination



New commercial development dates from the early 2000s

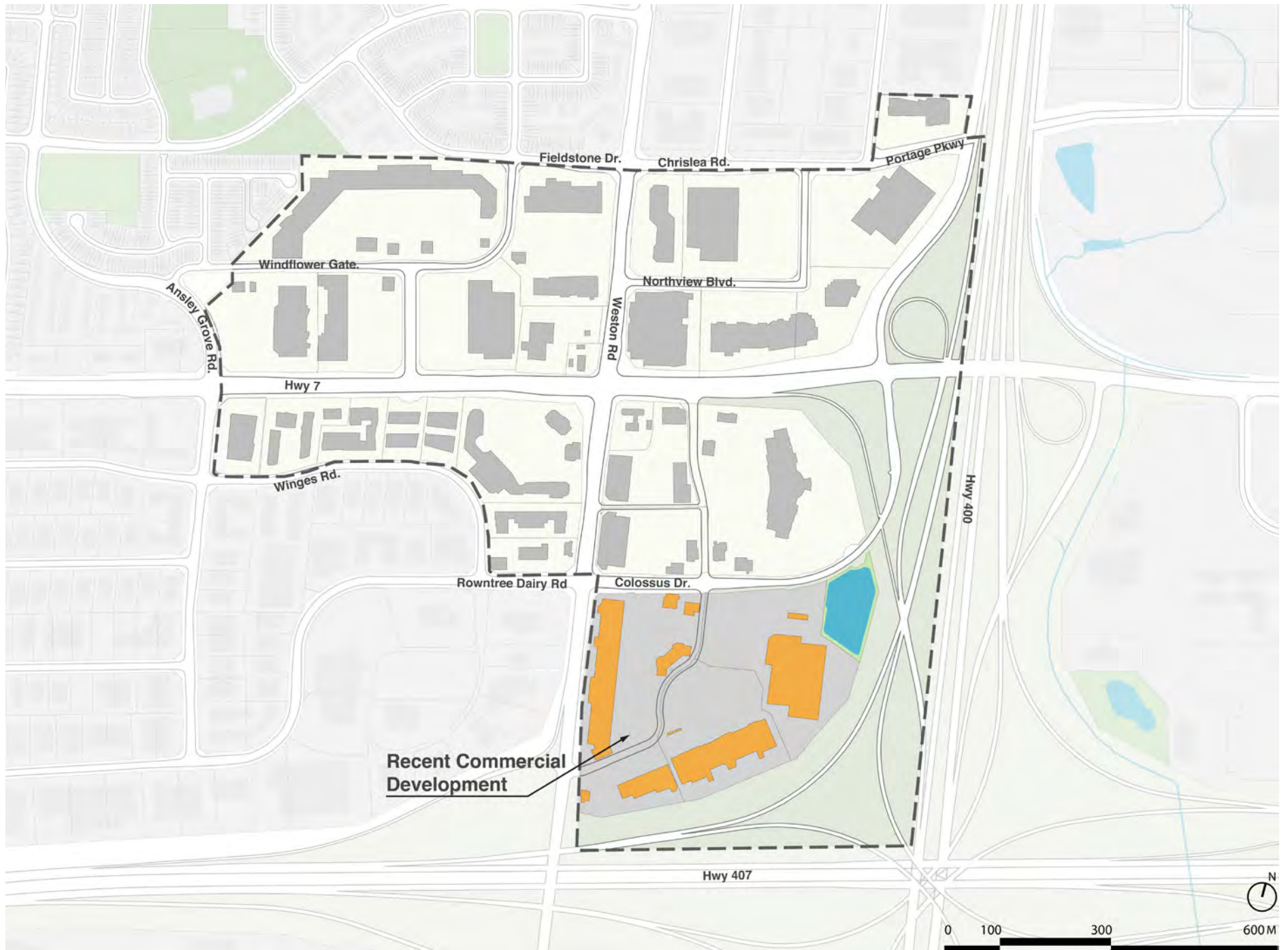


FIGURE 17. Newer commercial development is present in the south east portion of the Study Area

Highway 7

Highway 7 has a planned 60 metre right-of-way and is currently under construction to realize the centre-lane Viva Rapidway, a regional bus rapid transit line.

Weston 7 will be home to two Rapidway station stops, one at Weston Road and the other at Ansley Grove Road at the western edge of the Study Area.

Highway 7 today is a commercial corridor built to move traffic and is generally hostile to cyclists pedestrians. Some pedestrian and cycling infrastructure is being implemented as part of the Viva Next Rapidway construction including a multi-use path and sidewalks.



Highway 7 Rapidway construction today

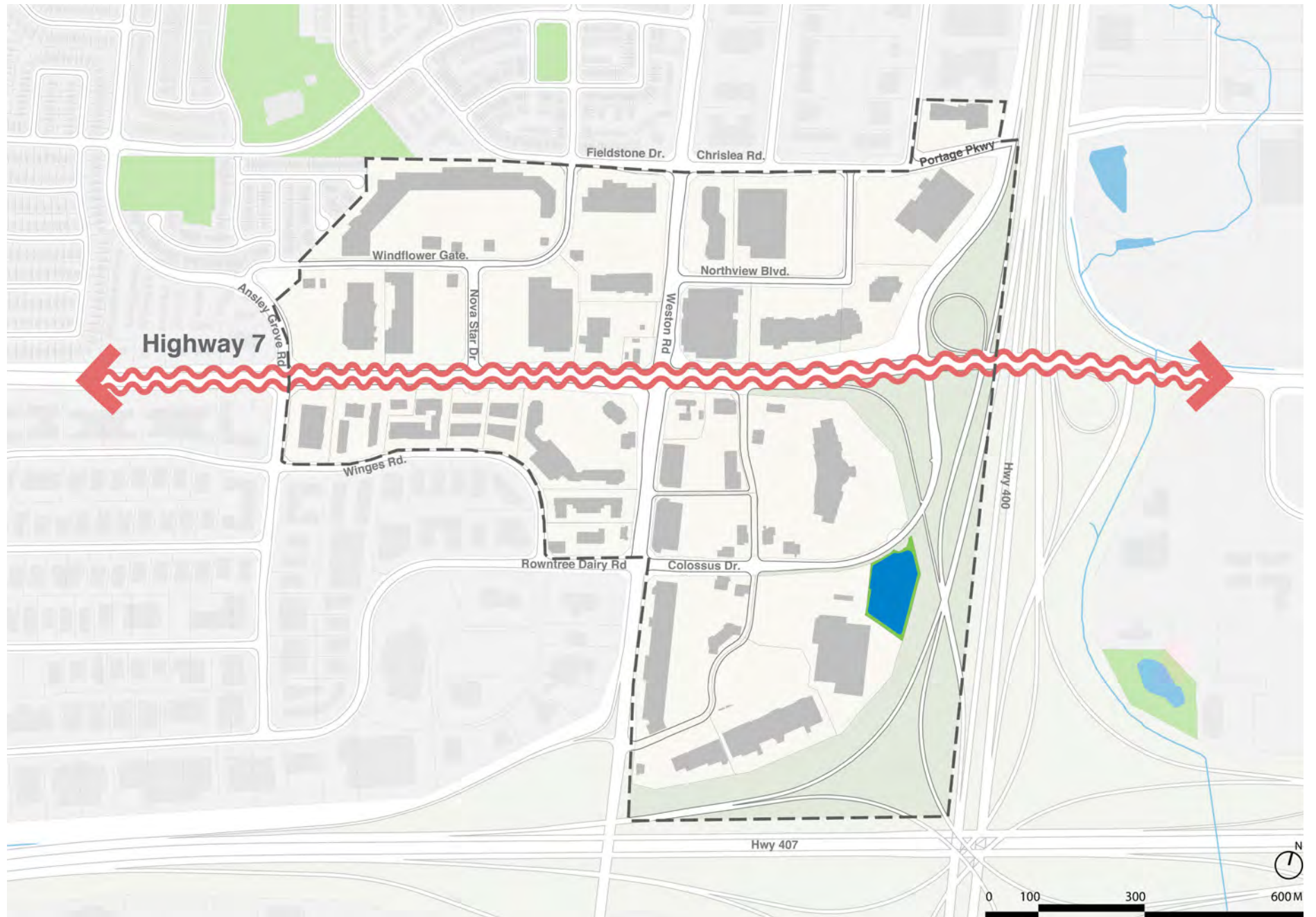


FIGURE 18. Highway 7 is a significant barrier that is undergoing major change

Study Area
~ Highway 7



Secondary plan Phase 1

VAUGHAN

CANADA
HOCKEY



SECTION 04

ENGAGEMENT SUMMARY



SECTION 04

ENGAGEMENT SUMMARY

The Weston 7 Secondary Plan Phase 1 process features an engagement process for internal stakeholders, external key stakeholders and the public. The project engagement approach consists of three components:

- Informing stakeholders and the public about the project and its progress
- Informing stakeholders and the public about how to participate and provide input
- Engaging stakeholders and the public at various points in the development of land use alternatives

The ultimate outcome for Weston 7 Phase 1 is the creation of a set of land use alternatives that will inform an eventual preferred land use strategy and Secondary Plan. Selection of a preferred concept and development of policies will occur in subsequent phases of work. Although no formal decisions regarding land use are being made as part of Phase 1, input from the public and key stakeholders is being used to help inform the development of land use alternatives, based on identified constraints and opportunities, future development plans of landowners, and community ideas and visions for the area.

Engagement also serves the function of informing and educating the public about the Secondary Plan and the process behind its development.

The following list summarizes the engagement to date:

- **Roundtable Summit Meeting** on June 13, 2018 with representatives from City of Vaughan departments including Policy Planning,

Environmental Sustainability, Cultural Heritage, Development Planning, Economic Development, Infrastructure Delivery, Parks Development, Public Libraries, Development Engineering. The meeting also included representatives from York Region, Toronto and Region Conservation Authority, VivaNext, York Region Transit, as well as the Public and Catholic School Boards.

- **Ideas Workshop** on June 27, 2018, attended by members of the public and development industry representatives.
- **Eleven Key Stakeholder interviews** with area landowners and their representatives held in June and July 2018.
- **Interviews** with Area and Regional Councillors.
- **Project website** providing project information and updates.

Future engagement for the project includes:

- **Community visioning workshop**- November, 2018
- **Land Use Alternative workshops**- January 2019

4.1. Roundtable Summit

On June 13, 2018, a Roundtable Summit was held with representatives from the City of Vaughan, including Policy Planning and Environmental Sustainability, Cultural Heritage, Community Development, Economic Development, Infrastructure Planning and Corporate Asset Management, Public Libraries, and Development Engineering, as well as external agencies. Some of the agencies included York Region, Toronto Region and Conservation Authority, VivaNext, York Region Transit, York Catholic School Board and York Region District School Board.

The summit included presentations from the Urban Strategies consultant team to establish the context for the area and to share initial observations about the site, its potential and related challenges. Following the presentations, each of the attendees shared their vision for the future of Weston 7 as well as challenges to achieve that vision with the group. Following individual reflections, the attendees participated in facilitated roundtable discussions around topic areas of transportation and infrastructure, Environment and Sustainability, Parks and Open Space, Community Infrastructure, and Planning, Development and Urban Design. At each table, participants were asked to discuss challenges and opportunities related to their topic area as well as general questions including:

- What is the role of this Centre in the city / urban structure?
- How is it distinguished from the VMC and what makes it different?



Roundtable Summit attendees work on a conceptual road network for Weston 7



The Roundtable Summit included a range of representatives from various City and Region departments

- What do you see as the greatest challenge for the centre to reach its potential as described in policy?
- What advantages does the Centre have in terms of fulfilling its potential?

Highlights of Roundtable Summit were grouped by theme and are summarized below:

Street Network- Create a Finer Grid and Support Active Transportation

- The area lacks a supportive environment for cyclists and pedestrians- some described it as 'scary' and feeling threatened by cars.
- A finer grained network of streets is needed to improve conditions for all transportation modes in the area.
- There were differing opinions on how to support active transportation- some suggested off-road improvements/network and grade separated crossings, and others suggested on-street bike lanes and improved sidewalks.
- The width of Highway 7 at approximately 60 metres was seen as a barrier for pedestrians and cyclists.
- The intersection of Highway 7 and Weston Road was seen as a challenge from a transportation standpoint.

Land Use- Increasing mix while retaining commercial use

- A mix of uses should be established to create a complete community at Weston 7.
- The 'anchor' of this area is currently commercial use and this should be



Attendees reported back to the group on their topic-based discussions

maintained- there was general agreement among most engagement participants on this theme.

Intensification- Focus on Highway 7 and Weston Road

- The greatest extent of intensification area should be at Highway 7 and Weston.

Capitalizing on Bus Rapid Transit Route- Create a 7 Day Destination

- This area needs to be a '7 day Destination'- a place with uses for every day of the week, as it will have higher-order transit service.
- Land use intensification should happen around the Highway 7 corridor.

Relationship with VMC- Weston 7 as a 'younger sibling' with new development at a lower level of intensity than the VMC.

- This area needs to remain distinct from the VMC, and maintain its commercial character and not compete with the level of intensification proposed for the VMC.

Parks Space/Green Space- Assembling land will be a challenge

- From a City perspective, assembling enough park land here will be a challenge- there may not be the ability to create 'destination' parks at Highway 7, but there may be potential for urban square dog parks, community gardens and smaller park sites.
- The area is currently devoid of natural features- there are no Toronto and Region Conservation Authority regulated areas within the SPA.

Community Infrastructure- Focus on co-location

- If there is no library in this area, look at creative approaches that could be explored, such as co-locating with schools, or smaller ‘storefront’ style branches.
- There is general support for co-location of parks with schools in this area.
- Local public schools are close to capacity and are not likely able to accommodate new pupils generated by future residents
- Community hubs are an option to explore to provide multiple services in one location.

Environment/Sustainability- Low Impact Development and sustainability principles should be foundational.

- Strong emphasis on keeping this aspect as a foundation for the plan, and encourage LID for storm water management. The secondary plan for this area should have ‘green roots’, meaning that sustainability principles are foundational to the plan.
- The future Secondary Plan should increase the urban tree canopy.

4.2. Ideas Workshop

On June 27, 2018 a public Ideas workshop was held at the Chancellor Community Centre. The workshop included members of the public and local development community and was the first of three public engagement events designed to inform people about the project process and solicit their feedback. The workshop included interactive mapping activities to gather insight into the places in Weston 7 that are most used, what qualities of the area were liked or disliked, where there are major problems or issues in the area and suggestions for making the place better in the future. Following a brief presentation including policy background and a virtual tour, the attendees were divided into small groups to work on vision boards to illustrate what kind of place Weston 7 could become in the future. The following is a summary of the key themes that emerged from the interactive mapping activities:

Question 1 What places in Weston 7 do you go to? What do you go there for?

Responses to this question indicated that the area continues to be an important city-wide destination for Vaughan residents. Participants indicated that they use the area for shopping, entertainment, and restaurants. Some participants worked in the area.

Question 2 What do you like about Weston 7? What would you change about Weston 7 and why?

Responses and discussion around this question reinforced the role of the area as a shopping and entertainment destination, and participants focused on the many places to shop, eat, to meet and gather and for entertainment.

Areas for change were focused almost exclusively on traffic congestion- participants shared concerns about congestion while driving in the area, and noted that the area did not feel safe for walking. Others were concerned with the lack of cycling infrastructure. Some felt that there was ‘too much commercial’ and the area lacked social and community amenities.



Community members working on a Vision Board



Interactive mapping activities provided an opportunity to share personal experiences in the Study Area and stimulated conversation among participants

Question 3 How would you describe the identity of Weston 7 today?

While the Weston 7 area appears to play an important role for Vaughan residents, this use may be largely utilitarian- the availability of retail and entertainment destinations is attracting people to the area, not its quality of place, including built form or public realm components. Overall, participants described the area as bland or typical, lacking identity. Sample comments include: “unattractive, incomplete”, “clusters of random stores/complex”, “no identity”, and “confused about its identity”.

Question 4 What are the major problems or issues you experience in Weston 7?

Responses to this question were almost exclusively related to traffic- many felt there is too much traffic and congestion in the area, that they do not feel safe around the number of

trucks in the area. One participant noted that density in the area was too high, and another expressed concern that a sufficient amount of green space be provided with new residential development in the area.

Question 5 What improvements would you suggest to make Weston 7 better in the future?

Participants shared a range of suggestions to improve Weston 7. There were varying opinions on density, with one participant indicating a preference for low rise buildings only, while others indicated mid-rise densities would improve the area. The desire for improvements to the pedestrian realm were indicated by a number of participants, as well as an increased mix of retail destinations.

Vision Board Activity

Participants used images provided by the consultant team from theme areas of transportation, parks and open space, residential development, land uses and urban design. Using the images and markers provided, the participants created a collage that expressed, in words and pictures, their aspirations for Weston 7. Key themes emerged included:

- A desire for passive, tranquil open spaces that could be an asset to balance the planned intensity of development.
- Encouraging mid-rise and mixed-use built form, multi-purpose public open spaces that could act as a destination for the new community.
- A common desire to retain the retail in the area along with new residential development in to maintain the level of retail service and convenience in the area.



Vision boards included precedent imagery to help participants express their desires for future development

4.3. Stakeholder Interviews

Throughout June, July and August 2018, the Urban Strategies Team held on-one-one interviews with area landowners to inform them about the study process and timelines, gather insight into their perspective on the role of Weston 7 in the City of Vaughan and to discuss their short or long term intentions for redevelopment. Reflecting the policy in the 2010 Vaughan Official Plan (VOP 2010) that requires a Secondary Plan prior to redevelopment, most of the landowners are eager to work with the City of Vaughan to achieve their long term development goals for the area. The City of Vaughan has reached out to land owners on a number of occasions by direct mail, email as well as in some cases in-person site visits to ensure that each landowner was informed of the study and the ability to participate in the process.

4.4. Councillor Interviews

Throughout June, July and August 2018, the Urban Strategies Team held on-one-one interviews with Area and Regional Councillors to inform them about the study process at an early stage, and to gain insight on the potential role of Weston 7 in the City and Region.

A common concern shared during these interviews was traffic congestion in the Weston 7 area. While Councillors described the benefits of intensification in this area, they cautioned that development should transition sensitively to surrounding stable neighbourhoods.

Councillors interviewed also emphasized the role of Weston 7 as a 'people place', a retail and entertainment centre. There was support for creating more pedestrian and cyclist friendly environment with a greater mix of uses. Arts and culture were seen as key opportunities for the Weston 7 area, including consideration for a cultural hub such as a performing arts centre.



54 Weston Rd

BEST BUY

A photograph of a commercial center street scene, overlaid with a blue gradient and a green diagonal stripe. The scene includes a car on a trailer, a pickup truck, and various commercial signs like 'Mak's', 'WINNERS', 'LUGGAGE CITY', 'LAURE', 'LOORES', and 'LOBO'. A man in a plaid shirt is standing in the foreground on the right. The text 'SECTION 05' is positioned at the top left of the blue overlay.

SECTION 05

TRENDS IN COMMERCIAL CENTRE INTENSIFICATION

TRENDS IN COMMERCIAL CENTRE INTENSIFICATION

Examining commercial centres and their role in suburban areas that are rapidly urbanizing is important because automobile-dependent landscapes are beginning to transform into more sustainable, urban places. The following section explores how aging commercial centres, paired with rapid transit infrastructure, have begun to structure a new pattern in suburban redevelopment and mixed use intensification.

The end of World War II coincided with unparalleled economic growth that transformed the urban landscape and led to the establishment of suburban communities. These neighbourhoods were heavily dependent on the private automobile, and low density development patterns reflected consumer preferences. Vaughan's its historic villages dominated the City's structure until the 1990s, when servicing capacity was extended into York Region allowing for vast low-density suburban communities to take shape.

Retrofitting Suburbia, a landmark report produced by the Urban Land Institute (Ellen Dunham-Jones and June Williamson, 2009), identifies the inefficiencies associated with low density suburban development. The idyllic suburban environment has aged into communities that suffer from congestion and a lack of connectivity for alternative transportation options. Building compact communities along transit routes is a sustainable solution compared to inefficient auto-oriented sprawl-style development, and as Dunham-Jones and Williamson (2009) outline, public transit in the suburbs is what makes intensification feasible. For the Weston 7 area, its adjacency to the VMC TTC station and more locally, its two Major Transit Station Areas (MTSAs) along the Highway 7 VivaNext Rapidway are the catalyst required to support compact, mixed use development. *Suburbs on Track*, a report produced by the Ryerson City Building Institute (2016), supports such initiatives as the VivaNext Rapidway and emphasizes the importance of intensifying built form around transit infrastructure. Transit access is an essential part of the process occurring

to connect suburban nodes within a regional system.

The Urban Land Institute report, "Shifting Suburbs – Reinventing Infrastructure for Compact Development" (2012) explains how the aging baby boomer population has led to a shift in market preferences, with younger generations beginning to seek higher density housing options in proximity to transit, and within walkable, mixed-use neighbourhoods.

Suburban redevelopment is a challenging endeavor, yet innovative strategies and best practices showcase the ways in which suburban communities and their commercial centres have begun to establish more compact forms of growth. Outlined below are four precedent examples that showcase how other suburban areas have capitalized on transit investment to redevelop commercial plazas into vibrant mixed-use centres.

Transit is only part of the solution to suburban intensification. Transit corridors may intensify, but the vast extent of low density single use neighbourhoods beyond transit corridors remain disconnected from transit, meaning there will still be a considerable amount of vehicular congestion in the suburbs. Nonetheless, establishing transit infrastructure and transit-supportive development is important to improve people's movement behaviours and our conceptions of appropriate built form in the suburbs.

5.1 Precedent Examples

This section describes and illustrates commercial centres that are at various stages in the process of transitioning from traditional auto oriented commercial plazas, to compact, mixed use centres that continue to provide important commercial services often in conjunction with medium and high density residential development some including office use. Each precedent includes transit-oriented development, which is a defining element of the Weston 7 SPA. Although each is unique, and none include all of the site characteristics of Weston 7, they offer inspiration and lessons for the site in its early stages of development and intensification.



Brentwood Station Area Plan, Calgary, AB



Golden Mile Secondary Plans (Choice REIT), Toronto Scarborough, ON



ConsumersNext Secondary Plan, Toronto, ON



Surrey City Centre Plan, Surrey, BC

5.2 Brentwood Station Area Plan (2008)

The Brentwood Station Area Plan outlines a vision and policies for future development of a 35.5 ha rapid transit station area (LRT) located in Calgary, Alberta. The plan area is located between an established low density residential neighbourhood to the north, and a research employment area located to the south, with the University of Calgary located further to the south. The area is transected by a major freeway, described as a "Skeletal Road" in the City's road classification (Crowchild Trail). At the time of the plan's creation, the area was a retail destination, characterized by low density strip mall and large format retail fronted by large parking lots.

Similar to the Weston 7 SPA, the plan aims to create a finer grained street network with smaller blocks, encourage a broader range of mobility choices, and encourage greater population density and a mix of uses. The plan projects a combined population and jobs of 5,528 (155 people and jobs/ha) (min) to 9,014 (254 people and jobs/ha) (max) at full build-out on a 20-30 year horizon. A number of redevelopment projects have occurred in the area since the plan's adoption in 2008, including University City, a 4 building complex with 716 residential units and 40,000 sq ft. of commercial space, Brentwood on the Park, a townhome project bordering the existing residential community to the north, and the proposed Brentwood Commons, a mixed use project office, residential and commercial components.

Location	Calgary, Alberta
Area	35.5 ha
Status/Adoption Date	2008 Council adopted statutory plan
Transit Service/Type	1 LRT Station
Anticipated Full Build-out Timeframe	2028-2038
Population Projection (full build-out)	2,407 – 5,823
Employment Projection (full build-out)	3,121 – 5,249
Anticipated People and Jobs per Hectare	156 – 312
Office Floor Space (sq. m)	74,803 – 120,816
Retail Floor Space (sq. m)	37,396 – 73,835
Current Character	Retail, single storey, auto-oriented, surface parking lots, large blocks
Planned Character	Integrated, finer grained street network, pedestrian-friendly streets, transit supportive density, mix of uses
Highlights and Lessons for Weston 7	<ul style="list-style-type: none"> • Some areas will be much slower to redevelop than others. Phasing of development in Weston 7 an important consideration • A fine-grained street network is a key element of urbanizing auto-oriented areas, but can be difficult to achieve without significant coordination of development projects, across a number of parcels and with multiple land owners. • Increasing density significantly in proximity to higher order transit can lead to opposition from neighbouring established communities- transition areas need to be planned accordingly, and policy directions and rationale need to be clear and easily communicated.

While density and mix of uses in the area are increasing, redevelopment has been focused on the north side of the plan area, with the research park located to the south being slower to redevelop. The increased densities, centred around the LRT station hub, have elicited significant community opposition and resistance to change from the established neighbourhood to the north of the plan area. The finer grained street network and improved pedestrian and cycling environments proposed in the Station Area Plan have met mixed success. New cycling infrastructure and improved sidewalks are a positive attribute of intensification, although new proposed development still has large surface parking areas, and street connectivity between blocks is limited. The Brentwood example emphasizes the importance of a coordinated approach to re-development and a clear vision framework and supportive policy to achieve the vision where dealing with multiple property owners.



University City



Brentwood Commons (Riddell Kurczaba)



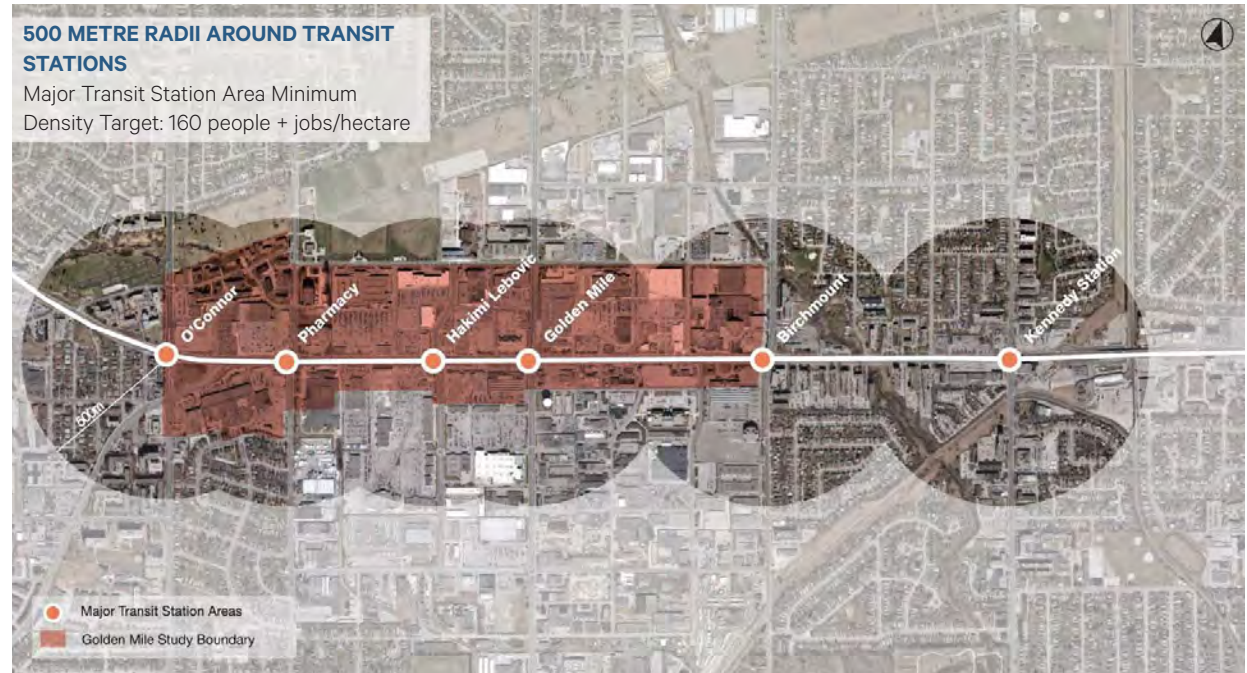
Brentwood Commons (Riddell Kurczaba)

5.3 Golden Mile Secondary Plan (Studies Currently Underway)

Studies are currently underway to develop a planning framework that will guide the creation of the Golden Mile Secondary Plan (GMSP), for a 97 ha area centred around Eglinton Avenue in the Golden Mile neighbourhood in Toronto. The area has been identified as one of the focus areas along the Eglinton Crosstown LRT, with capacity to accommodate residential, mixed use and employment growth. The aim of this Secondary Plan will be to create a more complete and connected community, prompted by the development of the Eglinton Crosstown Light Rail Transit (ECLRT), which is planned to open in 2021.

At this stage, specific density targets have not been established for any of the GMSP's 5 MTSAs, although MTSAs centred on LRT stations such as these have a minimum density target of 160 people and jobs per hectare as directed by the Growth Plan. The plan area's 2016 population was 693 people, although the broader Golden Mile area has a population of 56,033.

The area today is characterized by auto-oriented retail uses, large block sizes and limited availability of parks and open space. While the Golden Mile Secondary Plan project is still in initial phases, it will be useful to monitor project challenges and successes due to its similarities with Weston 7. As with Weston 7, major project drivers include; population growth and investment in the GTA, policy that directs growth towards MTSAs, private sector interest in redeveloping and rethinking large format retail with large surface parking areas.



City of Toronto, Golden Mile Study Area, Excerpt from Background Report, January 22, 2018

Location	Toronto, Ontario
Area	97 ha
Status/Adoption Date	Studies Underway – Early 2019 targeted completion
Transit Service/Type	5 LRT stations
Anticipated Full Build-out Timeframe	Unknown (LRT in 2021)
Population Projection (full build-out)	Unknown
Employment Projection (full build-out)	Unknown
Anticipated People and Jobs per Hectare	160 minimum
Office Floor Space (sq. m)	Unknown
Retail Floor Space (sq. m)	Unknown
Current Character	Retail, single storey, auto-oriented, surface parking lots, large blocks, limited park space
Planned Character	Integrated, finer grained street network, pedestrian-friendly streets, transit supportive density, mix of uses, incorporation of green spaces
Highlights and Lessons for Weston 7	<ul style="list-style-type: none"> • The project is still in initial phases, but shares a lot in common with Weston 7, including a similar urban form and location along a planned rapid transit corridor with adjacent MTSAs. • In addition to the City-led Secondary Plan, a private landowner, Choice Properties, has filed a development proposal with the City of Toronto to transform its 7.7 ha site, the current location of shopping centre, into a mixed use community with an expanded road network, retail shops and a range of new housing and employment uses. • Like Weston 7, Golden Mile has sophisticated developers and landowners that are interested in redevelopment opportunities and transit supportive development • Positive working relationships between the public and private sector is critical to realize development and also achieve the long term public outcomes that the City is seeking to establish such as improved public realm and public roads.

5.4. ConsumersNext Secondary Plan (Secondary Plan Adopted, under appeal)

Toronto City Council approved the ConsumersNext Secondary Plan at its March 26, 2018 meeting. The plan is currently under appeal at the LPAT. The plan Study Area includes two planned MTSAs, located along Sheppard Ave, east of Highway 404.

Today the area functions as the Consumers Road Business Park, home to over 18,000 jobs. The purpose of the Secondary Plan is to direct the further development of the business park, but include pedestrian-oriented mixed use community towards the higher order transit stations located along Sheppard Avenue East. Consumers Next plans for intensification close to established employment areas, like those that border Weston 7, and can provide a good example of how employment and business-park like land uses can be connected into a place of future growth through intentional street and public realm improvements.

Location	Toronto (Scarborough), Ontario
Area	100 ha
Status/Adoption Date	Secondary Plan approved by Council, under LPAT appeals
Transit Service/Type	Future LRT- Sheppard Ave- 2 MTSAs: Victoria Park Avenue and Consumers Road
Anticipated Full Build-out Timeframe	Unknown (construction not to begin until at least 2021)
Population Projection (full build-out)	15,398
Employment Projection (full build-out)	31,609
Anticipated People and Jobs per Hectare	Unknown- 160 minimum for MTSAs
Office Floor Space (sq. m)	Unknown
Retail Floor Space (sq. m)	Unknown
Current Character	Major employment area, auto-oriented, surface parking lots and large blocks
Planned Character	Integrated, finer grained street network, pedestrian-friendly streets, transit supportive density, mix of uses in proximity to transit corridors, maintaining employment uses, incorporation of green spaces
Highlights and Lessons for Weston 7	<ul style="list-style-type: none"> • The plan recognizes the unique nature of districts within, and allocates density and regulates built form to reflect the different character of each area • The area contains a number of existing traffic 'pinch points' that could be exacerbated by intensification- new streets and intersection improvements should aim to ease this congestion.



Consumers Road Business Park



Renderings by DTAH



5.5. Surrey City Centre Plan (2006, 2017 Update)

The Surrey City Centre Plan provides planning guidance for an area of approximately 540 ha in Surrey, BC. The guiding principles of the plan include increasing density and mix of uses, break up large blocks, and encourage multi-modal transportation. While a 1991 plan for the area recommended increased density at the three SkyTrain rapid transit stations in the area, development in the area following the plan did not create a complete and identifiable City Centre in the area. City Council subsequently directed the development of an updated plan to redefine the vision and development direction for the area in 2006, which was further updated in 2017.

Location	Surrey, British Columbia
Area	540 ha
Status/Adoption Date	Community Plan – updated 2017
Transit Service/Type	Existing rail rapid transit- 3 stations, opened in 1994
Anticipated Full Build-out Timeframe	2044 (planning horizon)
Population Projection (2043)	65,000 (9,900 in Central Downtown)
Employment Projection (2043)	38,000 (14,650 in Central Downtown)
Anticipated People and Jobs per Hectare	190 (overall)
Non-residential Floor Space	1.24 million square metres
Current Character	Central Downtown is an area in transition from auto-oriented suburban development with large format, single storey retail development to a more dense urban form. Major employment area, auto-oriented, surface parking lots and large blocks
Other areas of the plan include residential and institutional uses.	Integrated, finer grained street network, pedestrian-friendly streets, transit supportive density, mix of uses in proximity to transit corridors, maintaining employment uses, incorporation of green spaces
Planned Character	Integrated, finer grained street network, pedestrian-friendly streets, transit supportive density, mix of uses in proximity to transit corridors, incorporation of green spaces
Highlights and Lessons for Weston 7	<ul style="list-style-type: none"> • A previous plan for the area was created in 1991, 3 years prior to the opening of the SkyTrain stations in 1994, however development did not follow to the extent anticipated. • Development activity has increased in recent years, following public investment in a number of new civic and cultural infrastructure projects, as well as institutional expansion, which has motivated the development community. • Transit investment alone was not enough to initiate development- rapid transit needs to be paired with a commitment to ‘catalytic’ public infrastructure projects from the public sector.

Areas of Surrey City Centre share a number of similarities with Weston 7. The Central Downtown area has large blocks and large format retail fronted by parking lots. The area experiences traffic congestion due to an incomplete transportation network with limited alternatives for through traffic, it lacks a fine-grained internal transportation network, the area borders established low-density residential areas, and the pedestrian and cycling environment was challenging, although a number of ongoing projects aim to improve these conditions. Population projections for 2044 for the area are approximately 65,000 (a 95% increase over 2015 population), and a projected 38,000 jobs (a 61% increase over 2015). This would result in approximately 190 people and jobs per hectare for the area overall. Density in the plan area is highest surrounding station areas, with Floor Area Ratios (FAR) ranging from 7.5 in the Central Downtown area to 0.6 in peripheral single family areas.

While initial development following the 1991 plan was slow to start and did not always contribute to the goals of the plan, development momentum in more recent years appears to be contributing to a mixed use, denser urban environment. One key difference between the 1991 plan and the current context appears to be increased municipal investment in the area's civic and cultural infrastructure, including a new City Centre Library, a New City Hall Building, a Recreation Centre, and a Performing Arts Centre. An institutional presence has also contributed to this momentum, with the Simon Fraser University Surrey campus expansion. A number of large residential, office, and commercial developments are currently underway in the City Centre area. This underlines the complexities of directing redevelopment in suburban, single use, and auto-oriented environments- while the presence of higher-order transit is a key factor, catalytic civic infrastructure projects are equally important. It should be noted that major civic and cultural infrastructure, like that is occurring in the Surrey City Centre, is possible in both the VMC and Weston 7 on varying scales to create synergies of the arts and culture community for both local and regional residents.





A low-angle photograph of modern buildings against a clear blue sky. A prominent white building is on the left, and a dark blue building with a grid of windows is on the right. A thick green diagonal stripe runs from the top left towards the center. The text is overlaid on the right side of the image.

SECTION 06

**SUMMARY OF
CONSULTANT
REPORTS**

SUMMARY OF CONSULTANT REPORTS

Eight supportive reports or memoranda were prepared as part of this Background Report:

- Transportation Needs Assessment Report, HDR
- Population and Employment Outlook and Commercial Use Assessment, Hemson Consulting
- Sustainability Analysis, Urban Equation
- Community Energy Plan, Urban Equation
- Planning Policy Analysis, Urban Strategies
- Community Facilities and Services Study, Urban Strategies
- Preliminary Water, Wastewater and Stormwater Servicing Analysis, TMIG
- Telecommunications Memo, RTC Systems

A high level summary of key findings of these reports is included below, excluding the Planning Policy Analysis which is summarized in section 2 of this report. Complete supporting documents are provided in the Appendix.

6.1 Transportation Needs Assessment Report, HDR

HDR has prepared a comprehensive review of the transportation-related existing conditions of the Weston 7 SPA as well as description of the key transportation challenges and opportunities. HDR's transportation needs assessment includes:

- A comprehensive understanding of the existing transportation network, land use and travel patterns to, from and within the Study Area for all modes of transportation,
- A multi-modal transportation evaluation for the existing conditions to assess the safety and convenience of travel for all modes,
- A documentation of the planned future population and employment growth and transportation improvements in the vicinity of the Study Area,
- Identification of potential opportunities for first and last mile connections to major transit stations, including active transportation connections, a finer-grid road network, and innovative mobility solutions,
- Establishment of a framework for the second phase of the study to evaluate future transportation and land use scenarios, and
- Guidance for the redevelopment of the Study Area through multimodal transportation improvements to support higher-order transit investments and the economic development goals of the City.

Based on the review of existing conditions, HDR identifies six major opportunities for the future of the Weston 7 SPA, described below:

- **Creation of a grid street network**
The expected redevelopment of the Study Area offers an opportunity to break up the existing "superblock" pattern, establishing a finer-grained street network with a walkable block structure. Increasing the grid network density would increase the number of options available to all modes, add road capacity to the network, balance mobility choices for walking and cycling trips within the Study Area due to improved connections across the land uses, and increase the pedestrian catchment area to VIVA BRT stations.
- **A transportation network for all mobility users**
A transportation network in the Study Area will have to balance the needs of pedestrians, cyclists, transit users, drivers, and goods movement. It will have to take into account the area's ongoing role as a retail hub, the needs of pedestrians and cyclists accessing VIVA BRT and VMC subway station from areas, future residential densification, and truck traffic through and within the Study Area, particularly to light industrial sites to the southwest of the Study Area and to the north of the Study Area. Future phases of the study should take these mobility needs and priorities into account when making recommendations, while recognizing streets' roles in placemaking and prosperity.

- **Improving Pedestrian and Cyclist safety at the Highway 407 ETR Ramps**

Safety challenges exist where cyclists and pedestrians must traverse Highway 400 and Highway 407 ETR interchanges. However, with the Highway 7 West Viva project is planning to implement a median multi-use trail between Famous Avenue towards the VMC, and this will eliminate pedestrian and cyclist conflicts at the free-flow on-ramps. The issue remains however at the Highway 407 ETR ramps however, and solutions to allow pedestrians and cyclists to traverse these ramps safely should be explored in later phases of this study.

- **Improve safety for all modes of travel**

The intersection at Highway 7 and Weston Road has been consistently ranked as one of the highest collision intersections in York Region. It is recognized that safety may be improved for this intersection after the reconstruction of Highway 7. This should be considered in late phases of the study. With a complete street network and better pedestrian connections at highways, the safety will be improved for vulnerable users such as pedestrians and cyclists.

- **New Innovative Smart Mobility Plan and TDM Measures**

This Secondary Plan presents the opportunity to encourage or require the program for developments in the Study Area and tailored it to the needs of local businesses and residents. Existing smart mobility technology (such as Uber / Lyft) and car share programs for trips

during the day could also be used to shift travel behaviour away from single-occupancy vehicles to other modes. Emerging social megatrends such as increased green and sustainability awareness are pushing the population towards more sustainable travel behaviours via the rapidly developing pay-per-use economy. Car-sharing, ride-sharing, and bike-sharing in particular can be facilitated by City policies, initiatives, and infrastructure by creating designated, comfortable waiting areas to find a bike-share rack, car-share vehicle, or wait for a ride-share driver.

- **Increase Sustainable Modal Share**

According to the pedestrian walkshed analysis in Section 3.6.3 of HDR's Transportation Needs Assessment Report, all roads in the Study Area are included as part of the 500 metres that people are willing to walk to a higher order transit stop. As a result, pedestrian infrastructure should be provided or improved on all roads in the Study Area. Pedestrian network improvements have the dual role of increasing the attractiveness of transit as a travel option through improved pedestrian connections from transit stops to local businesses.

- **Optimize the Existing Road Network**

The existing road network should be optimized including improved traffic signal coordination along Weston Road between Northview and Highway 7 intersection, as well as coordination at adjacent intersections, review of turn lane

requirements, queue jump lanes.

- **Consider partial ramp access at Portage Parkway**

One of the keys to unlocking the growth potential of the Study Area not only for Weston and 7 but also for the VMC, is to provide alternate access to Highway 400. Highway 7 is extremely congested at Weston Road today, and providing additional options to vehicular traffic will significantly improve congestion in the Study Area. While it is recognized that MTO has concerns about interchange spacing, future phases of this study should explore the potential opportunities to provide an alternative Highway 400 access to Portage Parkway.

- **Extend Portage Parkway / Chrislea Road west of Weston Road**

A more direct connection back to Highway 7 from Portage Parkway / Chrislea Road should be considered west of Weston Road. Right now, there is access via Fieldstone Drive, Windflower Gate and Ansley Grove Road, but the route is already congested with multiple turns and does not provide a feasible through-route. Through development however as lands become available, the possibility of reconstructing the roadway along the north-western boundary of the study area should be strongly considered. This through-route will prioritize movements into the nearby residential neighbourhoods, which should be restructured as development proceeds.

6.2 Population and Employment Outlook and Commercial Uses Assessment, Hemson Consulting Ltd.

Hemson Consulting Ltd. prepared a growth outlook to assist in preparing land use and infrastructure plans for the area. The analysis involved preparing estimates of employment and development trends in the Study Area, supplemented by development application data from the neighbouring VMC. Development potential was also assessed in relation to Major Transit Station Area (MTSA) density requirements for the VivaNext Highway 7 BRT corridor. Background information for this outlook was gathered from 2016 Federal Census population and housing data, City of Vaughan planning and development applications, and the 2017 York Region Employment Survey.

As of Census day in 2016, the Weston 7 study area hosted approximately 4,800 jobs and no residents. A recently completed residential development at 7777 Weston road has added approximately 1,700 new residents to the Study Area and total employment has increased to approximately 5,000 jobs, mostly in retail and commercial activities.

Development assumptions for the Weston 7 area are determined in conjunction with the planning for the MTSA to comply with policy 2.2.4.3 of the Growth Plan for the Greater Golden Horseshoe. The Weston 7 SPA Study Area falls completely within the boundaries of two

MTSAs and as a result, the development outlook for Weston 7 takes into consideration density requirements for conformity to the Growth Plan, starting with planning to 160 persons-and-jobs per gross ha as the minimum density target

The total gross area of the Weston 7 SPA is approximately 126 ha, of which approximately 22 ha make up parts of the Highway 400/407 interchanges and another 20 ha make up existing local roads and the storm water management pond (SWM), leaving 84 ha of parcel area on which future development may occur.

Category	Land Area (ha)
Total Land Area	126
- Highway 400/407 Lands	(22)
Gross Land Area (for density calculation)	104
- Current Local Roads and SWM	(20)
Developable Area	84
Net Developable Area (25% Gross-to-Net)	63
Net Developable Area (30% Gross-to-Net)	59

Note: Numbers may not add due to rounding.

FIGURE 19. Weston 7 SPA Land Area Estimates

The 84 ha is reduced by 25–30% as a gross-to-net factor to account for new local roads, storm water infrastructure and park space, resulting in a range of 59–63 ha of net developable land.

The development outlook assumes that new development will occur at a ratio of 87% residential space to 13% non-residential space, comprised of supportive retail, commercial and service employment for the future residents of the Weston 7 SPA, as well as additional office space either in freestanding buildings or as part of mixed-use developments.

The development scenarios start with 160 persons and jobs per gross ha on the low end (to reflect the minimum density target for MTSA planning) and transition to 200 persons and jobs per gross ha (reflecting the density target for VMC and most urban growth centres in the Greater Toronto Area and Hamilton). Densities higher than 200 are provided for illustrative purposes to 400 persons and jobs per gross ha, the density target for the Downtown Toronto Urban Growth Centre (UGC).

- At 160 people and jobs per hectare, estimated population and residential unit demand is 5,790 housing units and 1,930 jobs.
- At 200 people and jobs per hectare, estimated population and residential unit demand is 7,430 housing units and 2,480 jobs.
- At 250 people and jobs per hectare, estimated population and residential unit demand is 9,470 housing units and 3,160 jobs.

- At 300 people and jobs per hectare, estimated population and residential unit demand is 11,510 housing units and 3,840 jobs.
- At 400 people and jobs per hectare, estimated population and residential unit demand is 15,600 housing units and 5,200 jobs.

The population, housing and employment potential provided were prepared on the basis of a long-term ultimate development capacity and not planning to a specific horizon year

According to Hemson's report, it is reasonable for the City of Vaughan to plan to achieve development densities up to 160 persons and jobs per ha by 2041, allowing it to meet the density targets for the Highway 7 MTSA within the time frame of the Secondary Plan, but achieving densities higher than that would require a longer-term outlook.

Development Scenario (persons+jobs/ha)	160	200	250	300	400
Gross Land Area (ha)	104	104	104	104	104
Total Persons + jobs/ha (Gross)	16,600	20,700	25,900	31,100	41,400
Persons + jobs to remain	(1,900)	(1,900)	(1,900)	(1,900)	(1,900)
NEW PERSONS AND JOBS	14,700	18,800	24,000	29,200	39,500

Note: Numbers may not add due to rounding.

FIGURE 20. Weston 7 SPA Population and Jobs Outlook

In addition to planning to meet the minimum density targets, finding the right balance of density in Weston 7 and other growth areas in the City, particularly in the VMC will be important. This will be further analyzed in Phase 2 of the study. Development applications already submitted for the VMC will account for 56% of the total forecast of apartments from 2016-2041 for the entire City of Vaughan. In planning for 160 persons and jobs per ha to 2041, the Weston 7 SPA would account for 40% of the remaining potential, a significant figure considering the combined total outlook for apartments in other City of Vaughan area plans.

It is important that the Weston 7 SPA plays a complementary role to the VMC and not compete for similar uses and development. As a result, the Secondary Plan may consider a limit to the development outlook to 2041 at 200 persons and jobs per ha to ensure the Weston 7

SPA meets the guidelines for Regional Corridors, the minimum density target for the VivaNext Highway 7 Corridor and without co-opting the VMC's role as an Urban Growth Centre.

With regards to Commercial Uses, as a whole, the area plays an important role in providing retail and commercial services to a wide catchment area including residential uses to the northwest of the Weston 7 SPA as well as the Highway 400 and Pine Valley employment areas. Moving forward, it is important for the Study Area to maintain its role as a commercial centre for a broader area than the immediate Secondary Plan boundaries.

As an existing commercial area with a regional catchment area, the employment outlook also accounts for office, retail and institutional employment as shown in the table below. A complete accounting of the projected non-residential space is provided in Appendix 2.

Development Scenario (persons+jobs/ha)	160	200	250	300	400
Office Employment	470	610	770	940	1,270
Retail and Institutional Employment	1,460	1,870	2,390	2,900	3,930
TOTAL EMPLOYMENT	1,930	2,480	3,160	3,840	5,200

FIGURE 21. Weston 7 SPA Employment by Type

6.3 Community Energy Plan, Urban Equation

The Community Energy Plan (CEP), available in Appendix 4 seeks to inform the anticipated energy use of the Weston Road and Highway 7 Secondary Plan area, informing long term energy planning for development. Focused on the importance of climate change to Vaughan, as advanced in the York Region Official Plan, Vaughan Official Plan 2010, Green Directions Vaughan and the Municipal Energy Plan, the Community Energy Plan presents the high-level background knowledge required to eventually plan for an energy efficient, low-carbon community in Vaughan.

The report includes information about planning for energy at the community scale, a summary of energy policy, trends in carbon emissions, energy demand and efficiency projections, a discussion of resiliency, community energy technologies and community energy systems.

Energy demand and efficiency scenarios for buildings planned in the Weston 7 area are provided giving an estimate of energy use based on three scenarios that escalate in projected reductions in carbon emissions, to show how progress could be made towards Vaughan's long term goal of becoming a net zero carbon city. The three scenarios, baseline compliance with the Ontario Building Code (OBC), incremental improvement beyond the OBC, and towards net zero carbon, scenarios 2 and 3 11% and 59% reduction in projected energy use, and a 12% and 84% reduction in GHG emissions over the

baseline scenario 1, respectively. Such progress towards limiting energy use can be possible with advancements in building technology, focusing primarily on reducing heating and domestic hot water loads, and included in policies or design guidelines for Weston 7 in a future stage of work.

With regards to resilience, energy resilience is an important factor in adapting to climate change. Both technological and people driven, organizational solutions are explored in this CEP. Voluntary guidelines for increased backup power capacity, particularly for multi-unit residential buildings, are reviewed. This includes strategies for expanding the use of emergency generators, particularly in high rise residential buildings, to provide power for longer and to additional services.

The Community Energy plan also explores several technologies, focused on renewable, efficient and low carbon options, which can serve community energy demands. Technologies explored in detail include the feasibility of geothermal systems for heating and cooling and the use of Combined Heat and Power (CHP) technology to provide both electricity and thermal energy. Technologies may also improve resilience by virtue of providing power independent of the electricity grid during power outages, for example by using CHP to provide emergency backup power.

Given that the Weston 7 planning process is being done on a large, community scale, the Community Energy Plan addresses community scale and district energy systems allow the community to provide local generation and demand response, improving resilience and creating more opportunities for integration of renewable and low carbon strategies. High and low temperature district thermal options, as well as micro-grid electricity storage and delivery, are explored. Community energy systems identified open up possibilities related to fuel flexibility, future-proofing energy supply options and allowing for adaptability over time.

The Community Energy Plan provides important insight into the energy performance of the Weston 7 area and is an opportunity to engage in a conversation at an early stage in the Secondary Planning process about the right strategies to introduce at the municipal level to manage energy use and contribute to Vaughan's long term goal of becoming a net zero carbon city.

6.4 Sustainability Analysis, Urban Equation

The Sustainability Analysis prepared by Urban Equation and found in Appendix 3 is a document that provides insight and strategies for how to create a Secondary Plan for Weston 7 that provides the background information on sustainability directions to input into future phases of the Secondary Plan's development including the vision and directions as well as the ultimate policy language. The report provides a robust analysis of provincial, regional, and municipal policies, plans, and strategies, which inform the sustainability vision, guiding principles, and strategies covered in section 4 of the report. The consultant team will use the guidelines presented in the Sustainability Analysis report to as a part of the assessment of land use scenarios developed in later stages of the Phase 1 of the Secondary Plan development process. Finally, the report also includes policies and tools to help the City improve the delivery of green infrastructure, green building design, and climate change adaptation.

The report includes a detailed review of policy including directions from:

- Provincial Policy Statement (2014)
- The Growth Plan for the Greater Golden Horseshoe (2017)
- Ontario's Climate Change Strategy (2016)
- Ontario's Five-Year Climate Change Action Plan (2016-2020)
- Long-Term Energy Plan (2013)
- Ontario Climate Change and Health Toolkit
- MOECC Low Impact Development Storm

- Water Management Guidance Manual (2017)
- York Region Official Plan (2010)
- York Region Sustainability Strategy: Towards a Sustainable Region
- City of Vaughan Official Plan (2010)
- Green Directions Vaughan (2018 Draft Update)
- The Vaughan Municipal Energy Plan (MEP)
- Vaughan Sustainability Performance Metrics

Key themes that emerged through reviewing the relevant policy direction that informs how sustainability should be incorporated into the planning process include: sustainable water management, energy efficiency, climate change adaptation, sustainable transportation, a strong local economy, and sustainable waste management. In the body of the report, each theme is defined by a guiding principle and a number of strategies are recommended for consideration in the long term redevelopment of the Weston 7 SPA.

In addition, the report includes policy and tool recommendations to consider for the policy development stage of the Secondary Plan. As noted in the report, the proper policies and tools are required to ensure that development can be moved towards more sustainable outcomes. Recommended policies and tools organized into three categories: green infrastructure, green building, and climate change adaptation. A selection of some of the policy recommendations in these theme areas are provided below:

Green Infrastructure:

- Development in the 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, which is being updated at the time of this report.
- 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;
- Maximizing the extent and function of vegetative and pervious surfaces; and
- Consider a higher mandatory threshold for green infrastructure by augmenting the existing Vaughan Sustainability Performance Metrics.

Green Buildings

- 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.
- Achieve high standards of environmental sustainability by encouraging green buildings.

Climate Change Adaptation

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

While the scope of the Phase 1 work for the Weston 7 Secondary Plan will not include policy development, the recommendations of the Sustainability Analysis will be carried forward into future stage of work. As the report recommends, as the planning framework for the Study Area progresses, the Sustainability Analysis report can inform decision-making regarding the development vision and guiding principles, which will ensure that sustainability permeates the land use and development scenarios, including elements of transportation, building design and block orientation, and public realm design.

6.5. Preliminary Water, Wastewater, Stormwater Servicing Analysis

TMIG conducted a preliminary water distribution, wastewater, and storm servicing analysis to understand the existing sanitary system in the Study Area and the capacity for the potential development of the Weston 7 SPA. Background information for the water distribution, wastewater collection and stormwater management systems were obtained from the City, through the Vaughan City-Wide Water/Wastewater and Stormwater Management Master Plans dated June 2014. Several key findings are outlined below:

Water Distribution

- Much of the planned intensification can be accommodated within the existing distribution system as the City's watermains were generally constructed based on a design criterion of 450 Lpcd, which does not reflect the historical reductions in water demands over the past several decades.

Wastewater Collection

- Much of the planned intensification can be accommodated within the existing collection system as the City's sewers were generally constructed based on a design criterion of 450 Lpcd, which does not reflect the historical reductions in water demands (and – by extension – wastewater generation) over the past several decades.

Stormwater Management Analysis

- Impervious coverage in the area is estimated at 90% or higher. Redevelopment and intensification of established urban areas is generally expected to reduce impervious cover through increased landscaped areas and new parks.
- All new developments within the Weston 7 SPA will be required to adhere to most up-to-date City of Vaughan, TRCA, and MECP standards. The updated standards are more stringent than the criteria in the past. Thus, generally, the existing system will have a slight improvement from new development within the Study Area.

Once development alternatives are further defined, a more detailed analysis of the servicing requirements of the alternatives will be prepared. A functional servicing report will not be prepared as part of the Weston 7 Secondary Plan Process, as this will be undertaken at a later date in conjunction with an update of the City's Infrastructure Master Plans. See Appendix 7 for the TMIG report.

6.6. Telecommunications

RTG prepared a brief memo outlining communications infrastructure availability in the Weston 7 SPA. The Weston 7 SPA area is currently serviced by both Bell Canada and Rogers Cable Communications for telephone, television, and internet servicing. Both Bell and Rogers have existing fibre optic cables along Weston Road and Highway 7 corridors. Bell and Rogers would review service applications within the SPA, confirm financial viability and then provide service to developments as required connecting to their existing infrastructure grid. Additional capacity, if required, would be brought in via the existing Highway 7 or Weston Road corridors. As the planning for the Study Area evolves, Area Managers for both Bell and Rogers should be kept apprised of developments on a regular basis to ensure that they can provide the most up to date services available to the area. See Appendix 8 for the RTG report.

6.7. Community Services and Facilities Impact Study

As part of understanding the impact of future growth in the Weston 7 SPA on community services such as parkland, schools, libraries, indoor and outdoor recreation facilities, social services, childcare and places of worship, a CSFIS was undertaken by Urban Strategies. The purpose of the CSFIS is to assess the current provision of community services and facilities within the Study Area, and to understand how provision levels may change over time in light of anticipated population growth. The following are significant findings from the analysis that may be used to inform and support the Weston / Hwy 7 Secondary Plan planning process:

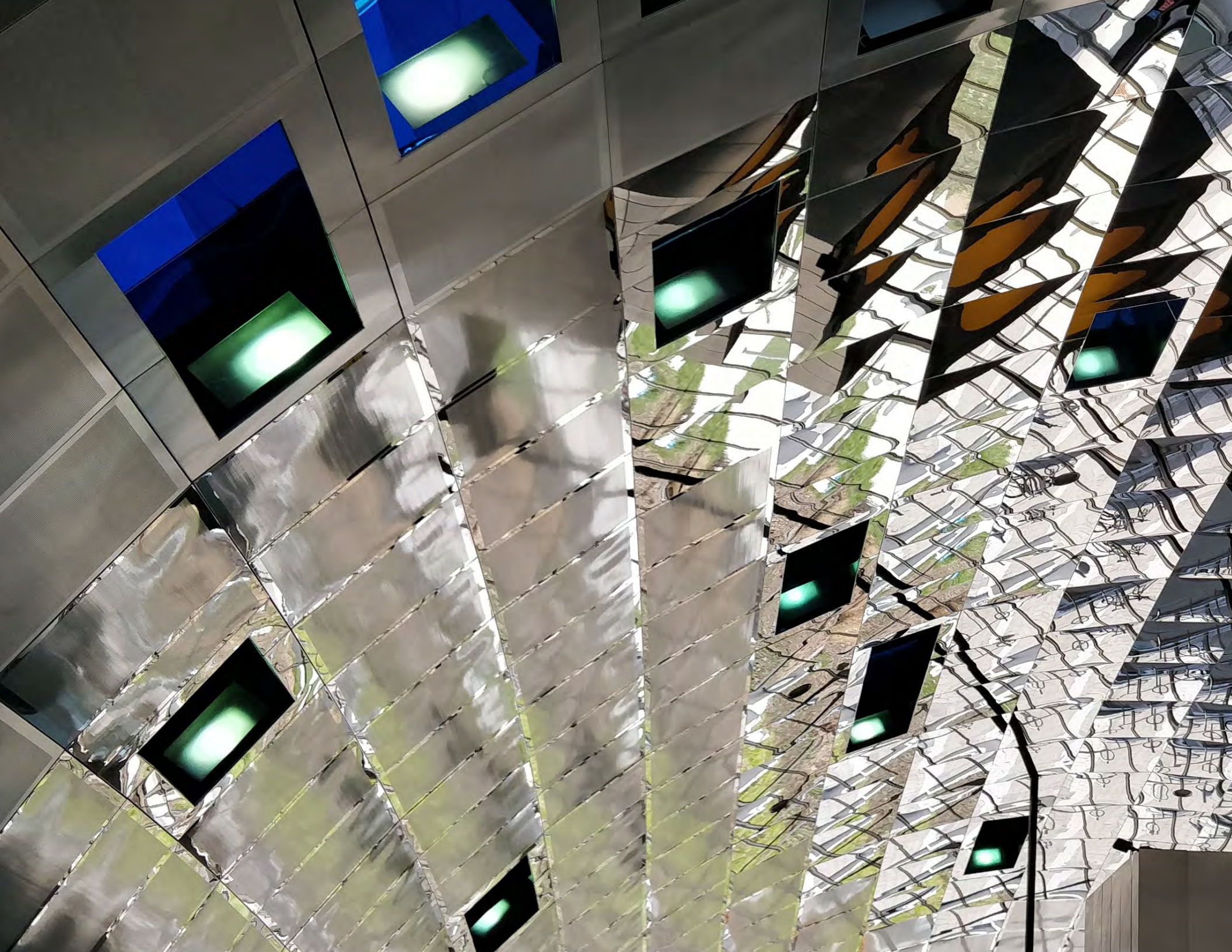
- The Study Area is anticipated to experience substantial population growth over the long-term planning horizon. In the Vaughan Metropolitan Centre (VMC) (which falls within the Study Area), more than 9,700 units are proposed or approved, representing a potential resident population of 19,224 residents. Development outlooks for the Weston / Hwy 7 Secondary Plan show a potential population of between 12,740 and 34,320. Altogether, over the long term, the population of the Study Area could grow to between 54,842 and 76,422 people.
- Future population growth will significantly reduce the provision of parkland, which is currently above the city-wide provision level of 1.86 hectares. However, to apply the ATMP's recommended target of 2.0 hectares per 1,000 residents (new growth) would require significant new parkland – between 22 and 65 hectares. This is not realistic in the context

of an intensification area, considering the challenges of assembling land and the economic realities of development. A parkland provision target specific for the Study Area should be developed to address this challenge, and parkland acquisition should be front-ended.

- In all development scenarios, provision levels of public libraries will decrease to below ATMP provision targets, despite the library branch and self-serve library currently under construction at VMC. Depending on the development scenario, the deficit of library space could range between 3,964 and 17,127 square feet.
- There is limited capacity at the two YRDSB elementary schools that serve the Secondary Plan area. YRDSB staff have indicated that an elementary school site would be required for development scenarios 1 and 2, and that additional school sites may need to be considered for the higher density scenarios. School sites would be provided consistent with the VMC standard of five acres, though the ultimate size may be adjusted through the planning and development process.
- While no specific YCDSB school sites have been identified through Phase 1 of the Weston 7 Secondary Plan, the YCDSB will continue to be engaged throughout the Secondary Plan process. The YCDSB reserves the opportunity to provide school site designation requirements as development scenarios are refined, specifically relating to timing and unit types.

- Future population growth in the Study Area will reduce the provision level of community centres to below ATMP provision targets in development scenarios 3, 4 and 5, despite the new YMCA under construction in VMC. This service gap (1:38,000 in scenario 5 against a provision target of 1:30,000) may not be significant enough relative to service gaps elsewhere in the municipality to warrant a new facility.
- The demand for community centres is largely driven by the need for the component parts – libraries, fitness centres, gymnasiums, arenas and indoor pools. As demonstrated above, the provision levels of many of these facilities will fall below ATMP provision targets in some, but not all, development scenarios.

These findings will impact the land use alternative scenarios, providing an important input regarding the types of community facilities that required to maintain a complete community.





SECTION 07

NEXT STEPS

NEXT STEPS

Understanding the current state of the Weston 7 SPA from a number of disciplines is key to the success of the Secondary Plan process going forward. Each of the studies prepared as part of the Background Report has revealed important observations or recommendations for the work going forward. The conclusions of this work will be an input into the development of a vision and guiding principles for the site and the subsequent development of land use alternatives.

Reflecting the Background Report, the key issues and questions will shape the course of the project team's inquiry in the coming months are:

- Determine an appropriate population and employment targets that accounts for the expectations for the MTSAs, Provincial, Regional and local planning policy as well as the Weston 7 relationship to the VMC and the transportation and municipal servicing network's ability to accommodate growth.
- Create a vision statement and development principles that reflect good planning, urban design and sustainable development directions .
- Design a road network that can be phased in to accommodate new development, increase transportation option and permeability in the site and serve pedestrian, cyclists, private automobile and commercial traffic.
- Create land use alternatives that arrange and focus the anticipated growth in a number of ways to experiment with the best method to appropriately accommodate height, density, transition to neighborhoods and development phasing.
- Determine approaches within the land use alternatives to the achievement of open space at a provision rate that is supportable by the City.
- Continue to engage with the community to report on the results of the Background Work and consult on the vision and principles for the area.

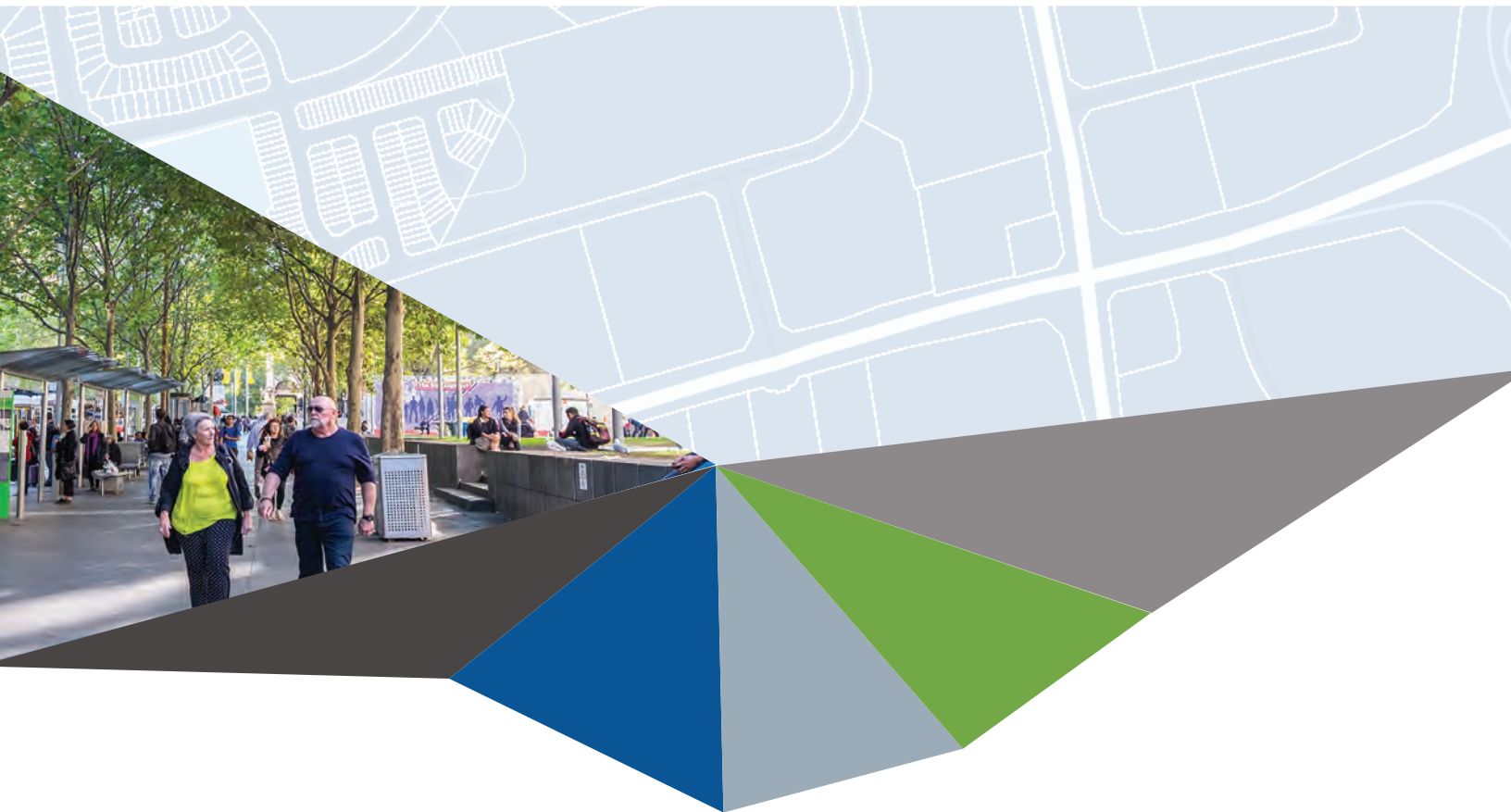
In the next phase of work, the project team will work with the community and stakeholders to define a vision and development principles for the Weston 7 SPA, which will also structure how the land use alternatives will be evaluated.

A public visioning workshop is scheduled for November 2018 with the land use alternatives development planned for December and January and a public land use alternatives workshop in early winter 2019. The Final Report, outlining the vision, development principles and an evaluation of the land use alternatives is expected to be completed in spring 2019. The identification of a preferred development option and writing of implementing policy is planned for subsequent phases of work to be awarded under separate contracts.

TRANSPORTATION NEEDS ASSESSMENT REPORT

APPENDIX 1

October 29, 2018





Transportation Needs Assessment Report – DRAFT#3

Weston Highway 7 Secondary Plan Phase 1

City of Vaughan
October 24, 2018



Contents

1	Introduction	1
2	Planning Context	3
2.1	Provincial Planning Context.....	3
2.1.1	407 Transitway	5
2.2	Regional Planning Context.....	6
2.2.1	York Region Transportation Master Plan (TMP) 2016	6
2.2.2	York Region Official Plan.....	7
2.2.3	York Region vivaNext Plan (2017)	8
2.2.4	York Region Transportation Mobility Plan Guidelines for Development Applications (2016)	13
2.3	City of Vaughan Planning Context	16
2.3.1	Vaughan 2013 Transportation Master Plan.....	16
2.3.2	City of Vaughan Official Plan.....	16
2.3.3	City of Vaughan Pedestrian and Bicycle Master Plan (2007 and 2018)	20
2.3.4	Vaughan Metropolitan Centre Secondary Plan	21
2.3.5	VMC Secondary Plan - Corridor Protection: Colossus Drive Overpass Area (2015)....	22
2.3.6	VMC and Surrounding Areas Transportation Study (2013)	23
2.3.7	7777 Weston Road Area Wide Transportation Study (2012).....	25
2.3.8	Green Directions Vaughan (2009).....	27
2.4	Travel Demand Management Programs	27
2.4.1	York Region MyTrip Program.....	27
2.4.2	Metrolinx Smart Commute Program	28
2.4.3	York Region Transportation Mobility Plan Guidelines for Development Applications (2016)	29
2.4.4	Transportation Demand Management for Toronto-York Spadina Subway Extension (TYSSE), York Region and City of Toronto.....	31
3	Existing Conditions	32
3.1	Land Use and Built Form	32
3.1.1	Land Use Zoning	32
3.1.2	Surface Parking.....	33
3.2	Travel Context	34
3.2.1	Transportation Tomorrow Survey.....	35
3.2.2	Commercial Vehicle.....	40
3.2.3	Strava Metro	42
3.2.4	Peaking Characteristics.....	43
3.2.5	Auto Occupancy	44
3.3	Street Network Context	45
3.3.1	Connectivity and Continuity.....	45
3.3.2	Highway Interchange Design.....	47
3.3.3	Current Road Classes and Travel Space.....	49
3.3.4	Safety Considerations	50
3.4	Transit.....	51
3.4.1	Existing Transit Network.....	51
3.4.2	Transit Usage	54
3.5	Cyclists	57
3.5.1	Existing Cycling Network.....	57
3.5.2	Cycling Network Plans.....	58
3.5.3	Bicycle Level of Service.....	58
3.6	Pedestrians.....	63
3.6.1	Existing Pedestrian Network	63
3.6.2	Pedestrian Level of Service.....	68



3.6.3	Walkshed Analysis to/from BRT Stops.....	73
3.6.4	Walk Score	74
3.7	Vehicles	75
3.7.1	Vehicular Intersection Traffic Analysis	75
4	Transportation Challenges and Opportunities.....	85
4.1	Creation of a Grid Street Network	85
4.2	A Transportation Network for All Mobility Users.....	86
4.3	Improve Safety for All Modes of Travel	87
4.4	New Innovative Smart Mobility Plan and TDM Measures	87
4.5	Increase Sustainable Modal Share	88
4.6	Optimize the Existing Road Network.....	89
4.7	Consider Partial Ramp Access at Portage Parkway	89
4.8	Extend Portage Parkway / Chrislea Road west of Weston Road.....	89
5	Draft Problem and Opportunity Statement	90
	Appendix A: Multimodal Level of Service (MMLOS) Methodology	91
	Appendix B: Multimodal Level of Service (MMLOS) Results	92
	Appendix C: Existing Traffic Conditions	93

Tables

Table 2-1. Relevant Provincial Policy and Planning Directions	3
Table 2-2: Official Plan Objectives and Policies.....	7
Table 2-3: 2031 Transit Mode Share Targets (Peak Periods)	18
Table 2-4: Key Actions from Green Directions Vaughan	27
Table 3-1: Daily Number of Trips by Mode to Study Area, Excluding Internal Trips.....	36
Table 3-2: Daily Mode Share by Trip Distance to Study Area	38
Table 3-3: Intersection Density Calculation.....	45
Table 3-4: Link to Node Ratio Calculation.....	46
Table 3-5: Transit Service Frequency and Service Hours	53
Table 3-6: Segment BLOS	62
Table 3-7: Intersection BLOS	63
Table 3-8: Segment PLOS	72
Table 3-9: Intersection PLOS	73
Table 3-10: Walk Score Description.....	75
Table 3-11: Walk Score, Transit Score, and Bike Score for 7777 Weston Road	75
Table 3-12: Dates of Turning Movement Counts, Availability of Signal Timing Cards and Assumptions.....	76
Table 3-13: Highway Capacity Manual Level of Service Definitions for Intersections	77
Table 3-14: Existing Intersection LOS.....	78

Figures

Figure 1-1: Study Area	2
Figure 2-1: York Region vivaNext Planned BRT Network	9
Figure 2-2: vivaNext Highway 7 West Woodbridge Plan	10
Figure 2-3: Highway 7 Bridge over Highway 400.....	10
Figure 2-4: Highway 7 West of Highway 400, between Weston Road and Colossus Drive	11
Figure 2-5: Highway 7 across Highway 410 Interchange	12
Figure 2-6: Combined Pedestrian and Cyclist Crossride (Signalized Example).....	13
Figure 2-7: City of Vaughan Official Plan, Schedule 1, Urban Structure	17
Figure 2-8: City of Vaughan Official Plan, Schedule 9, Future Transportation Network.....	19
Figure 2-9: City of Vaughan Official Plan, Schedule 10, Vaughan Major Transit Network.....	19
Figure 2-10: Pedestrian and Bicycle Master Plan Preferred Cycling Network (DRAFT)	21
Figure 2-11: Plan of Minimum Corridor Protection Area (Colossus Drive Corridor Protection Study 2015)..	23
Figure 2-12: Preferred Alternative Recommended for Highway 400 / Highway 7 Interchange (VMC and Surrounding Areas Transportation Study 2013).....	24
Figure 2-13: Colossus Drive Extension Preferred Alignment (VMC and Surrounding Areas Transportation Study 2013).....	25
Figure 2-14: Transportation Demand Management Checklist (Transportation Mobility Plan Guidelines 2016)	30
Figure 3-1: Study Area Zoning	33
Figure 3-2: Surface Parking	34
Figure 3-3: Daily Trip Origin-Destination and Mode Choice	37
Figure 3-4: Daily Mode Share by Trip Distance to Study Area	39
Figure 3-5: Average Trip Length to Study Area	39
Figure 3-6: Trip Purpose to Study Area	40
Figure 3-7: 2012 Commercial Vehicle Trip Origin and Destination to/from Study Area.....	41
Figure 3-8: Truck Volume and Percentage in the AM, Midday, and PM Peak Hour (Both Directions).....	42
Figure 3-9: Strava Metro Bike Counts, January 1 st 2014 to December 31 st , 2016	43
Figure 3-10: Weekday Hourly Traffic Counts, Highway 7 Westbound, West of Famous Avenue (June 2018)	44
Figure 3-11: Saturday Hourly Traffic Counts, Highway 7 Westbound, West of Famous Avenue (June 2018)	44
Figure 3-12: Intersection Density and Link-Node of the Study Area (Active Transportation), Compared with Other Urban Centres	47
Figure 3-13: Weston Road at Famous Avenue and Highway 407 EB On-ramp.....	48
Figure 3-14: Highway 7 at Famous Avenue and Highway 400 SB ON-ramp	48
Figure 3-15: Existing Road Classification and Right-of-Way	50
Figure 3-16: Existing Transit Network	52
Figure 3-17: Dial-a-Ride (DAR) Woodbridge	54
Figure 3-18: Total On/Off by Time Period and Day in the Study Area (2018 Ridership).....	55
Figure 3-19: Weekday Daily Transit Demand, Route 77/77A Highway 7, VIVA Orange, and Brampton 501 Züm (2018 Ridership).....	56
Figure 3-20: Weekday Daily Transit Demand, Route 16 Weston and 10 Woodridge (2018 Ridership).....	56
Figure 3-21: Cycling Plan	58
Figure 3-22: Inputs for Bicycle LOS	59
Figure 3-23: Example of Bicycle LOS	60
Figure 3-24: Bicycle LOS	61
Figure 3-25: Existing Pedestrian Network.....	64
Figure 3-26: Informal Pathway between Windflower Gate and Weston Road.....	65
Figure 3-27: Signalized Crossing Highway 7 on the West Side of Weston Road.....	66
Figure 3-28: Large Turning Radii at the Northeast Corner of Whitmore Road and Wings Road	67

Figure 3-29: Channelized Right-turn, Southbound on-ramp to Highway 400 from Highway 7	67
Figure 3-30: Private Driveways Example on Whitmore Road	68
Figure 3-31: Inputs for Pedestrian LOS	69
Figure 3-32: Examples of Pedestrian Level of Service	70
Figure 3-33: PLOS Results	71
Figure 3-34: Walkshed Analysis from the vivaNext BRT Stops	74
Figure 3-35: Intersection LOS, Weekday PM Peak	82
Figure 3-36: Intersection LOS, Weekend PM Peak	83
Figure 4-1: Preliminary Street Network from the Stakeholder Workshop	86
Figure 4-2: EcoMobility Hub Concept	88

Appendices

- Appendix A: Multimodal Level of Service (MMLoS) Methodology
- Appendix B: Multimodal Level of Service (MMLoS) Results
- Appendix C: Existing Traffic Conditions



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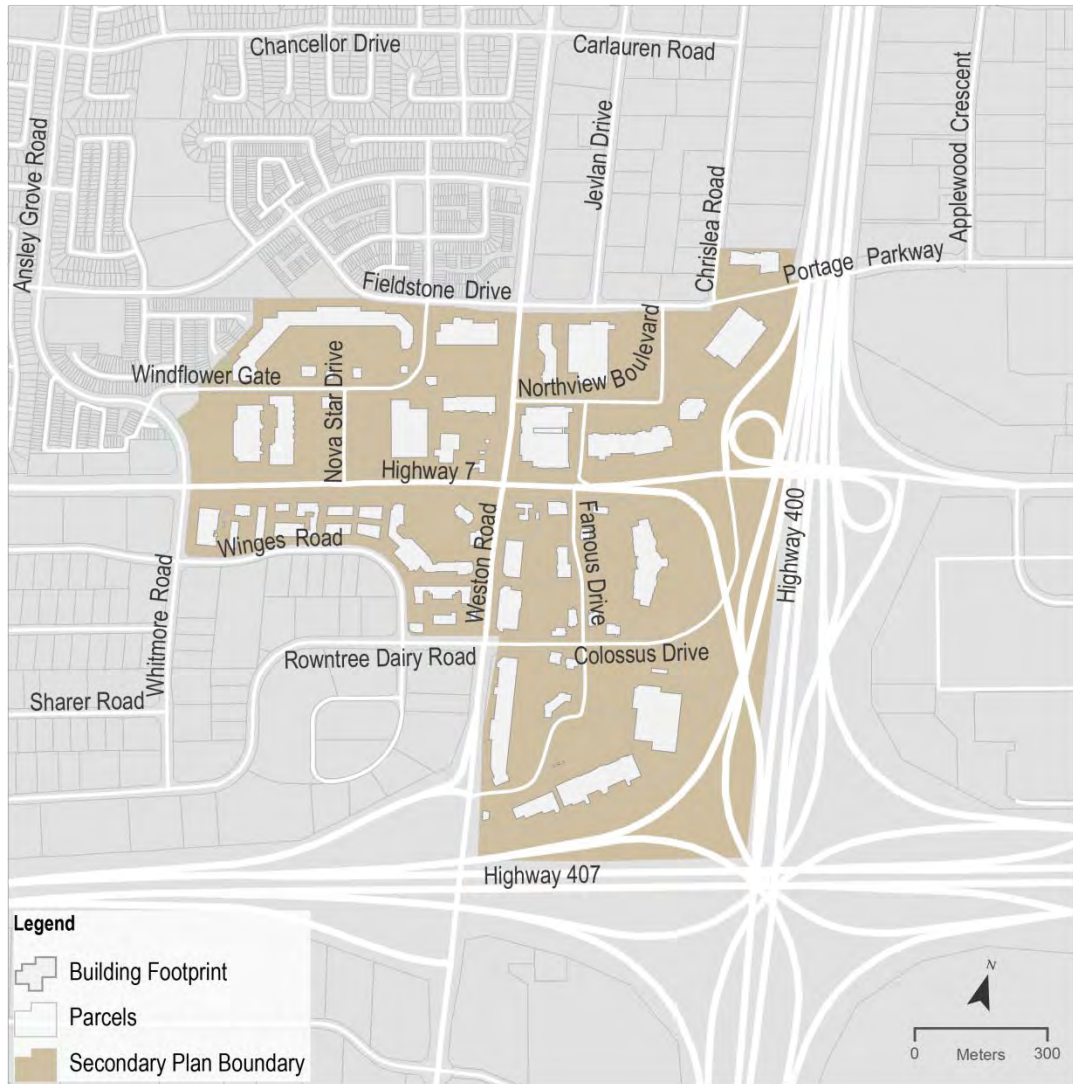
1 Introduction

The City of Vaughan has initiated the Weston and Highway 7 Secondary Plan Phase 1 study. The study builds on a variety of provincial, regional and City plans and policies, including the York Region Transportation Master Plan, York Region Official Plan, Vaughan Official Plan, the Growth Plan for the Greater Golden Horseshoe (GGH), and Metrolinx Draft 2041 Regional Transportation Plan (RTP) (2017). The purpose of the transportation needs assessment work is to:

- Provide a comprehensive understanding of the existing transportation network, land use and travel patterns to, from and within the study area for all modes of transportation;
- Conduct a multi-modal transportation evaluation for the existing conditions to assess the safety and convenience of travel for all modes;
- Document the planned transportation improvements in the vicinity of the study area; and
- Identify potential opportunities for first and last mile connections to major transit stations, including active transportation connections, a finer-grid road network, and innovative mobility solutions.

Figure 1-1 illustrates the Secondary Plan study area.

Figure 1-1: Study Area



2 Planning Context

The Weston 7 Secondary Plan Phase 1 study will be developed within the context of provincial, regional, and municipal planning policies and initiatives. This section highlights the key planning documents influencing the study.

2.1 Provincial Planning Context

Several provincial plans and policies provide the basis and guidance for the transportation vision for the City of Vaughan. Further, updates to provincial plans may directly influence both York Region and City of Vaughan infrastructure needs, thus requiring periodical updates to the City’s plans including the Weston 7 Secondary Plan. Provincial plans and policies are identified and summarized in **Table 2-1**. The Study will consider these plans and policies.

Table 2-1. Relevant Provincial Policy and Planning Directions

Provincial Planning Document	Directions
Provincial Policy Statement, Ontario, 2014	<p><u>Description:</u> Provides direction on land use planning and development, and the transportation system.</p> <p><u>Directions:</u> The most relevant land use and transportation policies include:</p> <ul style="list-style-type: none"> • 1.6.7.1 Safe, energy efficient transportation systems that move people and goods and address projected needs; • 1.6.7.2 Use of Travel Demand Management (TDM) strategies to maximize efficiency; • 1.6.7.3 A multimodal transportation system that provides connections within and among transportation systems and modes including across jurisdictional boundaries; • 1.6.7.4 Land use patterns that minimize length and number of vehicle trips to support transit and active transportation; • 1.6.7.5 Integration of transportation and land use considerations at all stages of planning; • 1.6.8.2 Protect for major goods movement facilities and corridors; and • 1.6.8.3 New development should be compatible with the long-term purposes of the corridor.

Table 2-1. Relevant Provincial Policy and Planning Directions

Provincial Planning Document	Directions
<p>Growth Plan for the Greater Golden Horseshoe (GGH), Ministry of Municipal Affairs, 2017</p>	<p><u>Description:</u> The Growth Plan for the GGH came into effect on July 1, 2017, replacing the previous (2006) growth plan. The Growth Plan, building on the Provincial Policy Statement, provides a strategic framework for managing growth in the Region, including specific land use planning policies, goals, and measurable targets. The Growth Plan defines specific policies for where and how to grow. Integrating transportation and land use planning, the plan prioritizes intensification, setting population and employment growth targets for all Upper- and Single-Tier Municipalities in the GGH. The Growth Plan’s horizon by which the goals and policies of the plan should be achieved is 2041.</p> <p><u>Directions:</u> The new Growth Plan:</p> <ul style="list-style-type: none"> • Identifies Major Transit Station Areas (MTSAs) as strategic growth areas towards which intensification is to be directed. With two vivaNext stations within its boundaries, the Weston 7 Secondary Plan Area [is] considered to be a Major Transit Station Area under the Growth Plan; • States that all MTSAs are to be planned and designed to achieve multimodal access to stations and connections to nearby major trip generators; • Sets minimum density targets of 160 residents and jobs per hectare for Major Transit Station Areas (MTSAs) on Priority Transit Corridors served by bus rapid transit; and • States that the Region’s transportation system will be planned and managed to offer multimodal access to opportunities; offer a balance of transportation choices that promotes transit and active transportation; integrates a “Complete Streets” approach to the design, refurbishment, or reconstruction of the street network; facilitates improved linkages to urban growth centres; and ensures that active transportation networks are comprehensive and integrated.
<p>2041 Regional Transportation Plan (2018)</p>	<p><u>Description:</u> The 2041 Regional Transportation Plan sets the Greater Toronto and Hamilton Area’s (GTHA’s) multi-modal long-range regional transportation vision, goals, objectives, and priorities. The RTP supports and is aligned with the PPS and Growth Plan. Building on the previous RTP, the Big Move (2008), this plan provides strategic direction for planning, designing and building a regional transportation network that enhances quality of life, the environment, and prosperity. A significant transit project that will serve the Study Area is the Highway 7 West BRT, from Yonge Street in Richmond Hill to Helen Avenue in Vaughan, opening in 2019. A further extension west to the Brampton border in delivery</p> <p><u>Directions:</u> A number of actions outlined in the 2041 RTP are relevant to the Study, including:</p> <ul style="list-style-type: none"> • Expand first- and last-mile choices at all transit stations; • Place universal access at the centre of all transportation planning and designing activities; • Eliminate transportation fatalities and serious injuries as part of a regional Vision Zero program; • Make TDM a priority; • Plan and design communities... to support and promote the greatest possible shift in travel behavior, consistent with Ontario’s passenger transportation hierarchy; and • Rethink the future of parking.

Table 2-1. Relevant Provincial Policy and Planning Directions

Provincial Planning Document	Directions
<p>Transit-Supportive Guidelines, Ministry of Transportation, 2012</p>	<p><u>Description:</u> Identifies best practices for transit-friendly land-use planning, urban design, and operations.</p> <p><u>Directions:</u> The Guidelines outline many strategies for creating transit supportive environments that are relevant to this study. A few highlighted strategies include:</p> <ul style="list-style-type: none"> • Create fine-grained and interconnected networks, to provide efficient transit services and connections to transit stops; • Eliminate unnecessary jogs or breaks in the network; • Spacing of arterial and collector roads should support a maximum 400m walk from the interior of a block to a transit stop, and facilitate higher levels of walking and cycling; • Access routes to transit stops, such as pedestrian pathways or local roads, should be spaced no greater than 200m apart; • Improve pedestrian and cycling infrastructure to increase convenient and comfortable access to transit; • Create additional street connections where possible that can help to minimize travel distances to transit; • Minimize block lengths to promote greater connectivity and enhance the walkability of neighbourhoods; • Extend existing park and open space networks, where possible, to link with transit stops and station areas; and • Design complete streets to reflect both the existing and planned land use, urban form and transportation contexts.
<p>#CycleON: Ontario’s Cycling Strategy, Ministry of Transportation, 2013</p>	<p><u>Description:</u> Identifies a vision for cycling in the province over the next 20 years where cycling is valued as a core mode of transportation. The document is primarily meant to guide the Province’s role in improving cycling across the province, however the Weston 7 Secondary Plan Study aligns with several of Cycle ON’s Strategic Directions, including:</p> <ul style="list-style-type: none"> • Design healthy, active, and prosperous communities; • Improve cycling infrastructure; and • Make highways and streets safer.

2.1.1 407 Transitway

The Provincial Ministry of Transportation (MTO) is currently conducting the Planning, Preliminary Design, and EA for the 407 Transitway from Highway 400 to Kennedy Road in Markham, and the EA for the 407 Transitway from Hurontario Street to Highway 400 was recently filed. The 407 Transitway will be a fully grade separated transit facility on an exclusive right-of-way, running along the Highway 407 Corridor. This portion of the facility will consist of approximately 46 km of runningway and several stations that will include parking facilities, transit integration and other amenities. It forms part of the 150 km long high-speed interregional facility planned to be ultimately constructed on a separate right-of-way that parallels Highway 407 from Burlington to Highway 35/115.

Subject to the outcome of the study, the 407 Transitway will be implemented initially as Bus Rapid Transit (BRT) with the opportunity to convert to Light Rail Transit (LRT) in the future. In the meantime it will be used by GO Transit routes and “Spine” services - services that operate exclusively on the transit way.

407 Transitway Stations are proposed at Pine Valley Drive and at Jane Street. The latter will connect with the Highway 407 Toronto Transit Commission Subway Station.

Although these stations are outside of the Weston 7 Secondary Plan study area, facilitating access to them will be considered.

2.2 Regional Planning Context

York Region planning documents which will influence and provide policy direction on the Weston 7 Secondary Plan Phase 1 study are summarized below.

2.2.1 York Region Transportation Master Plan (TMP) 2016

York Region's Transportation Master Plan (TMP) addresses the Region's mobility needs to 2041 and beyond. It provides a 25 year outlook to:

Create an advanced interconnected system of mobility in the GTHA in order to give York Region residents and businesses a competitive advantage, making York Region the best place to live, work and play in the GTHA.

The York Region TMP has five objectives:

1. Create a world class transit system;
2. Develop a road network fit for the future;
3. Integrate active transportation in Urban Areas;
4. Maximize the potential of employment areas; and
5. Make the last mile work.

There are five main policy areas developed as part of the TMP:

- **Finer grid network:** working with the Province and local municipalities to plan for and protect a series of mid-block highway crossings and continuous collector roads to provide alternate routes for vehicles, cyclists, and pedestrians;
- **Corridor evolution:** design streets to accommodate a variety of travel modes, including transit vehicles, passenger cars, cyclists, pedestrians, and trucks; ensure the most effective use of the road space and financial resources to design and operate streets to maximize capacity to move people;
- **Commuter parking management:** provide opportunities for residents to park their vehicles on fringes of urban areas and access different modes of travel for part of their trips, such as transit or car sharing;
- **Goods movement network:** as the Region becomes more urban, with a combination of industrial, commercial, and residential land uses, there will be more conflicts between road users. Developing a Goods Movement Strategy will enable the Region to work in partnership with other agencies and the trucking industry and to continue to attract investment, create jobs, and foster economic growth; and
- **Boulevard jurisdiction:** under the Municipal Act, 2001, local municipalities are currently responsible for construction and maintenance of major boulevard elements on Regional roads, such as sidewalks, street lights, and multi-use paths. This creates public confusion and issues with consistency around construction and maintenance of sidewalk and streetscape elements, and York Region is working with local municipalities to transfer responsibility to the Region to solve these issues.

The TMP provides goals and policy directions for the Weston 7 Secondary Plan study, such as building active transportation network and finer grid network and supporting regional transit service.

2.2.2 York Region Official Plan

The York Region Official Plan (YR-OP) 2016 describes how York Region plans to accommodate future growth and development while meeting the needs of existing residents and businesses.

The document provides direction to guide economic, environmental, and community-building decisions to manage growth. The YR-OP recommends policies that emphasize a reduction in automobile reliance and an increase in active transportation facilities, not only meet sustainability goals, but to also tackle public health concerns. The acknowledgement that the design of communities is directly related to human health plays an important role in the Official Plan update.

Recommendations and directions that may be valuable to the development of the Weston Highway 7 Secondary Plan have been summarized in **Table 2-2**.

Table 2-2: Official Plan Objectives and Policies

Objective	Policy / Direction
A Sustainable Natural Environment	Stormwater Management To require the preparation of comprehensive master environmental servicing plans, or appropriate technical studies, as a component of secondary plans.
Healthy Communities	<p>Transportation: To reduce vehicle emissions by ensuring that communities are designed to prioritize pedestrians and cyclists, reduce single occupancy automobile use, and support public transit and Transportation Demand Management initiatives.</p> <p>Accessibility: To require high-quality urban design and pedestrian-friendly communities that provide safety, comfort and mobility so that residents can walk to meet their daily needs. To ensure that public buildings and facilities are designed to be accessible, and are located in proximity to pedestrian, cycling and transit systems.</p> <p>Health: That public health and other human services be incorporated into the design and evaluation of new community areas and Regional Centres and Corridors That sensitive uses such as schools, daycares and seniors’ facilities not be located near significant known air emissions sources such as controlled access provincial 400-series highways.</p> <p>Housing: To require that all new secondary plans include a strategy to implement the affordable housing policies in the Official Plan. That affordable housing initiatives be given priority on publicly owned lands with a focus on locations on or near transit corridors.</p>

Objective	Policy / Direction
Economic Vitality	<p>Employment: To create high-quality employment opportunities for residents with the goal of 1 job for every 2 residents. To create a business friendly environment that includes a diverse range, size and mix of available employment lands, state-of-the-art communications facilities and networks</p> <p>City Building: To recognize Regional Centres and Corridors as hubs of commerce, business and entertainment. To ensure the efficient movement of goods and services in Regional Centres and Corridors through effective planning, urban design and infrastructure planning.</p>
An Urbanizing Region	<p>Forecasting Growth: To require local municipalities to develop a phasing plan for new community areas that is coordinated with the York Region Official Plan, the 10-year Capital Plan, the Water and Wastewater Master Plan and the Transportation Master Plan.</p> <p>Balancing Uses: That a balance of residential and employment uses shall be provided throughout the Region to improve the possibilities for working and living in close proximity</p> <p>Parking: That secondary plans and zoning by-laws shall, in consultation with the Region and related agencies, incorporate parking management policies and standards that include reduced minimum and maximum parking requirements, on-street parking and preferential locations for carpooling, car-sharing spaces and bike storage requirements.</p>

The YR-OP transportation road network (Map 12 Street Network) designates a right-of-way (ROW) width of up to 45.0 m along Highway 7 and up to 43.0 m along Weston Road within the study area.

The YR-OP also identifies transit modal split targets which provides policy direction to encourage transit use in the study area as much as possible. The YR-OP transit modal split targets by 2031 are as follows:

- 30% during peak periods in the Urban Area; and
- 50% in the Regional Centres and Corridors by 2031, where Highway 7 is designated as a Regional Corridor.

2.2.3 York Region vivaNext Plan (2017)

The vivaNext bus rapid transit (BRT) project will provide improved transit service in York Region and other urban design elements such as pedestrian friendly boulevards, separated bike lanes, trees and other greenery. A map of the project is shown in **Figure 2-1**.

The Highway 7 West Woodbridge plan connects Vaughan Metropolitan Centre (VMC) subway station and Highway 7 and Wigwoss Drive / Helen Street with 4.5 km full dedicated transit rapidway. Separated bike lanes will be built as part of the construction,

Figure 2-2: vivaNext Highway 7 West Woodbridge Plan

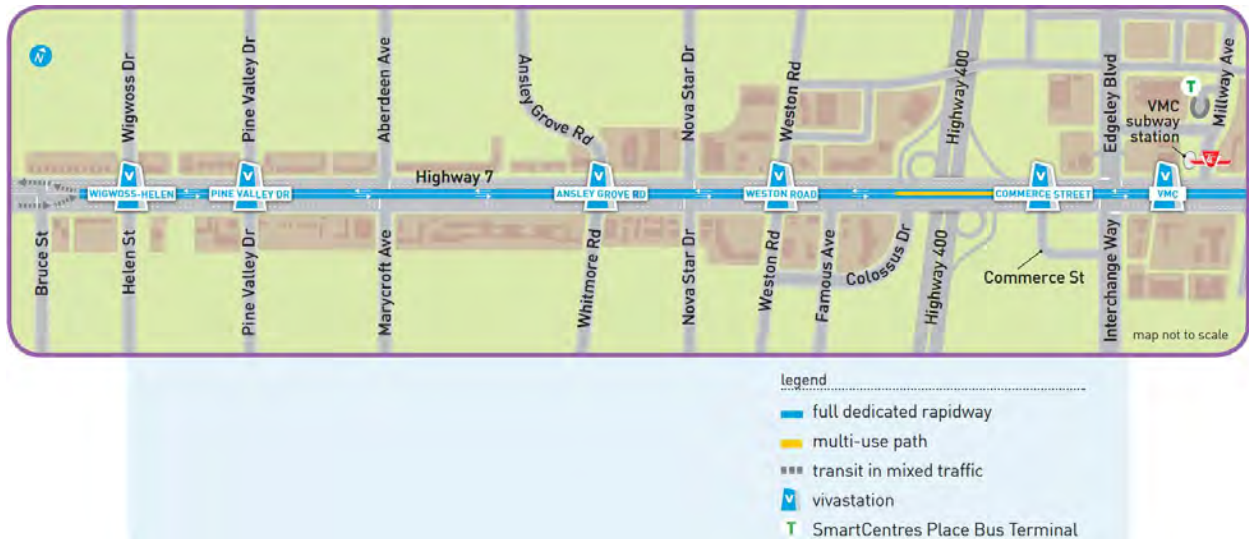
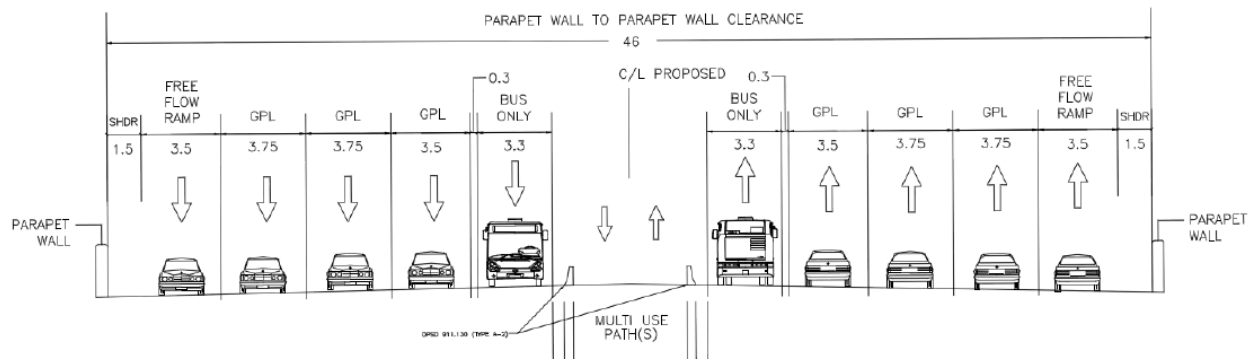


Figure 2-3: Highway 7 Bridge over Highway 400



The design for Highway 7 West of Highway and across the Highway 400 interchange is shown in **Figure 2-4** and **Figure 2-5**. A 4.3m multi-use path (MUP) is planned for pedestrians and cyclists, in the median on the Highway 7 bridge over Highway 400. The MUP continues east of Highway 400 to Weston Road. Cyclists travelling eastbound will need to use a combined crossride (shown in **Figure 2-6**) at Colossus Drive to access the eastbound bike lane, on the north side of Highway 7 (shown in **Figure 2-4**). Westbound cyclists on the bike lane on the south side of Highway 7 need to access the median MUP at Weston Road (shown in **Figure 2-5**).



Figure 2-4: Highway 7 West of Highway 400, between Weston Road and Colossus Drive

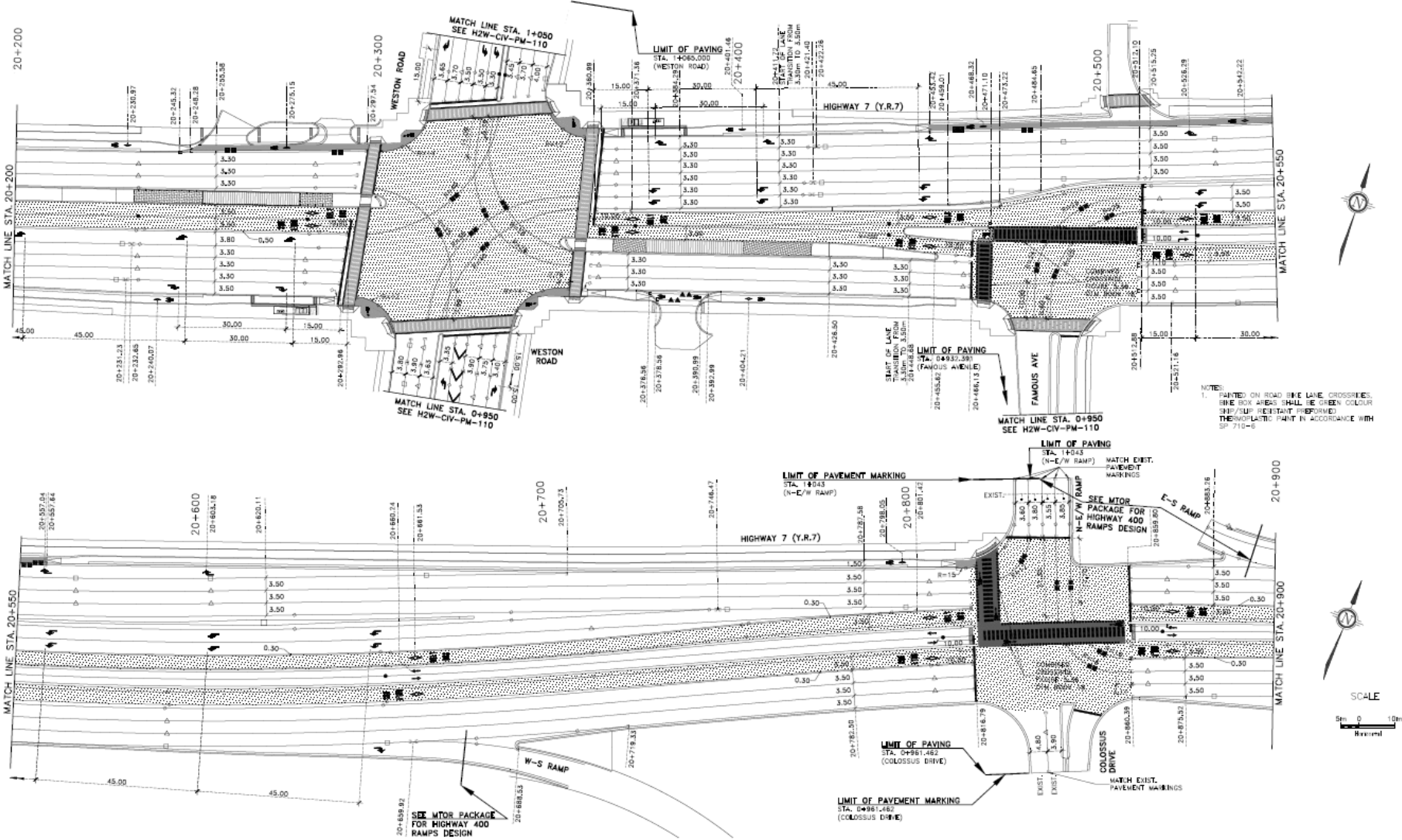


Figure 2-5: Highway 7 across Highway 410 Interchange

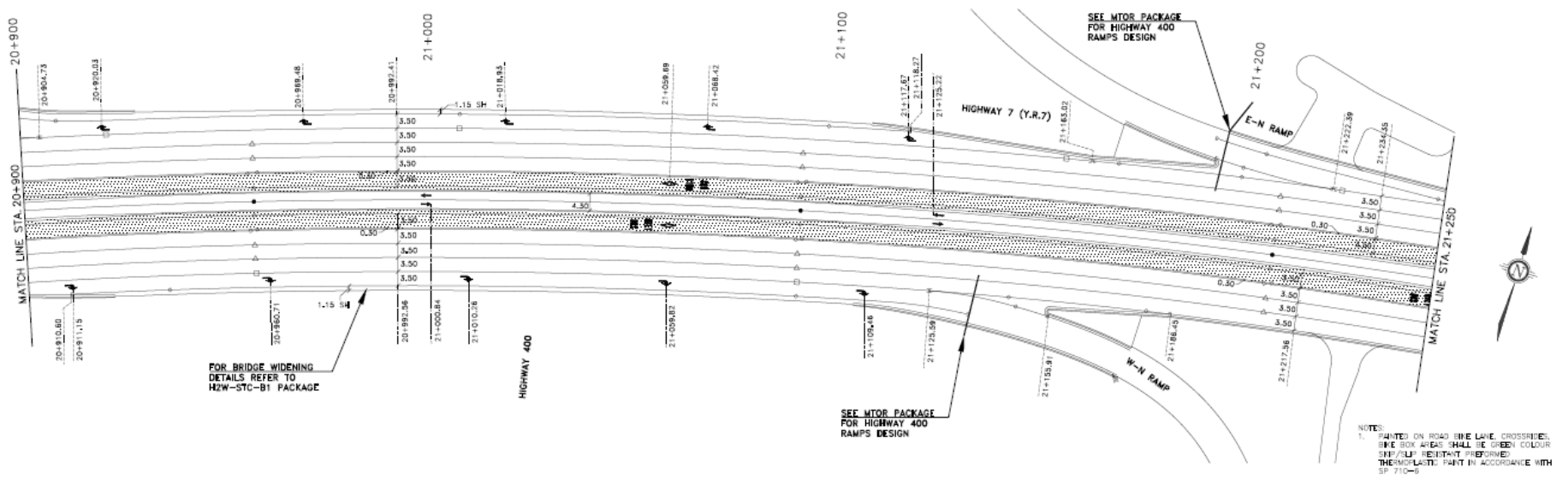
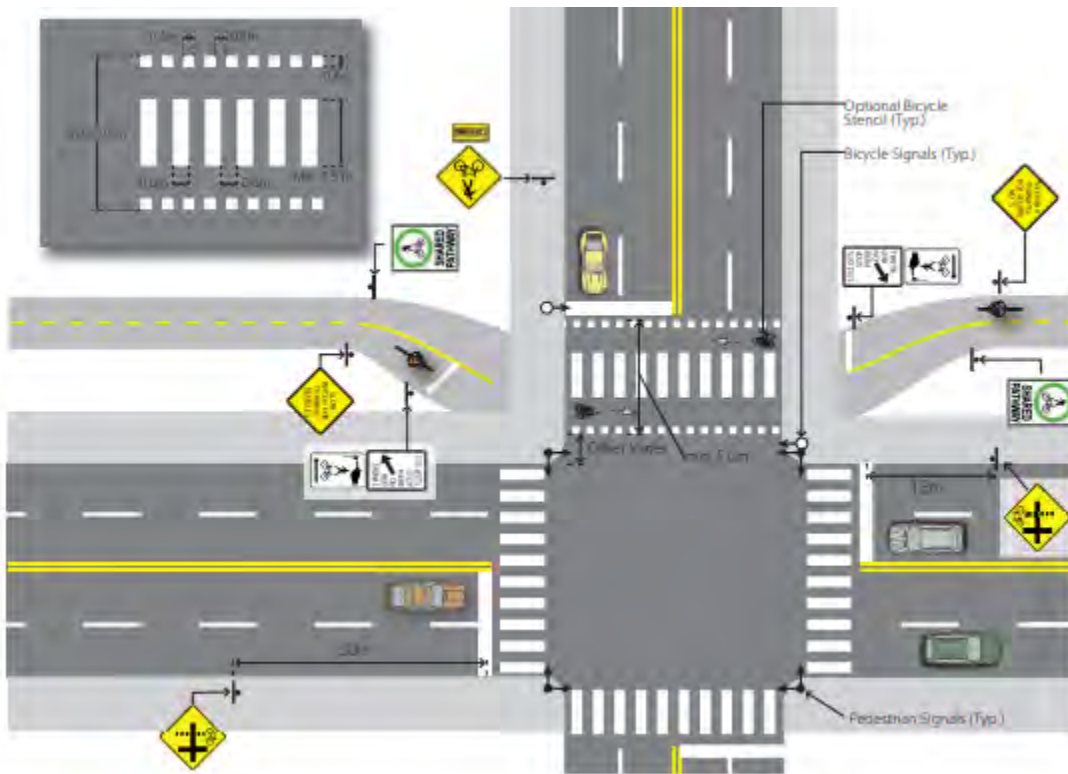


Figure 2-6: Combined Pedestrian and Cyclist Crossroad (Signalized Example)



Source: Ontario Traffic Manual (OTM) Book 18 Cycling Facilities, 2013

2.2.4 York Region Transportation Mobility Plan Guidelines for Development Applications (2016)

The Transportation Mobility Plan provides the tools necessary to implement and connect the policies and requirements of York Region's Official Plan and Transportation Master Plan. As an update to the Transportation Impact Study Guidelines (2007), the Plan is focused on transit, active transportation and strategic measures that will reduce the travel demand and minimize single-occupant vehicle trips to and from the proposed developments. The Plan aims to expedite the development review process and is a combination of multimodal plans along with traditional traffic impact analyses.

A Transportation Mobility Plan is required when the proposed development generates 100 or more person trips. This plan is prepared in support of the Official Plan Amendment, Secondary Plan, Block Plan, Zoning Bylaw Amendment, draft plan of subdivision and site plan applications.

The main objectives and requirements of a Transportation Mobility Plan to support a Secondary Plan application are:

1. To describe in detail the **impact of the proposed land use or policy changes** on the existing transportation system for all modes of transportation.
2. To identify a more defined **external and internal transportation network** to accommodate all modes of transportation. This includes finer grid road network, active transportation network and detailed transit network.

3. To identify **other transportation infrastructure improvements and missing links for all modes of transportation** required above and beyond those identified in the Regional and local Municipal Transportation Master Plans or the Region’s 10-Year Roads and Transit Capital Construction Programs.
 - o Particularly for secondary plans, the travel demands between intersections and mid-block capacities should be reviewed and assessed to determine if transportation infrastructure or additional capacities are required. Assessments could include screenline analysis by identifying traffic volumes, person trips and/or transit ridership.
4. To identify **development phasing plans** based on the planned and scheduled proposed transportation infrastructure improvements.
5. To identify high level **Transportation Demand Management plans**, measures and initiatives to achieve the non-auto modal split and to reduce single-occupant-vehicles. These are described in additional detail in **Section 2.4**.
6. To identify a detailed **implementation plan** in order to achieve complete community building objectives. These requirements will be reflected in the Transportation Mobility Plan report, Secondary Plan report and schedules to guide the draft plans of subdivision and site plans.

The Mobility Plan emphasizes the importance of reviewing and assessing existing and future conditions for all modes of transportation. To that end, York Region has developed its preferred multimodal level of service (LOS) evaluation approach to address the performance requirements for driving, walking, cycling and transit. These multimodal LOS evaluation, in combination with the other best practice evaluation framework, will be used to examine the existing conditions for all modes of transportation in this study. A high-level summary of the framework and the LOS targets are summarized in the following sections.

Automobile Level of Service

There are two criteria required for the automobile mode level of service performance: vehicle delay and volume-to capacity ratio. Both of these criteria are to be completed and included in the Transportation Mobility Plan Study.

Automobile LOS and V/C Target: D (0.85) or better for urban area and LOS C (0.70) or better for rural area

Transit Level of Service

There are three required criteria for the transit mode level of service performance:

1. Access to the transit stops, measured through a development’s potential transit riders’ straight line walking distance to transit stops;
2. Transit headways, measured through the time interval between transit vehicles for a transit corridor and;
3. Transit vehicle performance at the intersection approach, measured by examining the delay and volume-to-capacity ratio for curb lanes.

Transit LOS Target: C or better for Access to Transit Stops and Transit Headways (<15 minutes) and LOS D or better (<0.9) for Intersection Approach.

Pedestrian Level of Service

The pedestrian level of service is measured at the segment level (between two or more intersections) and at the intersection level. Criteria used to assess Segment LOS for pedestrians are:

- The sidewalk / multi-use path width; and
- The buffer width or separation distance between the sidewalk and the street curb.

In addition to the above, the assessment of pedestrian LOS at signalized or unsignalized intersections incorporates the following supplementary considerations:

- Cross-walk treatment (marked, unmarked, high-visibility zebra markings); and
- Pedestrian clearance time.

Segment LOS Target: a score of C or better (≥ 1.5 m curb-faced sidewalk, buffer > 0m)

Intersection LOS Target: a score of C or better (≥ 1.5 m curb-faced sidewalk, buffer > 0m, pedestrian signal head with sufficient pedestrian clearance time, clearly delineated cross-walk)

Bicycle Level of Service

Similarly to pedestrian level of service, the bicycle LOS is measured at the segment level (between two or more intersections) and at the intersection level. Criteria used to assess Segment LOS for cyclists are:

- The type of cycling facility (dedicated, separated, shared);
- The width of the cycling facility; and
- The buffer width or separation distance between the facility and the street curb.

In addition to the above, the assessment of cyclist LOS at signalized or unsignalized intersections incorporates the following supplementary consideration into the assessment:

- Presence of bicycle box, clearly delineated bicycle treatment or bicycle signal head.

Segment LOS Target: a score of C or better (> 1.5 m dedicated cycling facilities, buffer ≥ 0 m)

Intersection LOS Target: a score of C or better (> 1.5 m dedicated cycling facilities, buffer ≥ 0 m, bicycle box or clearly delineated bicycle treatment or bicycle signal head)

2.3 City of Vaughan Planning Context

2.3.1 Vaughan 2013 Transportation Master Plan

The City of Vaughan's 2013 **Transportation Master Plan** (TMP) evaluates the transportation needs of the City and identifies policies, infrastructure and services needed to efficiently accommodate population and employment growth to 2031, guided by the vision of:

Reducing automobile dependence and moving the City closer to achieving the goal of a more livable, sustainable community.

The principles and goals of the Vaughan TMP promote a balanced approach to transportation that:

- Offers safe, accessible, affordable, reliable, and efficient transportation for everyone;
- Minimizes environmental impact;
- Integrates land use and transportation planning;
- Promotes economic vitality;
- Avoids unnecessary capacity improvements;
- Supports active transportation and reduces single-occupant vehicle travel; and
- Reduces the need to travel.

As such, the Vaughan TMP adopts a “Transit First” focus and recommends that road network improvements be largely limited to strategic initiatives that support transit and goods movement, improve network connectivity, or support intensification in designated areas. Road improvements that could compete with transit are recommended to be deferred until enhanced transit services are operating and have an established ridership base. Road improvements to address future capacity deficiencies that cannot be addressed by TDM (including HOV) initiatives and enhanced transit should be identified when a corridor is forecast to exceed its practical capacity (i.e. Level of Service “E”).

Based upon the objectives and policies described previously, the Vaughan TMP recommends an ultimate 2031 transportation network along with short (2011-2016), medium (2016-2021) and long (2021-2031) term action plans for active transportation, transit support initiatives, travel demand management, parking, strategic road initiatives, and monitoring. It is noted that the Colossus Drive overpass was recommended for the 2031 horizon. This study will recognize the recommendations in the TMP.

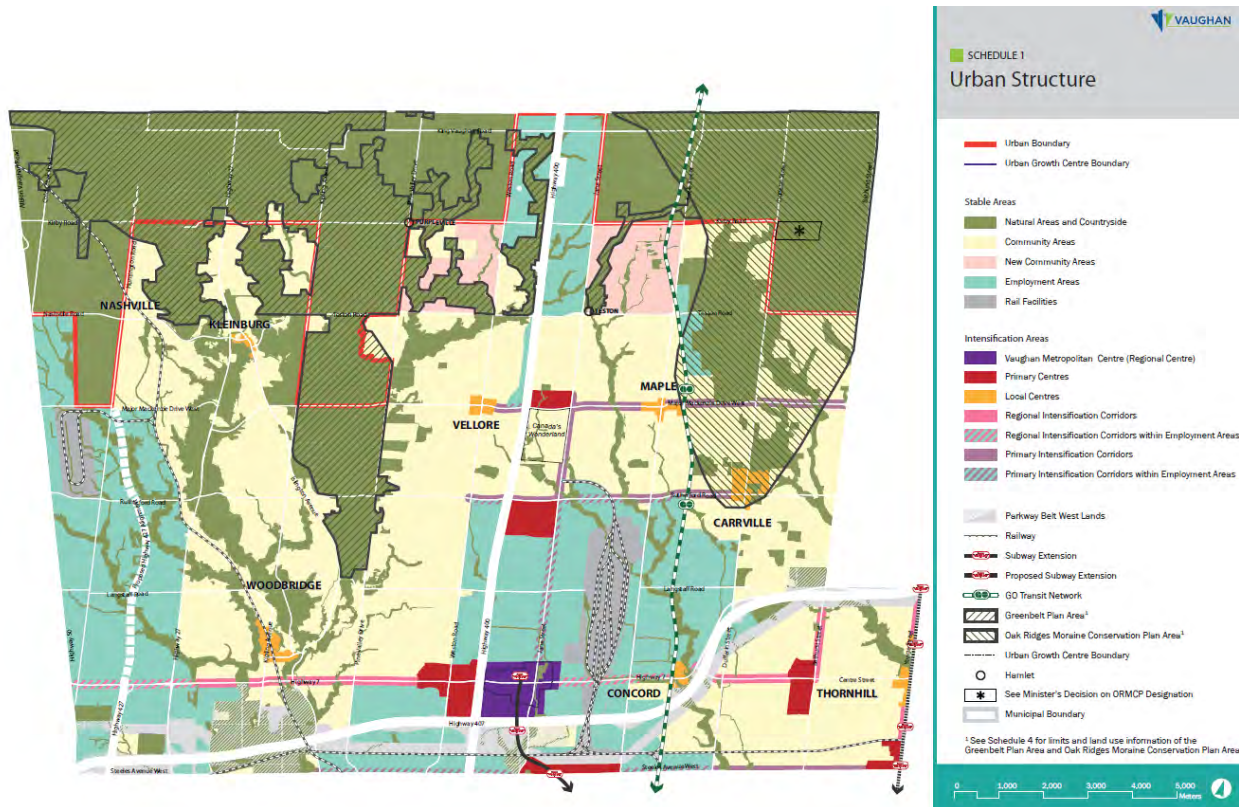
2.3.2 City of Vaughan Official Plan

The **City of Vaughan 2010 Official Plan** (VOP) was approved by Council on September 7, 2010. The Plan was endorsed by Regional Council on June 28, 2012. The Official Plan is part of a Growth Management Strategy “that will shape the future of the City and guide its continued transformation into a vibrant, beautiful and sustainable City”.

The DC Update will ensure that investments are undertaken in a way consistent with the vision and policies established in the VOP, in particular those highlighted below.

Policies contained in Chapter 2-Managing Growth of the VOP are of relevance to the Weston 7 study area. These policies plan for the accommodation of a population of 416,600 people and 266,100 jobs by 2031, according to Schedule 1, Urban Structure, shown in **Figure 2-7**, which also designates the Weston 7 study area as a “primary centre”.

Figure 2-7: City of Vaughan Official Plan, Schedule 1, Urban Structure



Source: City of Vaughan Official Plan – Volume 1 - 2017 Office Consolidation, Schedules, 2017

Several policies in Chapter 4-Transportation are also of particular relevance to the Weston 7 study, including:

- To establish a comprehensive transportation network that allows a full range of mobility options, including walking, cycling and transit (4.1.1.1);
- That the street network will be the basis for enhanced transportation opportunities, including transit, walking, cycling, and place making initiatives. Existing rights-of way should be designed to optimize the efficient movement for a variety of modes, potentially resulting in reduced capacity for cars where overall capacity increases can be achieved (4.1.1.5);
- To support the development of a comprehensive network of on-street and off-street pedestrian and bicycle routes, through the implementation of the City’s Pedestrian and Cycling Master Plan and York Region’s Pedestrian and Cycling Master Plan, to

facilitate walking and cycling and to promote convenience and connectivity (4.1.1.6);
 and

- To plan for a street network that prioritizes safe and efficient pedestrian travel while effectively accommodating cyclists, transit and other vehicles, and to create more pedestrian and transit-friendly street cross-sections (4.2.1.2).

Schedule 9 (**Figure 2-8**) and Schedule 10 (**Figure 2-9**) in the City of Vaughan’s Official Plan identify the City’s Future Transportation Network and Major Transportation Network, respectively. It is noted that these schedules were developed prior to the completion of the 2016 York Region TMP, and as such incorporate Regional plans based upon the previous version of the York Region TMP.

Consistent with the York Region OP, the City of Vaughan OP sets specific transit mode share targets (shown in **Table 2-3**). Highway 7 is designated as a Regional Intensification Corridor, which has a 50% transit mode share target in the peak periods by 2031. The Weston 7 Secondary Plan area is an Intensification Area, which has a 40% transit mode share target. Achieving these targets is dependent upon the implementation of various measures, included rapid transit service, programs supporting active transportation, and TDM.

While no specific targets for active transportation mode share has been set, the City is to implement a suite of new policies, programs, and infrastructure improvements, in order to support and encourage active transportation usage.

Table 2-3: 2031 Transit Mode Share Targets (Peak Periods)

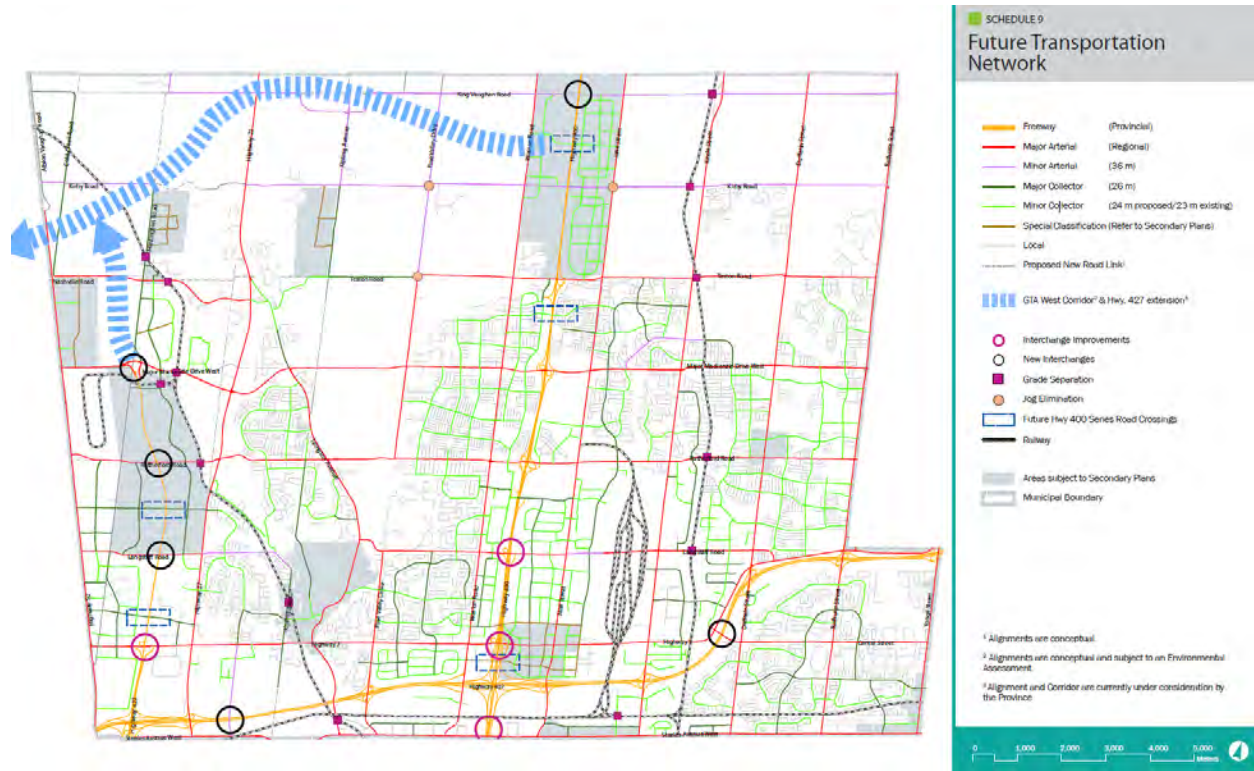
Areas	2031 Transit Mode Share Targets during Peak Periods
Vaughan Metropolitan Centre	50%
Regional Intensification Corridors *	50%
Other Intensification Areas **	40%
City of Vaughan Overall	30%

Source: City of Vaughan Official Plan 2010 – Volume 1- 2017 Office Consolidation, policies, 2017

* Highway 7 is a Regional Intensification Corridor

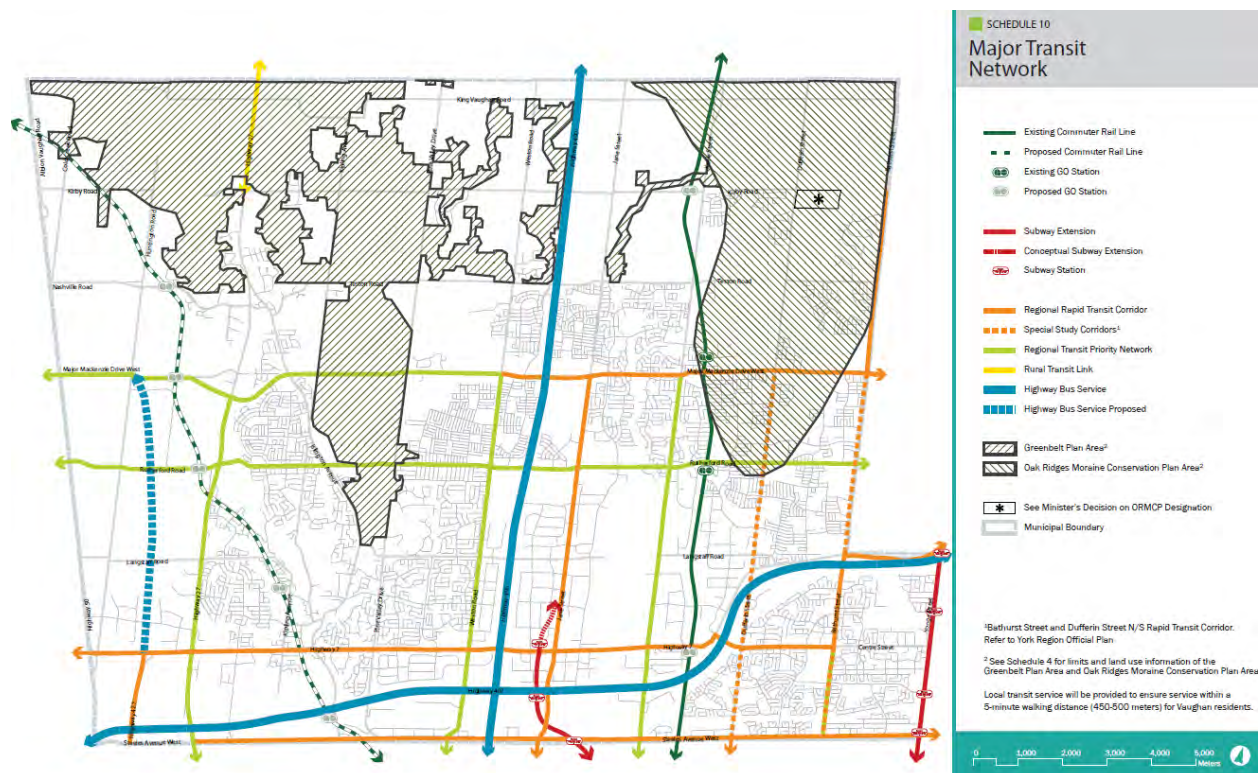
** Weston 7 Secondary Plan area is an Intensification Area

Figure 2-8: City of Vaughan Official Plan, Schedule 9, Future Transportation Network



Source: City of Vaughan Official Plan 2010 – Volume 1- 2017 Office Consolidation, Schedules, 2017

Figure 2-9. City of Vaughan Official Plan, Schedule 10, Vaughan Major Transit Network



Source: City of Vaughan Official Plan – Volume 1- 2017 Office Consolidation, Schedules, 2017

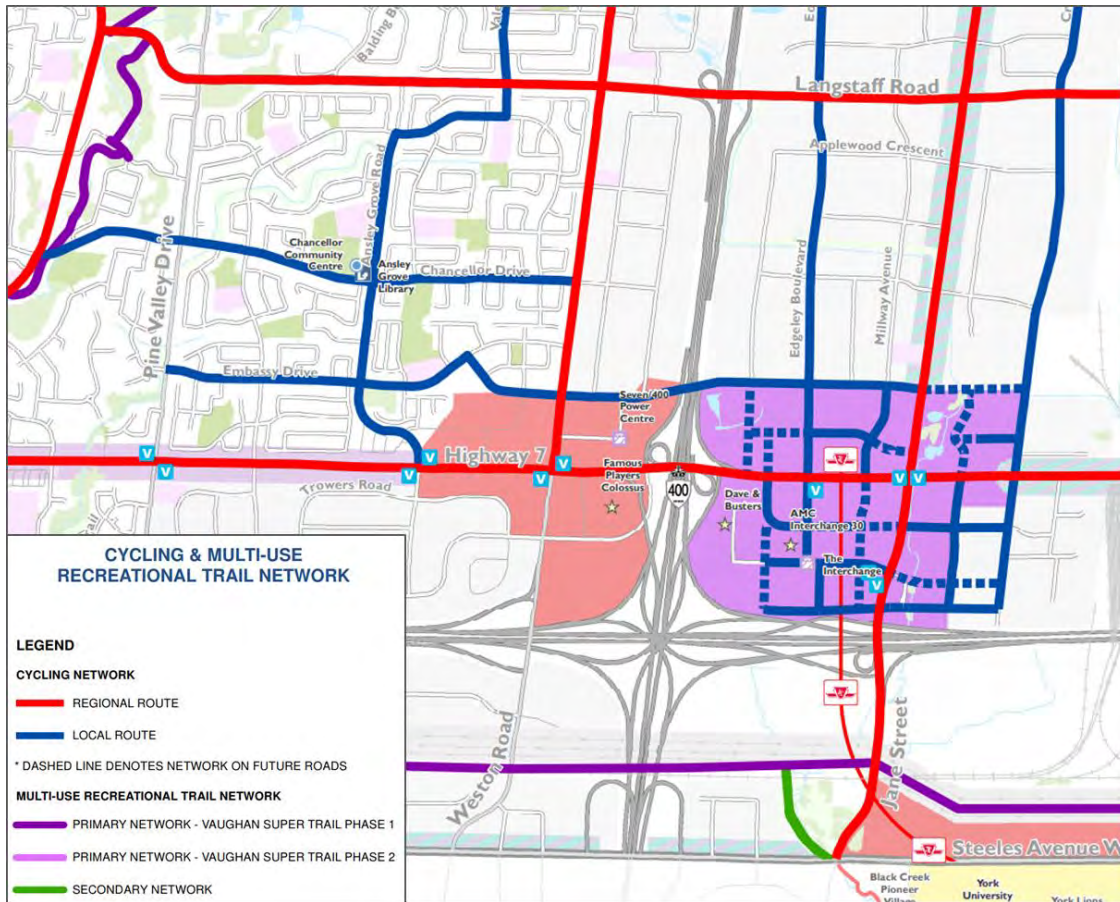
2.3.3 City of Vaughan Pedestrian and Bicycle Master Plan (2007 and 2018)

The City of Vaughan adopted the Pedestrian and Cycling Master Plan in January of 2007. The Plan has a 20 year horizon. The central intent is to guide improvements to existing and proposed pedestrian and cycling infrastructure in order to create a friendlier environment for residents. The two central goals of the plan are:

- To create new environments and enhance existing ones for both pedestrians and cyclists in the City of Vaughan. These environments should be supported by developing a visible and connected pedestrian and cycling network in Vaughan that integrates, enhances and expands the existing on and off-road pedestrian and cycling facilities; and
- To facilitate an increase in walking and cycling for leisure and utilitarian purposes.

The City of Vaughan is currently carrying out a study to develop a new city-wide Pedestrian and Bicycle Master Plan, building on the 2007 Plan and the 2012 Transportation Master Plan Pedestrian and Bicycle Network Plan. The Draft Preferred Cycling and Multi-use Recreational Trail Network is illustrated in **Figure 2-10**, surrounding the Weston 7 study area. The Weston 7 Secondary Plan should build on this network by providing connections to the regional routes on Highway 7 and Weston and the local City routes on Ansley Grove Road and Fieldstone Dr / Chrislea Rd / Portage Parkway.

Figure 2-10: Pedestrian and Bicycle Master Plan Preferred Cycling Network (DRAFT)



The Weston 7 study team will coordinate with the Pedestrian and Bicycle Master Plan team to ensure any updates to the Draft Trail network are incorporated.

2.3.4 Vaughan Metropolitan Centre Secondary Plan

The Vaughan Metropolitan Centre Secondary Plan (VMC SP) was partially approved by the OMB in January 2017 and applies to the area bounded by Highway 400 to the west, Creditstone Road to the east, Highway 407 to the south and Portage Parkway to the north.

Its purpose is to establish the context, planning framework and policies that will guide development of the VMC over the next 20-25 years. The VMC is envisioned as Vaughan’s burgeoning downtown, a dynamic community that aspires to be transit-oriented, walkable, accessible, diverse, vibrant, green and ultimately beautiful. The following overarching principles highlighted in the VMC SP can be adapted to the Weston 7 study area:

1. **A Self-sustaining Neighbourhood**
 Establish a distinct neighbourhood containing a mix of uses, civic attractions, a critical mass of people and a variety of housing options.
2. **High Transit Usage**

Optimize existing and planned investments in rapid transit.

3. Grid of Streets

Establish a hierarchical, fine-grain grid network of streets and pathways linked rationally to the larger road system.

4. Open Space

Develop a generous and remarkable open space system.

5. Natural Features

Make natural features and functions a prominent part of development.

6. Green Development

Ensure development incorporates green infrastructure and green building,

7. Design Excellence Ensure all development exhibits a high quality of urbanity, materials and design technologies.

The first phase of the study concluded that the lands west of Highway 400 within the former Vaughan Corporate Centre should be addressed by Volume 1 of the Official Plan and be subject to a future Secondary Plan, separate from the VMC SP.

The Weston 7 SP study will explore opportunities to harmonize recommendations with and draw inspiration from the VMC SP where applicable. Key VMC recommendations that will be considered that may have implications for the SP include:

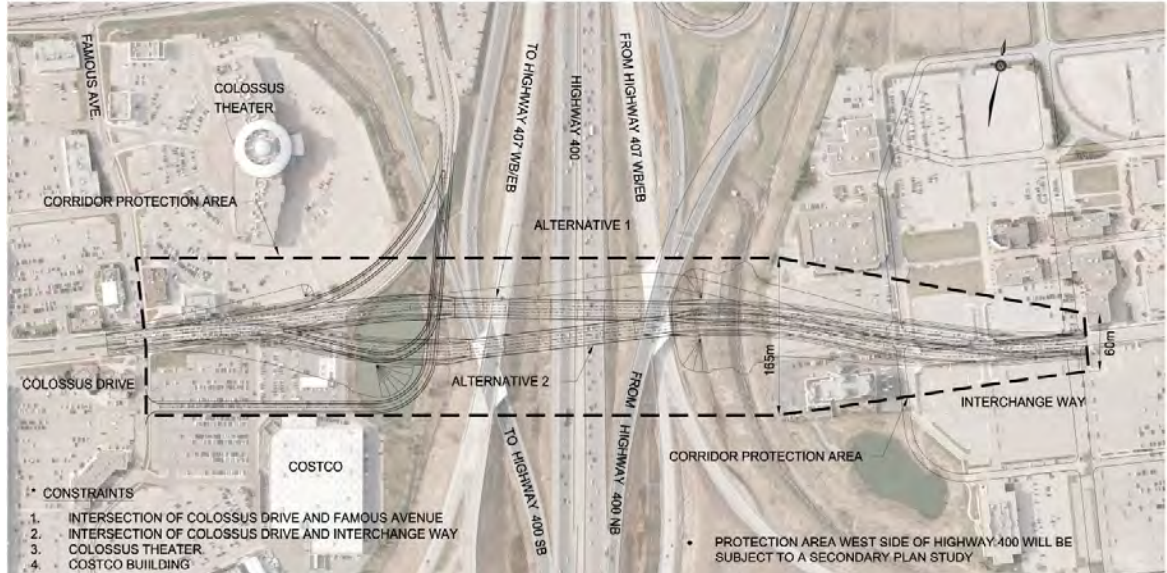
- **The Vision for Highway 7** - Over time, Highway 7 should become an urbanized avenue that balances the movement of transit vehicles, pedestrians, cyclists and cars – a beautiful, green street framed by commercial, residential and mixed use buildings. Carrying over this vision for a “High-Street” into the Weston 7 study area may be considered.
- **The Colossus Drive Extension** – The VMC SP shows that a street over Highway 400 linking Colossus Drive and Interchange Way is proposed. This street will provide an important connection between the lands west of Highway 400 planned for mixed-use intensification and the VMC and will generally help to distribute east-west traffic in the area. The VMC SP also identifies a right-of-way corridor protection area for the street where no new buildings shall be permitted (discussed in detail in **Section 2.3.5**). The City will expedite the Environmental Assessment for the Colossus overpass that will identify the preferred vertical and horizontal alignment of the overpass and the necessary right-of-way requirements. No development will be permitted in this corridor protection area; however, as the Environmental Assessment study advances, the City will formally notify the Region and landowner in writing when specific lands in the protection area are released for possible development.

2.3.5 VMC Secondary Plan - Corridor Protection: Colossus Drive Overpass Area (2015)

This technical study documented and advanced the implementation for the near term need for a corridor protection policy for the Colossus Drive Extension across Highway 400. The study, while initializing the planning and design of the Colossus Drive overpass, is only intended to inform but not predetermine the findings and outcome of a future Environmental Assessment study (EA).

The minimum Corridor Protection Area (CPA) was defined in consultation with MTO, 407ETR, and York Region to protect an area that provides for a reasonable range of overpass alignment alternatives as subject to a future EA study. The area marked by dashed lines in **Figure 2-11** illustrates the minimum CPA for the future Colossus Drive Extension across Highway 400.

Figure 2-11: Plan of Minimum Corridor Protection Area (Colossus Drive Corridor Protection Study 2015)



East of Highway 400, the minimum CPA has been defined in the emerging context of the VMC Secondary Plan with regard for future developments and with elements of the corridor such as planned right-of-way (ROW) as well as easement for grading and construction needs. The configuration of the CPA on the east side of Highway 400 is in part defined by grading needs in association with the overpass structure that provide for and allow the width of the protected area to transition from 165 m to 60 m on the approach to Interchange Way.

The minimum area provides for a reasonable range of alignments for the future intersection of a widened Interchange Way and southern extension of Commerce Street. The minimum width of 60 m at the east end includes the planned minimum 28-m wide ROW connecting to Interchange Way as well as ROW elements at intersections including provision of sightline triangles and other street design elements including but not limited to auxiliary turn lanes, transit stop / bus shelters, etc.

It is noted that the selection of a preferred alignment and design concept is subject to completion of the EA study in consultation with review agencies and other stakeholders.

2.3.6 VMC and Surrounding Areas Transportation Study (2013)

The VMC and Surrounding Areas Transportation Study (2013) aimed to further define the transportation infrastructure needed to facilitate planned and potential development within the VMC and surrounding areas.

The report investigated questions related to the feasibility, cost and operations associated with transportation recommendations arising from previous Transportation

studies, Secondary Plans, Transit Corridor and Environmental Assessment studies. The infrastructure improvements reviewed as part of the study are:

1. Highway 400 / Highway 7 Interchange (NB off-ramp extension);
2. Highway 400 / Langstaff Road Interchange (NB on-ramp and SB off-ramp);
3. Langstaff Road Extension (crossing the CN Rail Yard); and
4. Colossus Drive Extension (crossing Highway 400).

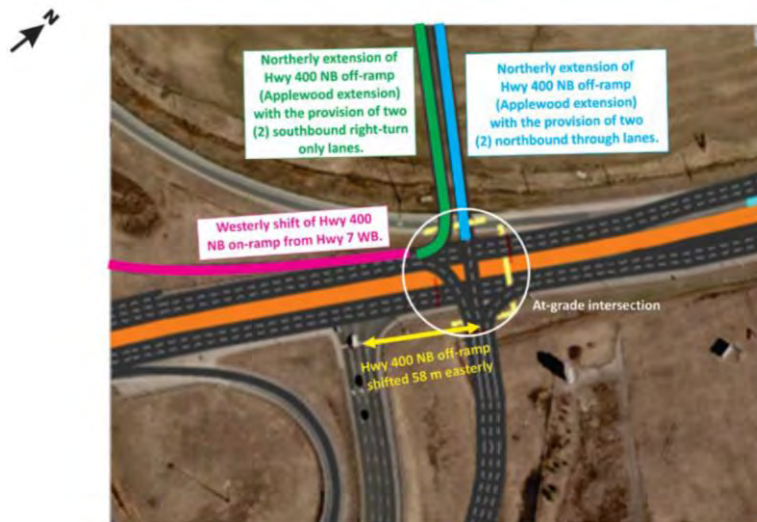
The VMC Transportation Study findings were summarized for projects (1) and (4) above as they are located in (and in the vicinity of) the Weston 7 Secondary Plan Area.

Highway 400 / Highway 7 Interchange (NB off-ramp extension)

Four (4) alternatives were reviewed and evaluated for the Highway 400 / Highway 7 northbound off-ramp extension. The preferred alternative was selected based on consideration of the technical traffic operations, multimodal access and urban design / planning perspectives from York Region and the City of Vaughan.

In the recommended alternative, the Highway 400 NB off-ramp terminal intersection is relocated 58 meters to the east of the existing ramp terminal / intersection. It provides two northbound through lanes from the ramp across Highway 7 into the Secondary Plan lands (Applewood Crescent extension) as well as two southbound right-turn lanes exiting the parcel from the Applewood Crescent extension. The Highway 400 NB on-ramp from the east is proposed to be at-grade and begins immediately west of the Highway 400 NB off-ramp terminal intersection as shown in **Figure 2-12**.

Figure 2-12: Preferred Alternative Recommended for Highway 400 / Highway 7 Interchange (VMC and Surrounding Areas Transportation Study 2013)



Cost estimates associated with the Highway 400 NB off-ramp, the Highway NB 400 on-ramp, the ramp intersection and drainage requirements were derived. According to the study, the estimated construction cost, inclusive of Minor Items, Contingency, Engineering and HST is approximately \$6,200,000.

Colossus Drive Extension (crossing Highway 400)

The Colossus Drive Extension was proposed in the VMC Transportation Plan as a four-lane, east-west bypass route south of Highway 7. For Colossus Drive to continue

easterly across Highway 400 and connect with Interchange Way, an overpass facility was required.

The structure's constructability / feasibility concerns and construction cost estimates were reviewed as part of the VMC and Surrounding Areas Transportation Study and a preferred alignment was developed, as shown in **Figure 2-13**.

Figure 2-13: Colossus Drive Extension Preferred Alignment (VMC and Surrounding Areas Transportation Study 2013)



Several implementation issues for the Colossus Drive Extension were noted in the report, including:

- Property acquisition being required adjacent to existing development;
- Setback impacts to existing buildings;
- Ramp geometrics with approach grades reaching 6%;
- Likely need for signals at Interchange Way intersection ;
- Approvals required from several agencies including MTO, the City of Vaughan and 407 ETR;
- Constructability concerns due to length of construction work zones being located in the Highway 400 corridor; and
- Estimated construction costs of approximately \$95M.

With regards to timing, the proposed Colossus Drive Extension may be required in the longer term (post 20-year planning horizon) to accommodate proposed development in the Weston 7 area and within the VMC area. Although the report noted that the construction of the overpass is feasible, the constructability issues require further study and property requirements on the east side of the study area must be addressed/protected in any planned developments. The 2015 Colossus Drive Extension Protection study built upon the findings for this specific item.

2.3.7 7777 Weston Road Area Wide Transportation Study (2012)

The Area Wide Transportation Study (2012) assessed the impact of the total redevelopment of the Weston 7 Secondary Plan Area as well as the Vaughan Metropolitan Centre (VMC). The study aimed to provide the City of Vaughan with an overall traffic analysis to assist in determining appropriate mitigation associated with the higher order level of redevelopment within the study area.

Based on the City's and Region's Official Plans, the only scheduled road capacity improvement to the 2031 horizon is the proposed Colossus Overpass while transit improvements are planned through the addition of dedicated Bus Rapid Transit (BRT)

along Highway 7. According to the study, these plans are not sufficient to support development within the Secondary Plan Area and additional transportation improvements and mitigation strategies are required, as outlined below.

2021 Horizon

New East-West Street (south of Highway 7) – This road will provide an additional point of access to the southeast and southwest development quadrants of the Weston 7 Secondary Plan Area. This roadway will require a four-lane cross-section to accommodate future traffic volumes.

The new East-West Street is expected to alleviate some pressure on the Weston Road / Highway 7 intersection; however, due to the high through volumes on Weston Road, the new intersection is expected to operate at capacity in the 2021 traffic horizon and beyond.

2031 Horizon

Northview Boulevard – This road is the extension of Northview Boulevard from Weston Road to Windflower Gate and is recommended to be a two lane roadway.

Colossus Overpass – This structure will act as the vehicular connection of the lands east and west of Highway 400 and is expected to divert traffic from Highway 7. As development of the VMC and Secondary Plan area progresses, the overpass will be required by the 2031 traffic horizon. This roadway is to be four-lanes to accommodate the anticipated traffic.

Portage Parkway Overpass – The Portage Parkway Overpass is expected to also operate above capacity in the 2031 horizon though the presence of the Colossus Overpass may reduce traffic volumes on this link.

Other Road Links

Javlan Road – This road will extend Javlan Road from Chrislea Road to Highway 7.

Nova Star Drive – This road will extend Nova Star Drive from Highway 7 to Wings Road.

Intersection Improvements

Highway 7 / Ansley Grove Road – The new East-West Street is expected to increase traffic volumes at the Highway 7 / Ansley Grove Road intersection as vehicles attempt to by-pass the Weston Road / Highway 7 intersection. This may result in the need of a northbound dual left turn lane and should be monitored as development of the Secondary Plan area proceeds.

The Chrislea Road / Weston Road – This intersection is expected to serve as a by-pass to the Weston Road / Highway 7 intersection. As such, this intersection is expected to require a westbound dual left turn lanes.

Transit

Beyond the planned BRT implementation along Highway 7, no additional transit improvements were recommended. However, the Portage Parkway and Colossus

Overpasses provide additional opportunity to supplement transit from the Secondary Plan area to the VMC.

TDM

Major redevelopment applications should be required to provide a Travel Demand Management (TDM) study. Site specific TDM studies should explore opportunities and develop implementation plans and or monitoring plans in line with York Region’s vision.

Parking

To facilitate increases in modal split, the study recommended examining the potential for further reductions in parking standards for redevelopment as the study area becomes better served by transit

It is recommended that the proposed parking rates contained in the Review of Parking Standards within the City of Vaughan’s Comprehensive Zoning By-Law for the Primary Centres be adopted for use within the Secondary Plan area.

2.3.8 Green Directions Vaughan (2009)

Green Directions Vaughan is the City’s Community Sustainability and Environmental Master Plan. This long term plan is designed to guide the community to a more sustainable future by addressing environmental, cultural, social and economic issues. It influences all aspects of the City’s operational and regulatory activities including the growth management strategy. The plan contains a number of actions informed by six goals. Key actions which will be considered by the Weston 7 Secondary Plan Phase 1 study are summarized in **Table 2-4**.

Table 2-4: Key Actions from Green Directions Vaughan

Goal	Action
1: To significantly reduce our use of natural resources and the amount of waste generated	<ul style="list-style-type: none"> Continue pilot programs to examine various technologies and techniques to improve winter road maintenance (e.g. salt reduction).
2: To ensure sustainable development and redevelopment	<ul style="list-style-type: none"> Through the policies in the new Official Plan, create a Vaughan in 2031 that has more intensification with increased height and density and mixed use in thoughtfully developed nodes and along transit corridors.
3: To ensure that getting around Vaughan is easy and has a low environmental impact	<ul style="list-style-type: none"> Through policies to be described in the new Official Plan, develop a more walkable and transit-friendly community with adequate public spaces and a finer grain network of streets.

2.4 Travel Demand Management Programs

2.4.1 York Region MyTrip Program

MyTrip is a program designed to help residents make informed transportation choices that will improve their travel and use sustainable ways of travel, such as carpooling, public transit, cycling, and walking.

York Region conducted a pilot program between 2015 and 2017 to help residents in six newly developed neighbourhoods through an individualized travel planning program. The program involved working closely with residents to understand their travel patterns, explore options that are available, and outlining opportunities that work best for them. Residents that were interested in trying public transit were provided with a pre-loaded PRESTO card to get them started. The program also included community events, workshops and demonstrations, online tools, and take-home travel planning packages. The pilot program received a positive feedback, where more people reported to take transit, carpool, walk, and bike and more frequently as well. A majority of residents (55%) who tried a different mode said their commute was more pleasant, and most respondents (68%) said the program was valuable. Field surveys took place at intersections in the pilot communities also observed a general pattern where there are more people per vehicle and less people driving single-occupant vehicles.¹

York Region is currently (2018) working with new development communities to invite residents in new development communities to participate in a MyTrip outreach event. The program involves a travel ambassador speaking with the resident about their transportation options, with a free incentive such as a preloaded PRESTO card to get them started.

2.4.2 Metrolinx Smart Commute Program

Smart Commute is a workplace TDM program of Metrolinx and municipalities in the Greater Toronto and Hamilton Area (GTHA). It helps people try out smart travel options such as walking, cycling, transit, and carpooling. Smart Commute includes a number of services and programs, such as:

- Carpool programs, including carpool ride matching, carpool to GO;
- Emergency Ride Home (ERH) reimbursement, which allows a reimbursement of up to \$75 for emergency transportation if there is an unforeseen emergency on a day that the person uses a sustainable method to commute to work;
- Triplinx, which is a trip planner and transportation information resource for the Greater Toronto and Hamilton Area. It can customize the trip using options such as maximum walking distance or the mode of transportation;
- Discounted transit pass program; and
- Marketing events, workplace lead training, engagement events, and customized commuter projects.

It is a membership based program, and employers or property managers need to contact Smart Commute to discuss potential programs to be set up and the fees for the membership. The Weston 7 Secondary Plan study area is located in the Smart Commute North Toronto Vaughan service area. Based on the 2017 Smart Commute Annual Survey results, commuters from Smart Commute workplaces drive alone 14% less than the average GTHA commuter, and 49% of respondents commute to/from their workplace using a sustainable mode.

¹ Transportation Demand Management (TDM) Program for New Developments in York Region, MyTrip Travel Planning Pilot Program – Final Report, November 2017

2.4.3 York Region Transportation Mobility Plan Guidelines for Development Applications (2016)

Managing the demand for travel generated by new developments is a powerful strategy for controlling costs, mitigating environmental impacts, and permitting developments to proceed in road capacity constrained areas. To that end, the York Region Official Plan (2016) established policies asking for appropriate Transportation Demand Management (TDM) measures be identified in transportation studies and in development applications.

The Mobility Plan considers any policy or program that reduces single occupant vehicle trips during peak travel periods a TDM strategy. It outlines when a TDM Plan may be required, the general requirements of the Plan and proposes some TDM considerations, as outlined below:

- **Consider site design**, implement **physical infrastructure** and **integrate facilities** into the regional transportation network, to encourage active transportation;
- **Develop a parking strategy for a variety of modes**, including short and long-term bicycle parking within buildings, shared parking between different uses, and/or carpool parking spaces;
- **Explore transit incentives** to improve access to and from the development; and
- **Identify trip reduction opportunities** and telecommuting with the Region, local municipalities, Smart Commute Transportation Management Associations, and any other agencies.

York Region, in consultation with local municipalities, developed a TDM checklist elaborating on the above consideration to assist in the development of a comprehensive TDM Plan. The checklist, displayed in **Figure 2-14**, provides additional details on TDM strategies, which range from improving the streetscape to educating the public.

Figure 2-14: Transportation Demand Management Checklist (Transportation Mobility Plan Guidelines 2016)

TDM Measures	For Residential Developments		For Non-Residential Developments	
	Requirement	Responsibility	Requirement	Responsibility
Transit incentives (i.e. PRESTO cards)	Yes	York Region to consider	Yes	Applicant
Information packages (YRT/Viva maps, GO schedules, cycling maps)	Yes	York Region to consider and could be distributed at the sales office	Yes	Applicant
Communication strategy and physical location to deliver PRESTO cards and information packages	Yes	Applicant	Yes	Applicant
Outreach programs	Yes	York Region to consider	Yes	Applicant
Pedestrian connections	Yes	Applicant	Yes	Applicant
Cycling connections	Yes	Applicant	Yes	Applicant
Ped/cycling connections to transit facilities	Yes	Applicant	Yes	Applicant
Internal ped/cycling circulation	Yes	Applicant	Yes	Applicant
Active transportation network/fine-grid	Yes	Applicant	Yes	Applicant
Bicycle parking/shelter	Only applies to condos	Applicant	Yes	Applicant
Bicycle repair station	As per local bylaw	Applicant	As per local bylaw	Applicant
Bicycle parking	As per local bylaw	Applicant	As per local bylaw	Applicant
Benches/receptacles	Case by case	Applicant/ Municipality	Case by case	Applicant
Illumination of ped/cycling connections	Case by case	Applicant/ Municipality	Case by case	Applicant
Carpool parking	No	-	Yes	Applicant
Car share	Only applies to condos	Applicant	Case by case	Applicant
Shared-parking between land uses	Case by case	Applicant	Yes	Applicant
Parking reduction	Where appropriate	Applicant/ Municipality	Where appropriate	Applicant
Real time TV screen	Only applies to condos	Applicant	Where appropriate	Applicant
Trip end facilities (i.e. showers)	No	-	Where appropriate	Applicant
Membership with Smart Commute	Where appropriate	Applicant	Yes	Applicant
School travel planning	Where appropriate	Applicant/School Board/ Municipality	No	-
Telecommute	No	-	Where appropriate	Applicant
Monitoring program/report	Yes	York Region to consider	Yes	Applicant

This checklist is to be completed and included as part of the TDM Plan report for further review by Regional and respective local municipal staff.

York Region and local municipalities will consider other recommendations beyond the requirements outlined in the checklist, as long as they meet the objectives of the Regional and local municipal Official Plans and policies.

2.4.4 Transportation Demand Management for Toronto-York Spadina Subway Extension (TYSSE), York Region and City of Toronto

The TYSSE corridor is the first in the GTA to experience extensive TDM measures, requirements, and policies, as contained in the York Region and City of Toronto’s Official Plans. It includes a TDM requirements or “TDM Checklist” that the Region ask the development applicants to include for residential and non-residential developments in York Region. Some examples in the TDM Checklist includes providing transit incentives, pedestrian and cycling connections, active transportation network / fine-grid, bicycle parking / shelter, carpool parking, car-share service, parking reduction, and membership with Smart Commute.

It also requires a number of monitoring and performance measures to understand effectiveness of the TDM measures, such as the cordon count data, transit ridership counts, bicycle and pedestrian counts, and Walk Score. The proposed future monitoring programs should be undertaken by York Region and the City of Toronto prior to subway opening and one year after the opening, in order to measure and compare the difference of the performance measures.

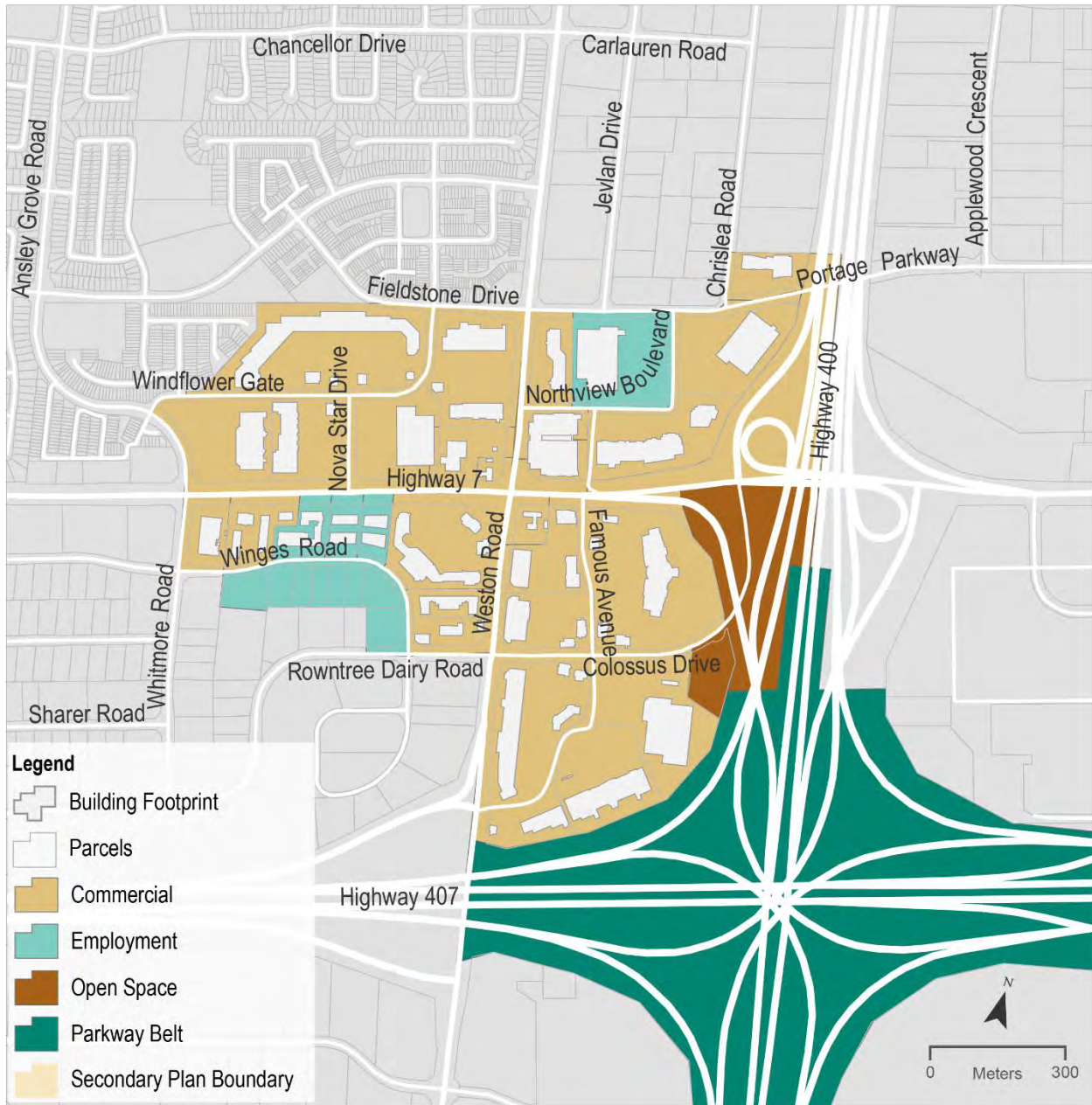
3 Existing Conditions

3.1 Land Use and Built Form

3.1.1 Land Use Zoning

The Weston 7 Secondary Plan is primarily used for commercial purposes. It also includes some employment land North of Northview Boulevard and in the southwest corner of the study area. A portion of the study area is open space with a stormwater management pond to the southwest corner of Highway 400 and Highway 7. The land close to the Highway 407 and Highway 400 interchange is designated as parkway belt. The zoning map is shown in **Figure 3-1**.

Figure 3-1: Study Area Zoning



Source: City of Vaughan

3.1.2 Surface Parking

As previously mentioned, the Weston 7 Secondary Plan study area is auto oriented, dominated by parking lots at store fronts. **Figure 3-2** shows the surface parking in the study area. Approximately 33 hectares of land is used as surface parking, which is 40% of the study area excluding road and MTO right-of-way (ROW). This characteristic makes it less safe and less comfortable for pedestrians to access and navigate in the study area and encourages the use of automobiles to access the area.

Figure 3-2: Surface Parking



Source: Google Maps Imaginary

3.2 Travel Context

The 2016 TTS is used to extract trip patterns such as trip origin-destination, mode share, and trip distance. It is noted that TTS tends to under-represent short distance trips, active trips, and trips that are not work or school purpose.^{2 3} The 2012 Commercial Vehicle

² 2011 TTS Data Expansion and Validation Report, Data Management Group, *University of Toronto*

³ Effect of Land Use on Trip Underreporting in Montreal and Toronto's Regional Surveys, *Harding, Nasterska, Dianat, & Miller*. 2016. hEART 2016 – European Association for Research in Transportation

Survey (CVS) by the Ministry of Transportation Ontario (MTO) are used for the truck activities in the study area. Strava Metro data was used to observe the cycling activities.

3.2.1 Transportation Tomorrow Survey

Travel Demand

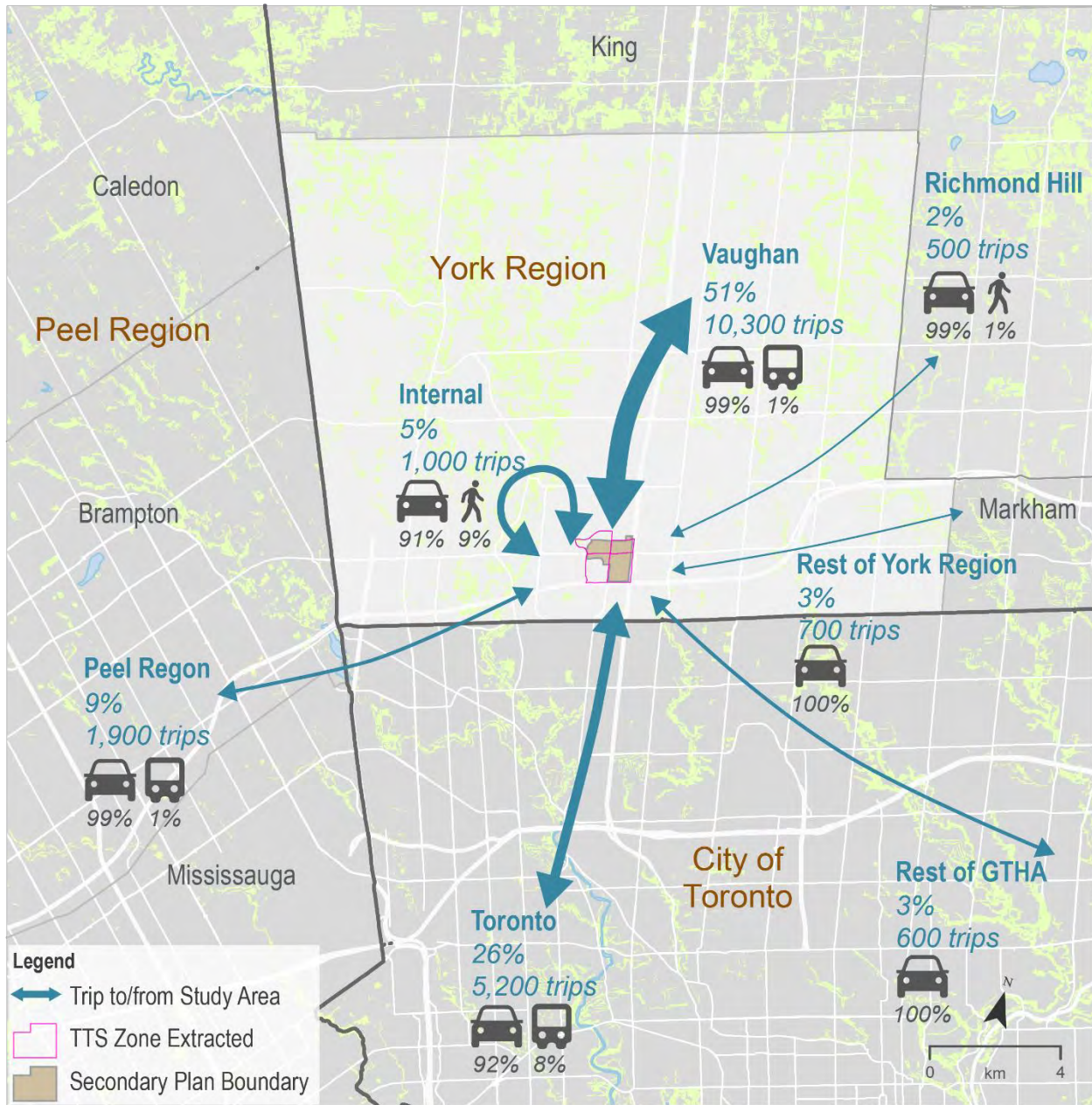
The number of trips to the study area by modes of travel is summarized in **Table 3-1** and illustrated in **Figure 3-3**. Approximately 20,200 trips go to study area in a day, and most trips are made by auto driver and passenger mode (79% and 18%, respectively). Only 2% of trips are made by transit, and only 100 trips are made by walking. The majority of the trips are from Vaughan (51% of all trips), indicating the area serve as a major commercial centre for the City. Approximately 26% of trips are from the City of Toronto, and similarly most trips are made by auto driver and passenger (71% and 21%, respectively). Around 5% of trips are internal, and most of them are made by auto driver mode (65%). An overwhelming majority of trips access the study area by auto, indicating that potential demand for transit and walk/bicycle exists and should be examined in detail in future phases of the study.

Table 3-1: Daily Number of Trips by Mode to Study Area, Excluding Internal Trips

Municipality	Auto Driver	Auto Passenger	Transit	Walk	Bike	Other	Total	% of All Trips
Number of Trips								
Toronto	3,715	1,090	420	-	-	-	5,200	26%
Vaughan	8,195	1,934	69	58	-	37	10,300	51%
Richmond Hill	529	8	4	-	-	-	500	2%
Rest of York Region	624	62	-	-	-	-	700	3%
Peel Region	1,768	136	20	-	-	-	1,900	9%
Rest of GTHA	483	84	-	-	-	-	600	3%
Internal	651	266	-	88	-	-	1,000	5%
Total	16,000	3,600	500	100	-	-	20,200	100%
Percentage by Mode								
Toronto	71%	21%	8%	0%	0%	0%		
Vaughan	80%	19%	1%	1%	0%	0%		
Richmond Hill	98%	1%	1%	0%	0%	0%		
Rest of York Region	91%	9%	0%	0%	0%	0%		
Peel Region	92%	7%	1%	0%	0%	0%		
Rest of GTHA	85%	15%	0%	0%	0%	0%		
Internal	65%	26%	0%	9%	0%	0%		
Total	79%	18%	2%	0%	0%	0%		

Source: 2016 TTS

Figure 3-3: Daily Number of Trips by Mode to Study Area



Source: 2016 TTS

Mode Share

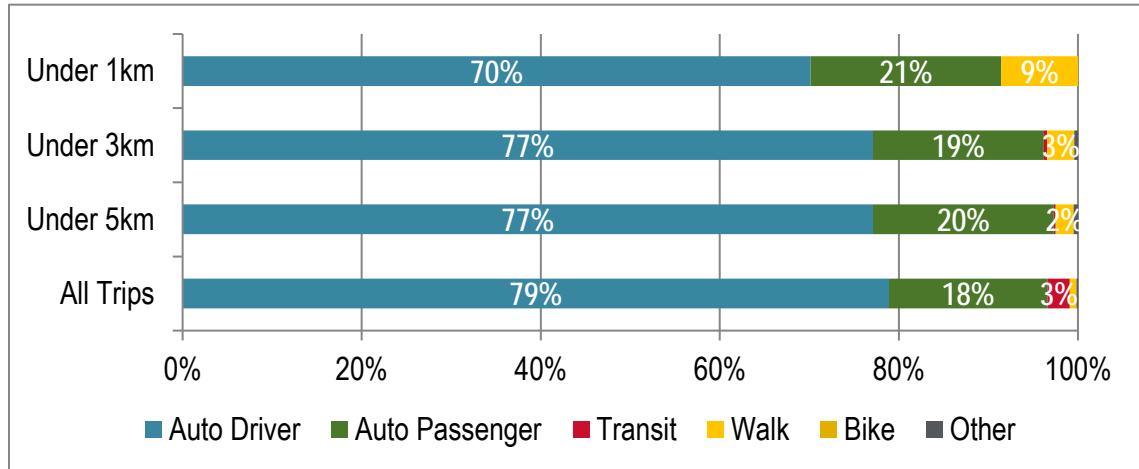
The daily trip mode share by distance is shown in **Table 3-2** and **Figure 3-4**. As mentioned, almost all trips are made by auto driver (79%) and auto passenger (18%) mode. For trips under 5 km (36% of all trips) and under 3 km (24% of all trips), which have high potential to be transit and bike trips, only 2% to 3% are made by walking, and almost none were made by transit. There are more than 1,500 short trips to the study area that are under 1 km, which has high potential to be converted into walk and bicycle trips. For these trips, only 9% are currently made by walk mode. This again indicates there is high potential for more sustainable modes such as transit, walk, and cycle to the study area with better transit and active transportation connections.

Compared to the existing conditions, the York Region and City of Vaughan OP established a much higher transit mode share target, which is 50% along Highway 7 (Regional Intensification Corridor) and 40% for the Weston 7 Secondary Plan study area (Intensification Area) by 2031. The existing transit mode share for trips going to the study area is 5% in the PM peak period (3-6 PM), indicating the need to improve rapid transit and local transit service, active transportation connections to transit stops, and implement TDM measures to encourage more transit trips.

Table 3-2: Daily Mode Share by Trip Distance to Study Area

	Auto Driver	Auto Passenger	Transit	Walk	Bike	Other	Total	% of All Trips
Number of Trips								
All Trips	15,964	3,580	511	146	-	36	20,237	100%
Under 5km	5,660	1,483	17	146	-	36	7,342	36%
Under 3km	3,677	910	17	146	-	19	4,769	24%
Under 1km	1,096	333	-	134	-	-	1,563	8%
Percentage by Mode								
All Trips	79%	18%	3%	1%	0%	0%		
Under 5km	77%	20%	0%	2%	0%	0%		
Under 3km	77%	19%	0%	3%	0%	0%		
Under 1km	70%	21%	0%	9%	0%	0%		

Figure 3-4: Daily Mode Share by Trip Distance to Study Area

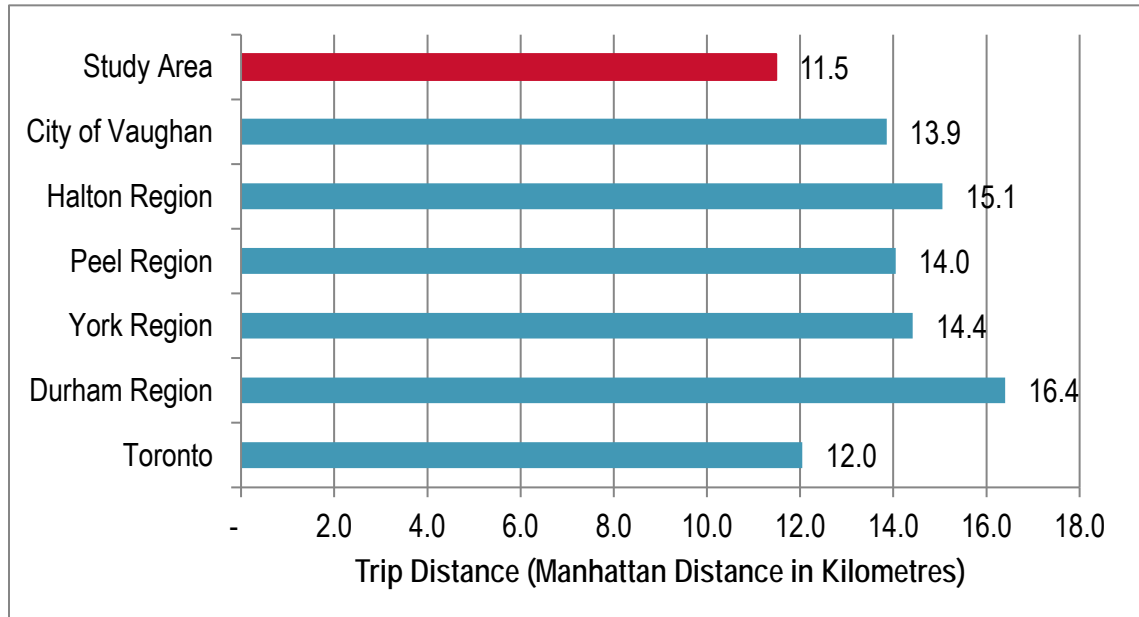


Source: 2016 TTS

Trip Length

The average trip length to the study area is 11.5 km (shown in **Figure 3-5**), which is less than the average trip length for other municipalities, such as the City of Vaughan, York Region, and the City of Toronto. Shorter trip distance indicates opportunities for active and transit modes.

Figure 3-5: Average Trip Length to Study Area

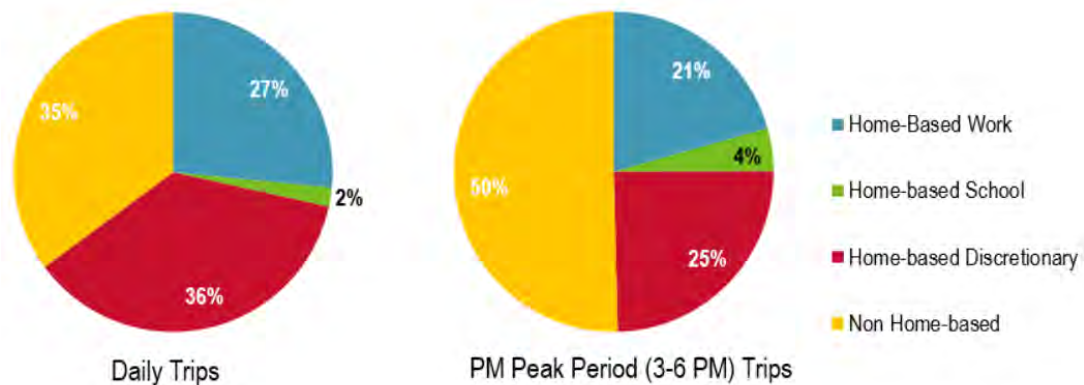


Source: 2016 TTS

Trip Purpose

Since the area is primarily commercial land use, most trips to the study area are discretionary trips and non home-based trips, as shown in **Figure 3-6**.

Figure 3-6: Trip Purpose to Study Area



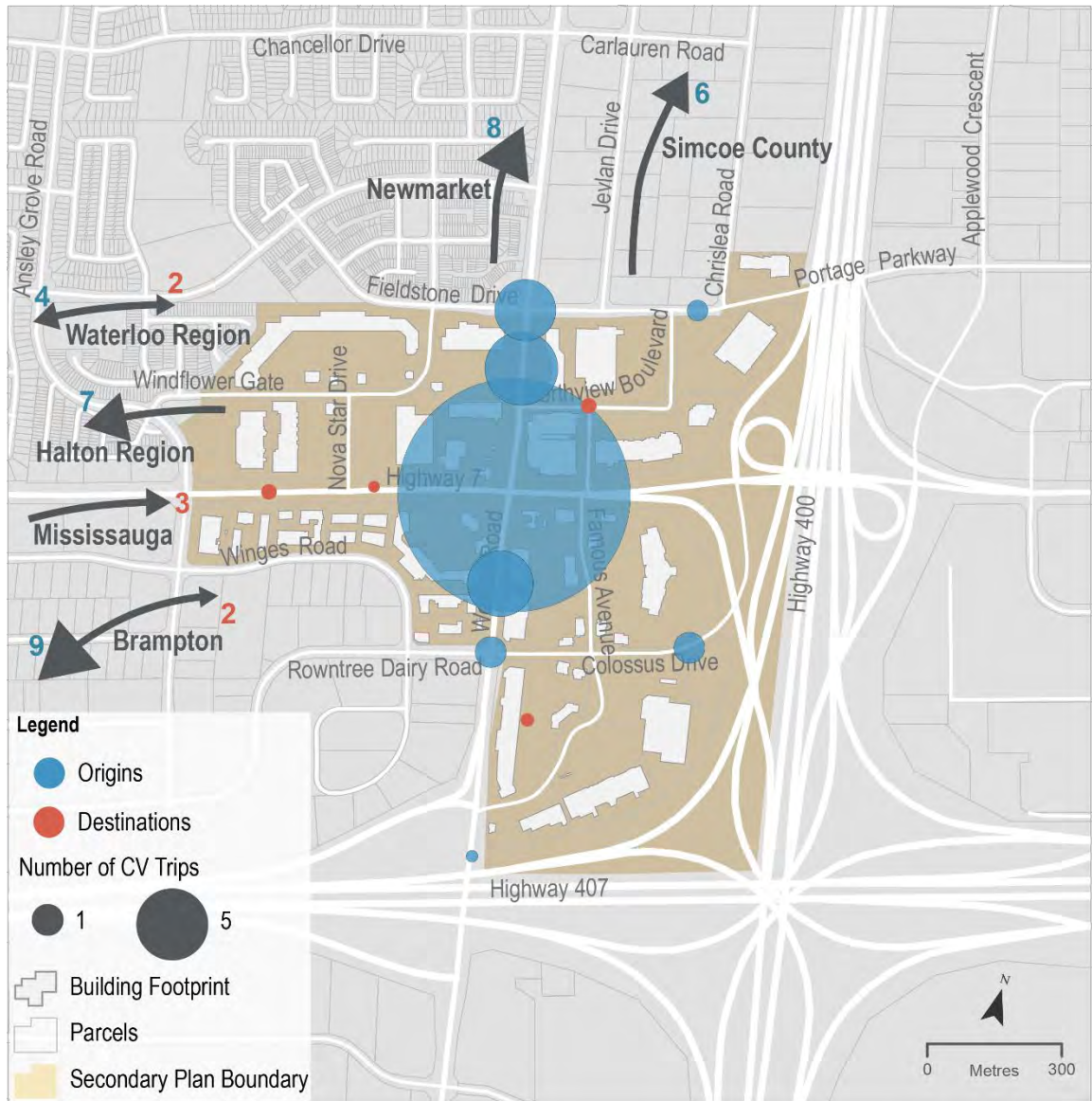
Source: 2016 TTS

3.2.2 Commercial Vehicle

CVS Survey

The 2012 Commercial Vehicle Survey (CVS) was provided by the Ministry of Transportation Ontario (MTO). **Figure 3-7** shows the number of truck trips to and from the study area. There are approximately 40 trips from the study area, most around the Weston and Highway 7 intersection, and the trips are going to surrounding municipalities, such as Newmarket, City of Brampton, Halton Region, and Simcoe County. Less than 10 truck trips are going to the study area, coming from Waterloo Region, Mississauga, and Brampton. This indicates that although Highway 7 and Weston Road may have high truck volumes, there are limited truck activities directly going to and from the study area. There are however a number of industrial areas surrounding the Weston 7 area which will require good vehicular access. The development of the Weston 7 Secondary Plan should recognize the potential impacts on the surrounding industrial area.

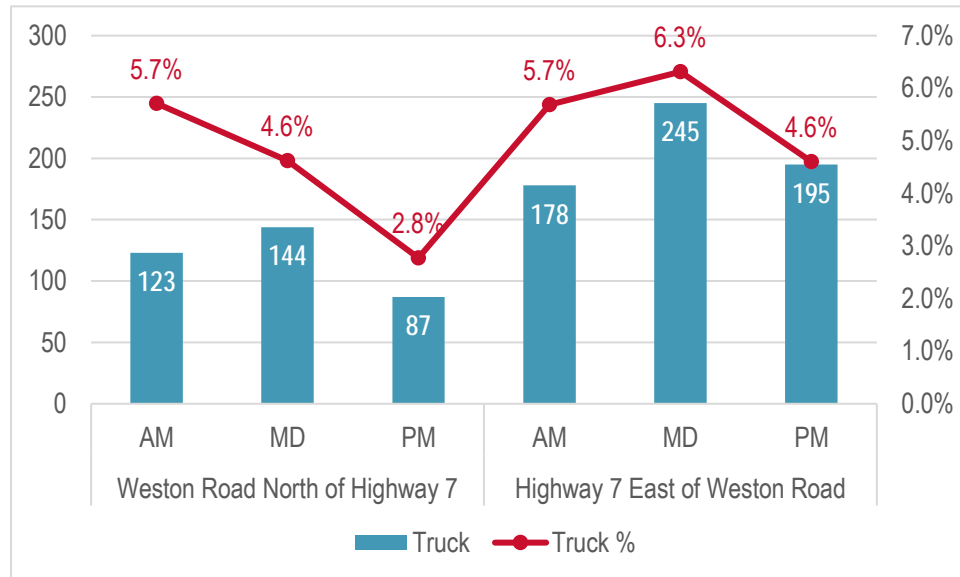
Figure 3-7: 2012 Commercial Vehicle Trip Origin and Destination to/from Study Area



Commercial Vehicle Volumes on Highway 7 and Weston Road

Although the Weston 7 Study Area is not a major commercial vehicle attraction, corridors in the study area are heavily used by commercial vehicles. Major arterials, namely Weston Road and Highway 7, have an important role for the regional goods movement. As shown in **Figure 3-8**, approximately 5% to 6% of vehicles are trucks in the AM and midday peak hour on Weston Road and Highway 7.

Figure 3-8: Truck Volume and Percentage in the AM, Midday, and PM Peak Hour (Both Directions)



Source: York Region Turning Movement Count, December 20, 2016

3.2.3 Strava Metro

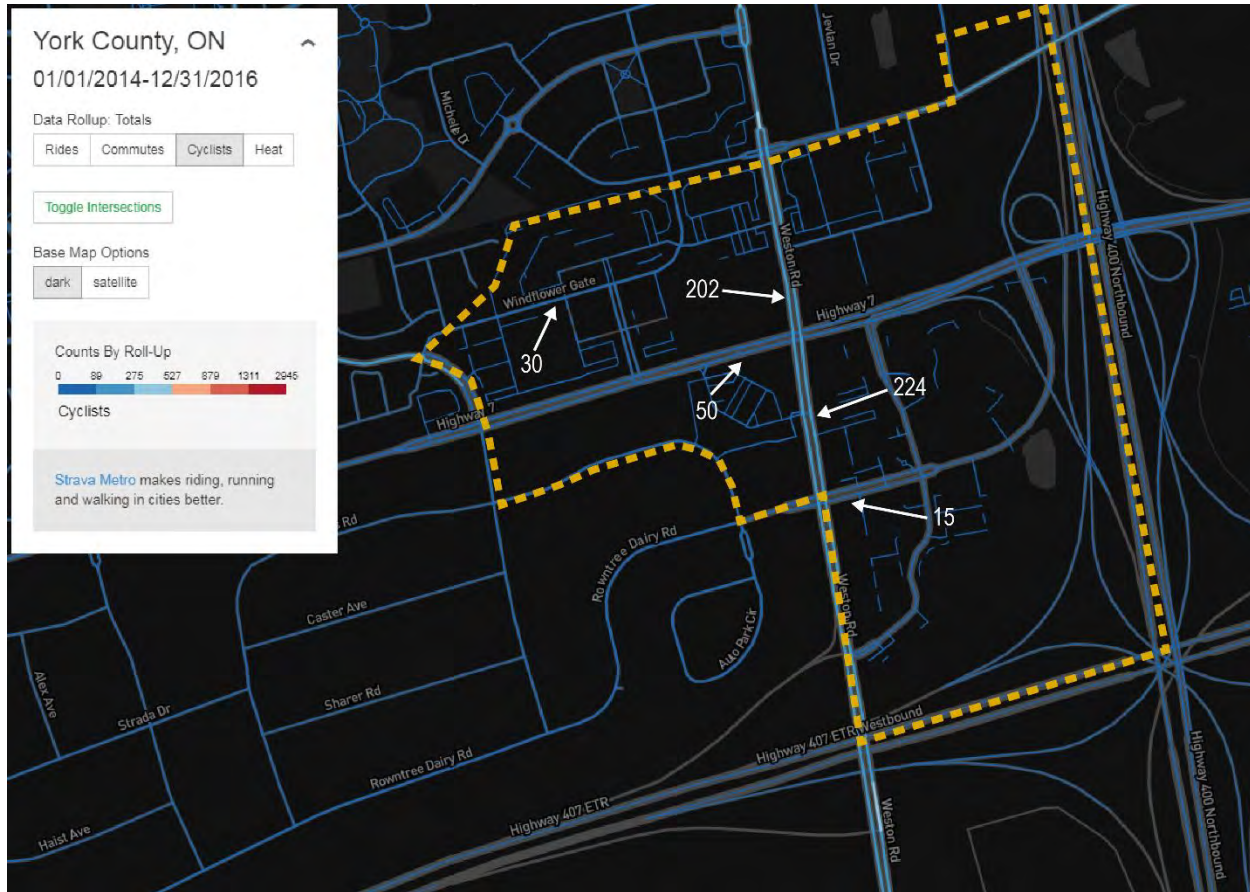
Strava Metro provides bike counts based on activities from people who choose to log and upload their trips. It has been shown that in numerous urban areas, the Strava Metro counts are linked closely with bike counts, and the data can be extrapolated by using a multiplier. For example, in Seattle, the multiplier was 27.⁴

The Strava bike counts for 2 years from January 1st 2014 in the study area are shown in **Figure 3-9**. There were limited bicycle activities in the study area, where over 200 trips were logged on Weston Road, and less than 50 trips are logged on Highway 7 and local roads.

This data is especially useful to understand the changes in cyclist behaviour after new infrastructure is opened. Sometimes opening one type of bicycle infrastructure, such as bike lanes or an overpass, could cause ripple effects and show more activities on the areas surrounding new infrastructure as well. With the bicycle infrastructure on Highway 7 under construction and the planned bike lanes and connections such as Colossus Drive, the bicycle activities should be monitored and reviewed in the future phases of the study.

⁴ Bike Counter Correlation, Strava Metro

Figure 3-9: Strava Metro Bike Counts, January 1st 2014 to December 31st, 2016



3.2.4 Peaking Characteristics

Traffic congestion during peak times can be attributed to a high number of vehicles accessing the study area, starting from noon to early evening.

The hourly traffic counts for weekday and weekend for Highway 7 eastbound, west of Famous Avenue are shown in **Figure 3-10** and **Figure 3-11**, respectively. Traffic counts were conducted between 7am to 9am and between 12pm to 6pm for the weekday and between 2pm to 7pm. During the weekday, traffic volume increases throughout the afternoon and reaches the highest point around 4pm. On Saturday, traffic volume is consistently high from 1pm to 5pm, and the peak is around 3pm.

This peaking characteristic reflects the commercial land use of the study area, where people tend to access the area across the afternoon (no distinguished peak point) for both weekdays and weekends, as opposed to having a single AM and PM peak hour, which can be a typical pattern when the land use is primarily office, for example.

Figure 3-10: Weekday Hourly Traffic Counts, Highway 7 Westbound, West of Famous Avenue (June 2018)

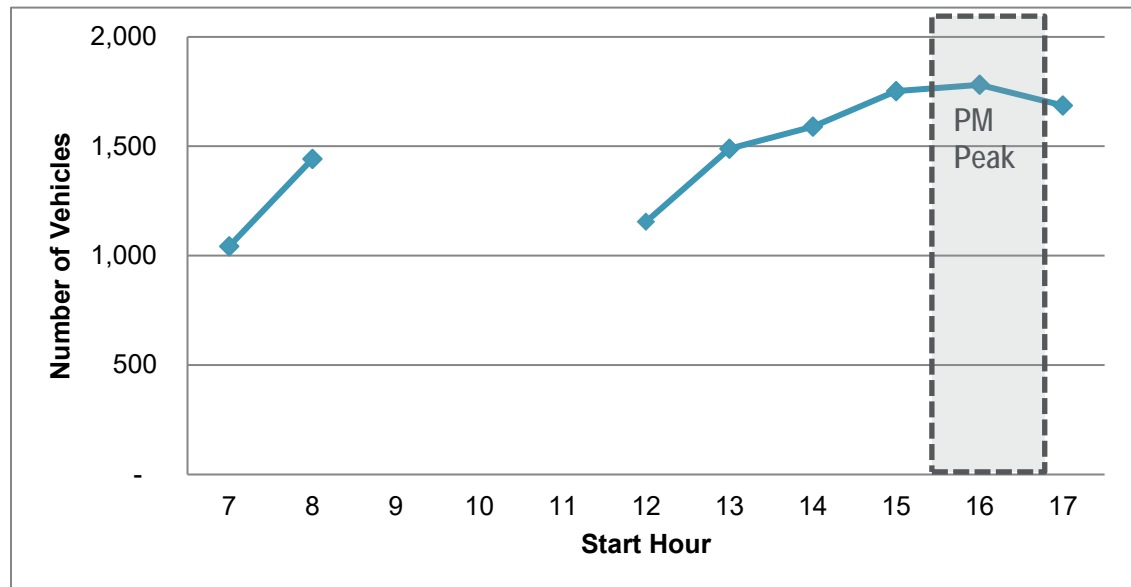
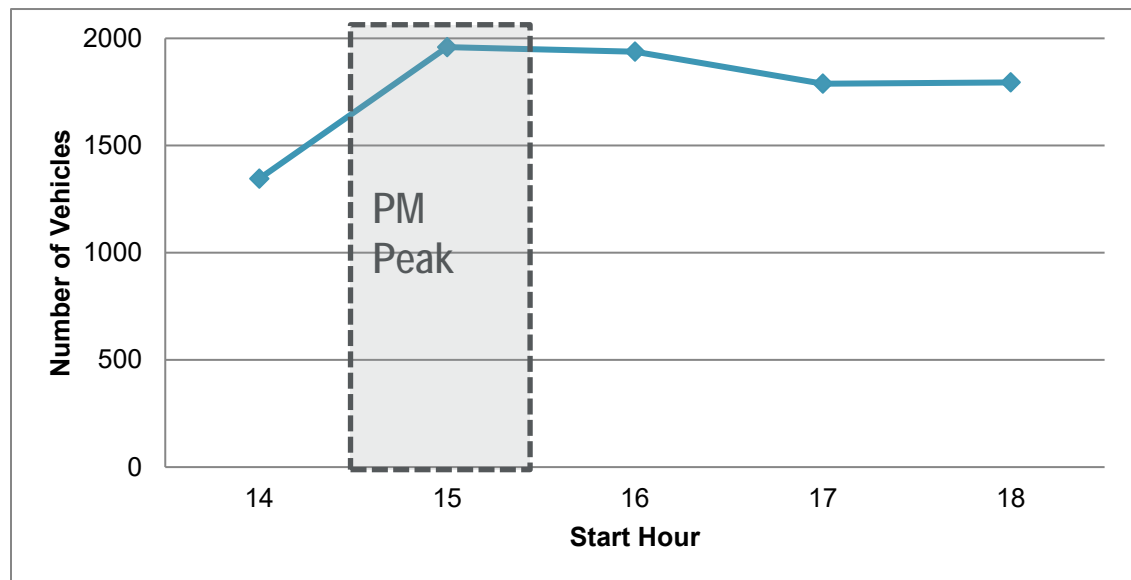


Figure 3-11: Saturday Hourly Traffic Counts, Highway 7 Westbound, West of Famous Avenue (June 2018)



3.2.5 Auto Occupancy

The majority of trips to the Weston 7 Secondary Plan area are by single occupancy vehicles. According to 2016 TTS data for trips destined to the study area, the share of carpool trips is 17%. The share of carpool trip originating from the study area is similarly, 18%. This is slightly higher than the carpool trip percentage in the City of Vaughan and York Region, which is approximately 14% and 15%, respectively. It is likely due to the commercial land use of the study area, which leads to a high proportion of discretionary trips that have a higher auto occupancy. However, there is a need to encourage high occupancy vehicles into the business park and reduce auto usage during the peak times.

3.3 Street Network Context

3.3.1 Connectivity and Continuity

As connectivity increases, travel distances decrease and route options increase, creating a more accessible network for all modes of travel. A connected network is pedestrian friendly and supports transit-oriented developments by providing better connections from transit stops to destinations.

Two measures are considered to examine the connectivity and continuity of the road network – intersection density and link to node ratio. The methodology here is adapted from the Performance Indicators for the Greater Golden Horseshoe (GGH) Growth Plan.

Intersection Density

Intersection density is the number of surface street intersections in a hectare. Higher number of surface street intersections indicates finer street networks and better the connectivity of the street network. The Performance Indicators for the GGH Growth Plan recommended 0.3 intersections/hectare for a general street network, and 0.6 intersections/hectare for mixed use nodes and corridors.⁵

When calculating the intersection density of the study area, informal pedestrian pathways such as those cutting through parks and malls are not included as they do not provide safe and comfortable access for pedestrians. In addition, intersection densities for auto and active transportation are calculated separately, and intersections for road segments with no sidewalk or bike lanes were not counted for the active transportation intersection density. Based on this, there are 21 intersections in the study area, and 17 can be used for active transportation. The site area of this study is approximately 123 hectares. The intersection density results are summarized in **Table 3-3**.

Table 3-3: Intersection Density Calculation

Mode	Number of Intersections	Intersection Density
Auto Mode	21	0.16
Active Transportation	17	0.13

Link to Node Ratio

The Link to Node Ratio method determines the connectivity index of the study area by finding the ratio of street links to street nodes. A higher link to node ratio means that travellers have increased route choices, allowing more direction connections for access between any two locations. For major or community activity centres, it is recommended that there be a 1.7 street connectivity index for auto mode, and an index connectivity of 1.9 for active transportation.⁶

⁵ Performance indicators for the growth plan for the Greater Golden Horseshoe, Ministry of Municipal Affairs and Housing, 2015

⁶ Performance indicators for the growth plan for the Greater Golden Horseshoe, Ministry of Municipal Affairs and Housing, 2015

Intersections immediately outside of the boundary are included as long as one leg on the intersection crosses the boundary. “T” intersections adjacent to the boundary that do not have a leg of the intersection crossing the boundary are excluded. Street links are defined as streets between intersections, with three or more legs, or cul-de-sac. Street nodes are intersections with three or more legs, or cul-de-sac. Alleys, driveways, and any private accesses are not included in the calculations. The calculations are summarized in **Table 3-4**.

Table 3-4: Link to Node Ratio Calculation

Mode	Number of Links	Number of Nodes	Connectivity Index
Auto mode	25	16	1.60
Active transportation	22	15	1.46

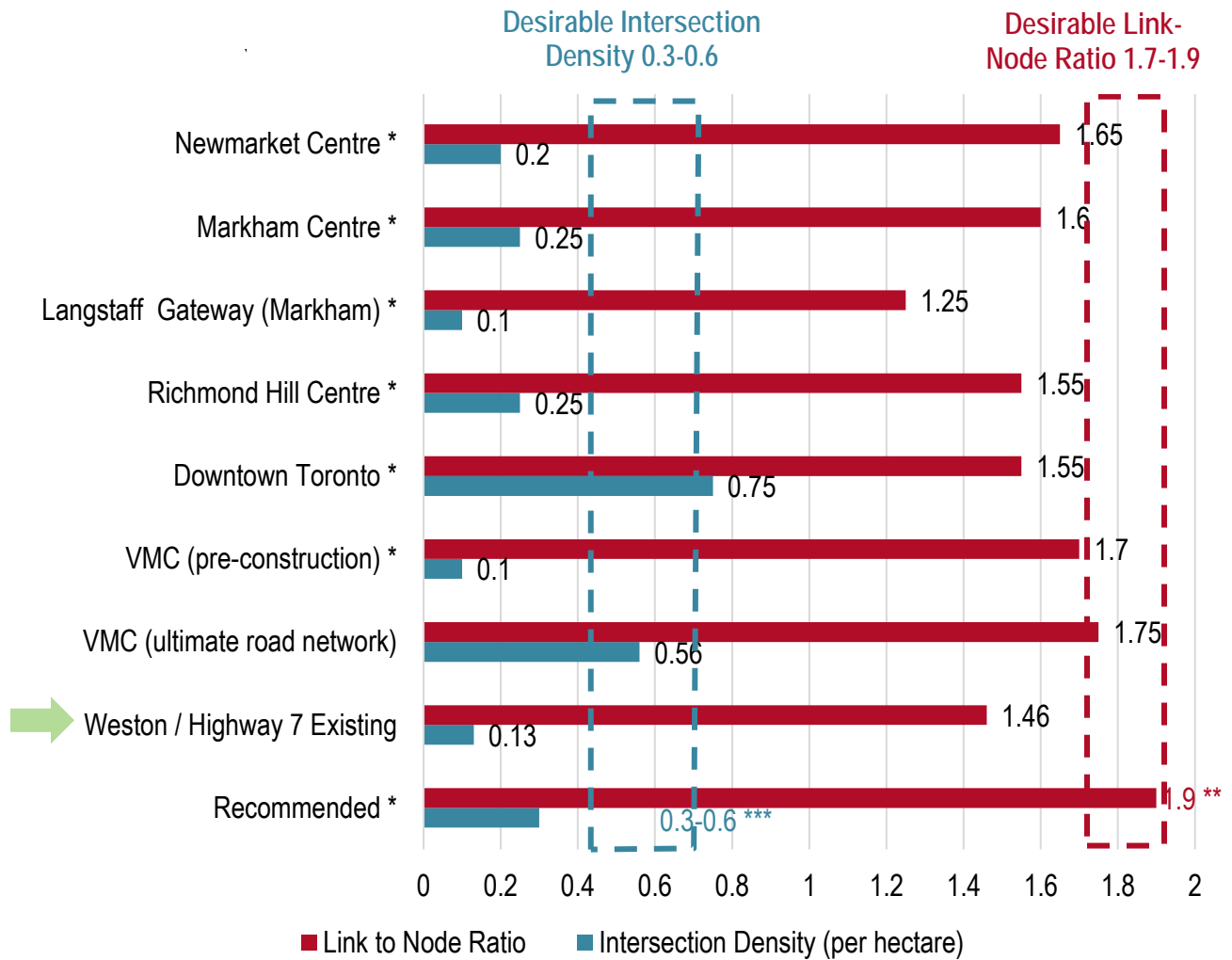
Discussion

The intersection density and link to node ratio are complementary. A high link-node ratio suggests good connectivity, but if it is accompanied by a low intersection density, this could indicate the area includes some large blocks and may not be very conducive walking, or there is a lot of undeveloped land. A connected and improved network would receive high scores for both indicators.

The existing intersection density and link-node ratio for active transportation in the Weston 7 area in comparison to other urban centres are shown in **Figure 3-12**.

The study area today is very similar to VMC pre-construction. Both intersection density and link-to-node ratio are much lower than the desirable values, indicating the street network has very poor connectivity for vehicles and for pedestrians. This is attributed to the large blocks and surface parking lots which lead to limited continuous north-south and east-west streets. Improving active transportation connectivity with more routes, safer and more comfortable conditions will be an important focus of the future planning framework for the study.

Figure 3-12: Intersection Density and Link-Node of the Study Area (Active Transportation), Compared with Other Urban Centres



* Source: Performance Indicators for the Growth Plan for the Greater Golden Horseshoe.

** Link to Node Ratio: 1.7 for major or community activity centres, 1.9 for active modes.

*** Intersection Density: 0.3 intersections/ha, 0.6 intersections/ha for mixed use nodes and corridors.

3.3.2 Highway Interchange Design

The current highway interchange in the area is designed to vehicular travel at the expense of active transportation mobility and safety. This includes large curb radii without any delineated crossing for pedestrians and channelized right-turn lanes at Highway 407 and Highway 400, as shown in **Figure 3-13** and **Figure 3-14**.

Figure 3-13: Weston Road at Famous Avenue and Highway 407 EB On-ramp

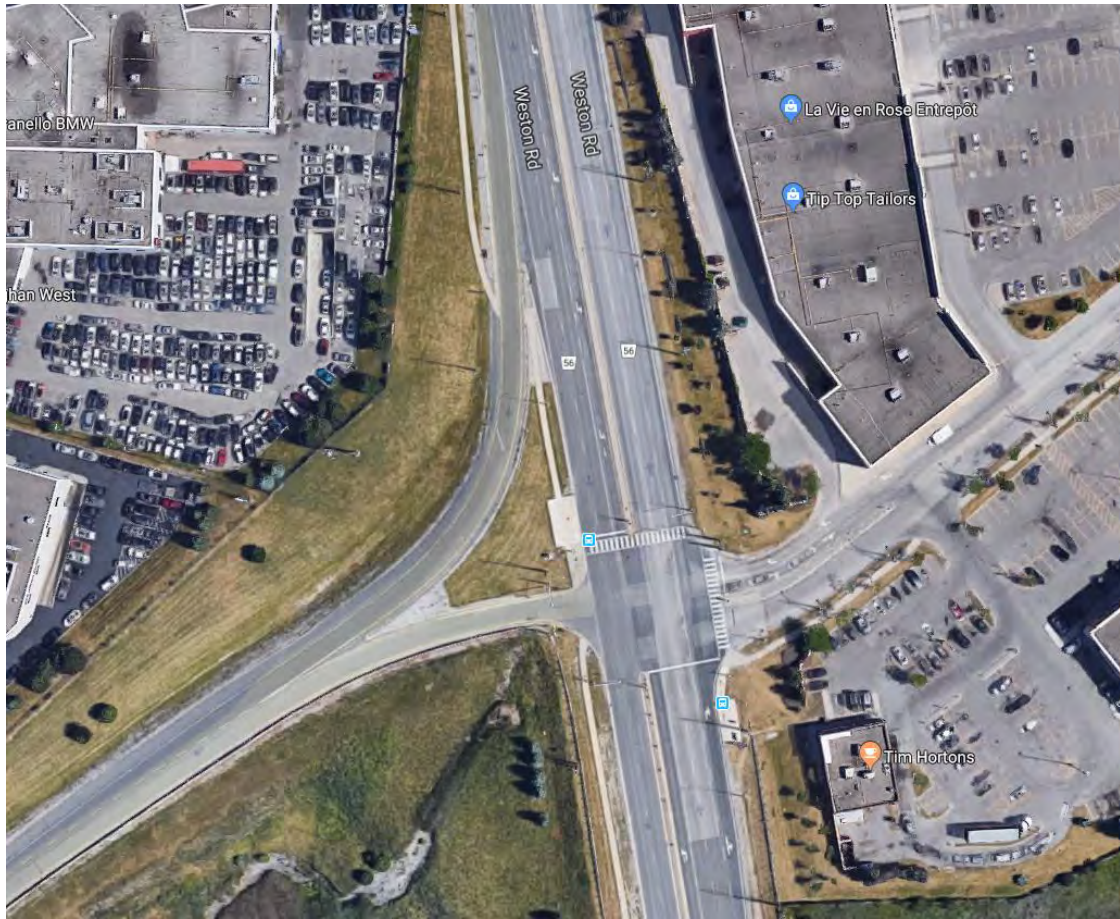
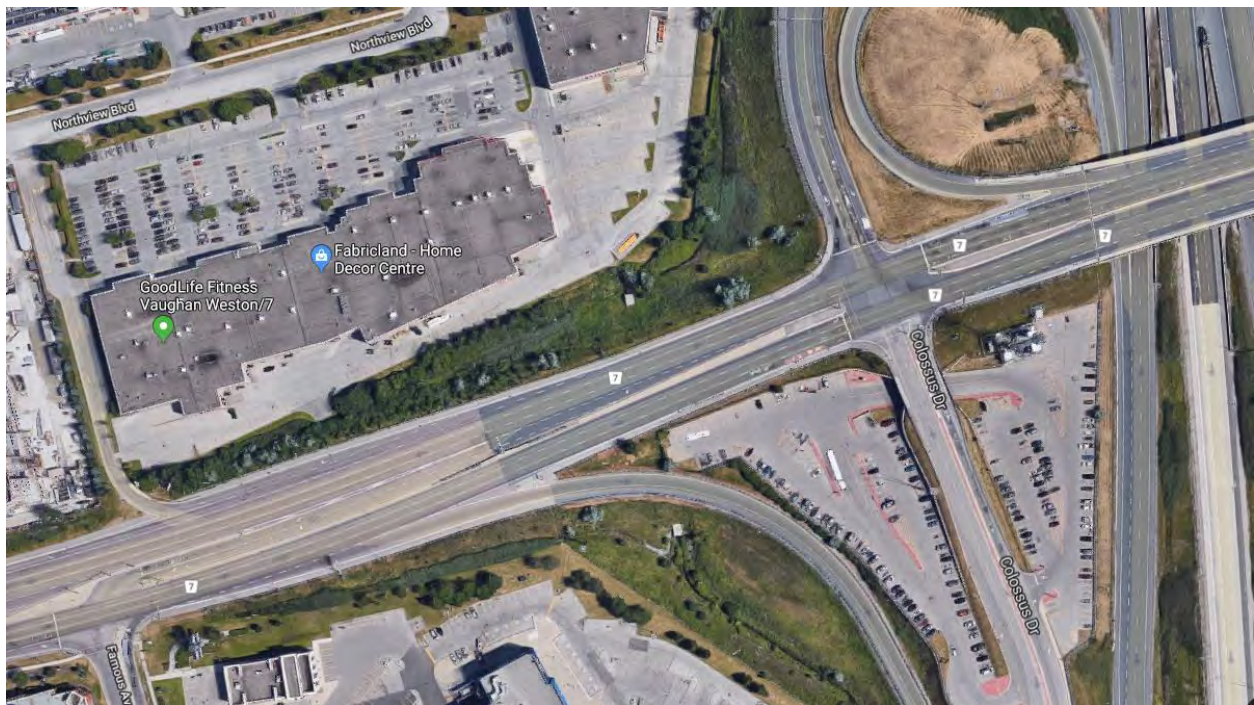


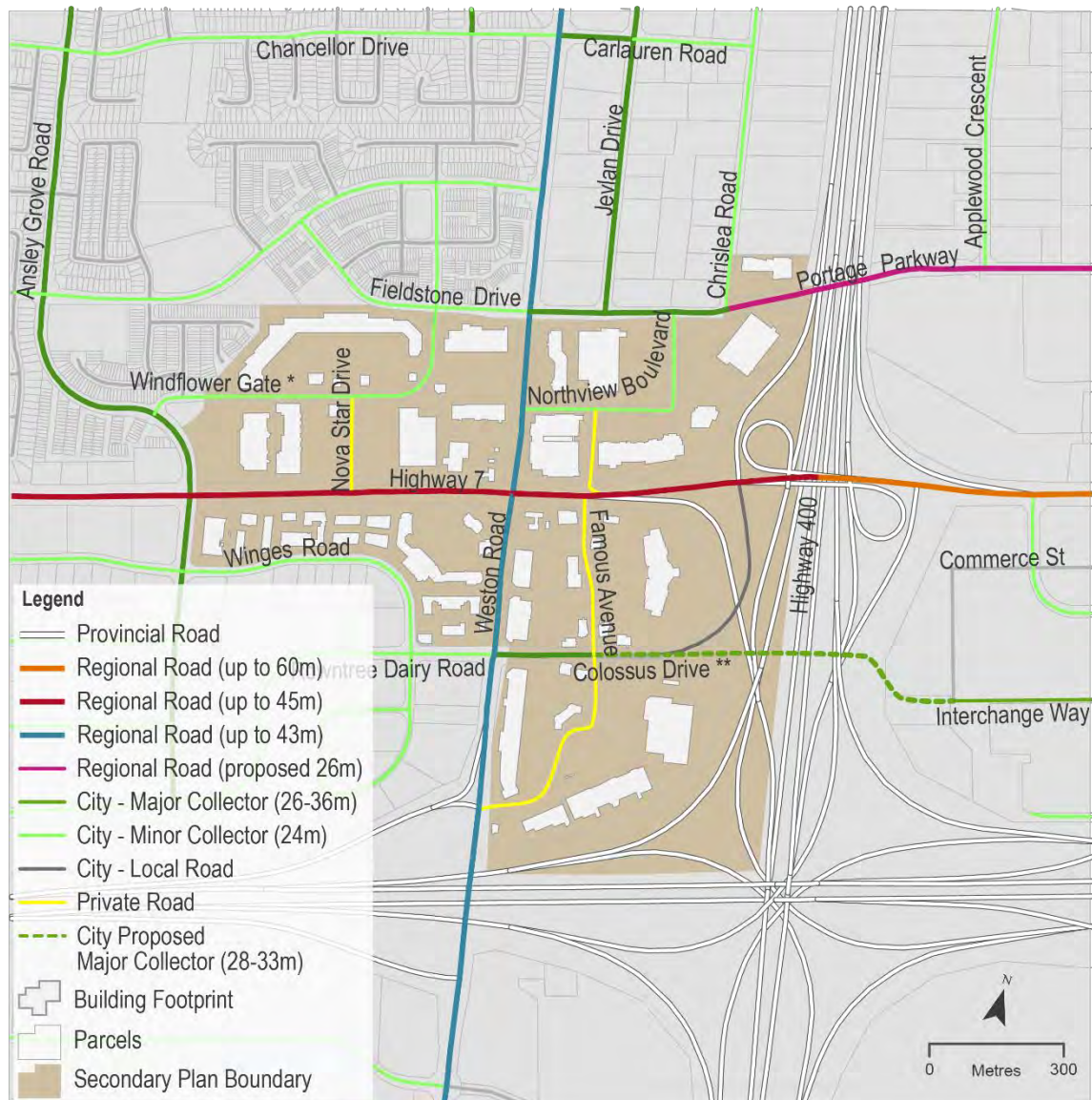
Figure 3-14: Highway 7 at Famous Avenue and Highway 400 SB ON-ramp



3.3.3 Current Road Classes and Travel Space

The existing road classification and right-of-way (ROW) are shown in **Figure 3-15**, based on York Region and City of Vaughan Official Plan. The study area is bounded by Highway 400, which is a provincial highway to the east, and Highway 407 which is a tolled provincial road to the south. Within the study area, the major arterials are Highway 7 and Weston Road. As identified in the York Region Official Plan, Highway 7 has a ROW up to 45m west of Highway 400 and 60m east of Highway 400. Weston Road has a ROW up to 43m. Portage Parkway is another Regional Road with proposed 26m ROW. Ansley Grove Road is a major collector under City's jurisdiction. Colossus Drive overpass is proposed, connecting Interchange Way on the east side of Highway 400. Lastly, there are some private roads in the study area, including Nova Star Drive and Famous Drive. Any proposed changes to these roads should consider relevant jurisdictions.

Figure 3-15: Existing Road Classification and Right-of-Way



Source: York Region Open Data, York Region Official Plan (2010), City of Vaughan Official Plan (2010)

3.3.4 Safety Considerations

The Highway 7 and Weston intersection has been consistently ranked as the highest or second highest number of collision in York Region. Between 2014 and 2016, there were 143 collision and 40 with injuries. It is recognized that safety may be improved for this intersection after the reconstruction of Highway 7. This should be considered in late phases of the study.

3.4 Transit

3.4.1 Existing Transit Network

The existing transit network in the vicinity of the study area is shown in **Figure 3-20**. The study area is covered by local transit service and rapid transit service, including VIVA Orange, Brampton Transit 501 Queen Street Züm, and is close to the VMC and Highway 407 Subway Station. Within the study area, there are two major transit station areas (MTSAs), which are within 500 metres of the two vivaNext stations, Highway 7 / Weston Road and Highway 7 / Ansley Grove Road.

As mentioned in **Section 2.2.3** all-day, two-way transit service with 15 minutes headway is planned for the Highway 7 corridor, connecting VMC subway station and Highway 7 and Wigwoss Drive / Helen Street with full dedicated transit rapidway.

Locating within close proximity to rapid transit lines, especially to the VMC subway stations, provides opportunities for the study area to be connected to the rest of GTHA. However, the subway stations is located approximately 2 km from the study area and would require crossing Highway 400, which is not a pedestrian friendly route.

The transit service frequency and the hours of operations for weekdays and weekends are shown in **Table 3-5**. The area is well-covered by transit and most lines operate throughout the day, typically from 5 am to midnight. However, all transit lines except for the subway service operate with infrequent service where headways range from 14 to 60 minutes. During off-peak hours in weekday and weekends, most transit lines operate with headways higher than 20 minutes. This infrequent service discourages transit usage as passengers would typically wait for a long time to board or would need to check service schedule before riding the transit.

Having more frequent and reliable transit service, as well as improving connections to transit hubs such as the VMC subway station, would be a priority for the later stages of the study.

Figure 3-16: Existing Transit Network

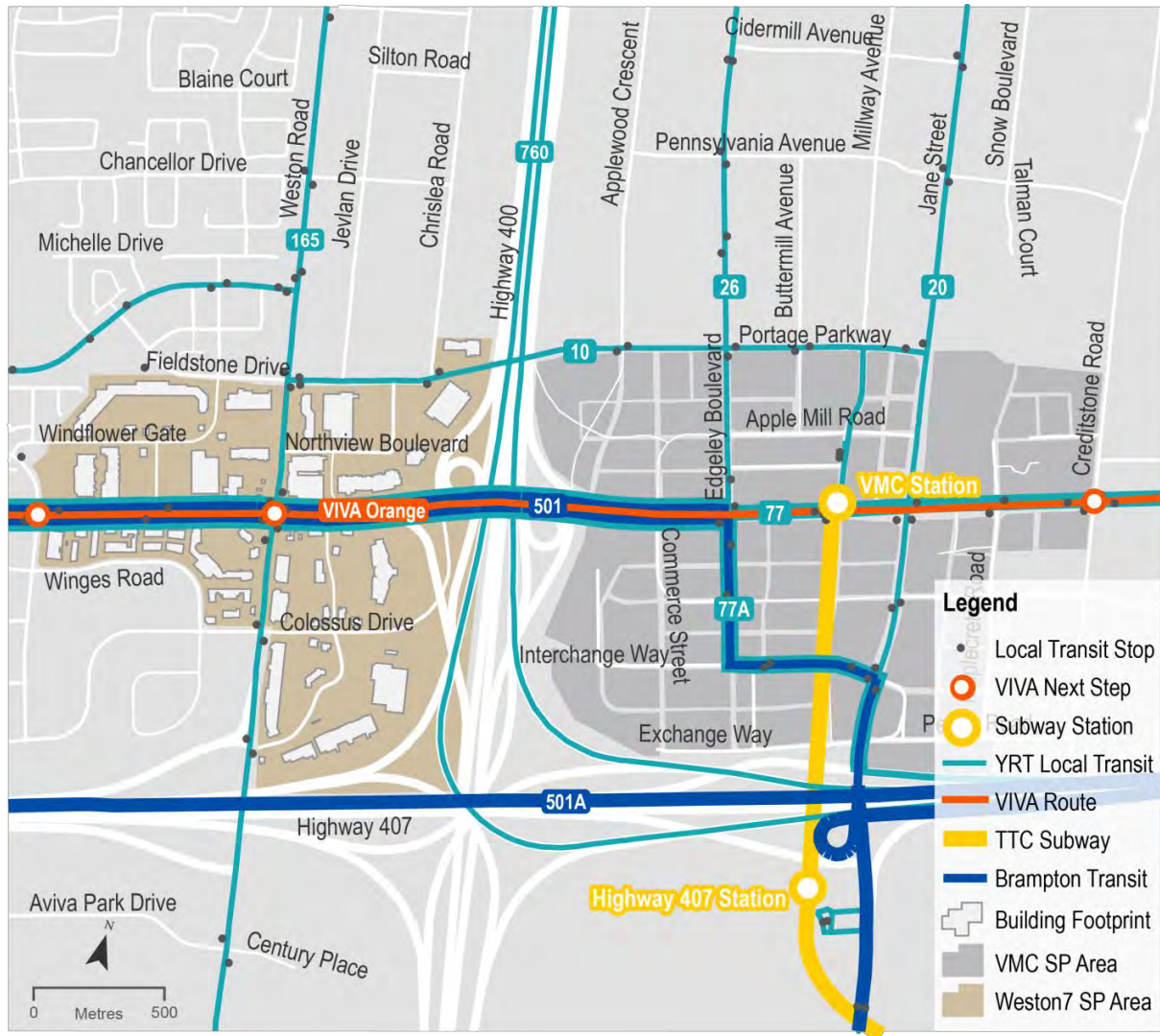


Table 3-5: Transit Service Frequency and Service Hours

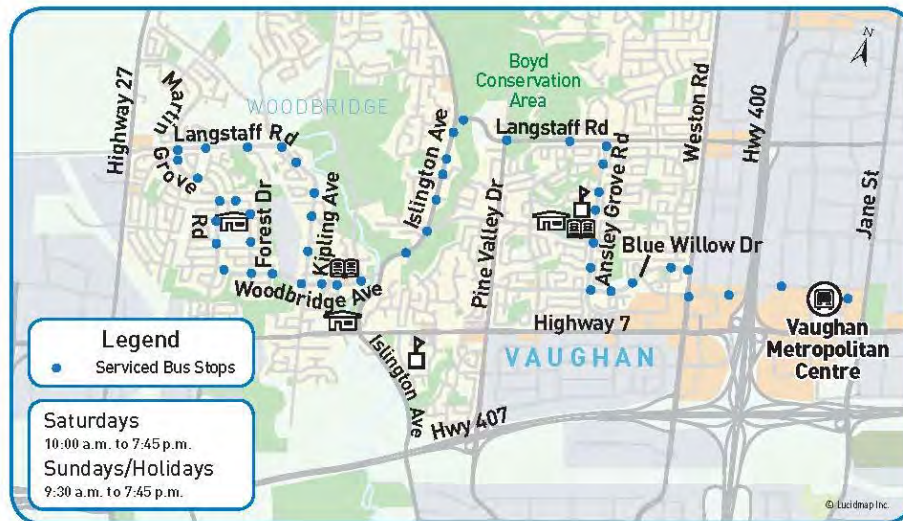
Transit Agency	Route #	Route Name	From	To	Weekday			Weekends / Holidays	
					PM Peak Period (3-7 pm) Headway (min)	Off-peak Headway (min)	Service Hours	Headway (min)	Service Hours
YRT	165	Weston	Pioneer Village Station	Major Mackenzie Dr & Hwy 400	18	40	5 am - 12 am	40	6 am – 12 am (Sat) 7 am - 12 am (Sun)
YRT	760	Vaughan Mills/ Wonderland	Canada's Wonderland	Finch Station	60	30	9 am - 11 pm	24	9 am - 11 pm
YRT	26	Maple	VMC Station	Jane St & Brandon Gate Dr	21	46 (midday only)	5 am - 8 pm	40	9 am to 8 pm
YRT	20	Jane	Pioneer Village Station	Mosque Gate & Teston Rd	14	20	5 am - 3 am	18	6 am -3 am (Sat) or 7 am - 3 am (Sun)
YRT	10 *	Woodbridge	VMC Station	Kipling Ave & Woodbridge Ave	38	38	5 am - 10 pm	Dial-a-Ride	
YRT	77	Highway 7	Hwy 7 & Vaughan Valley	Finch Station	18	27	24 hr	35 (Sat) 55 (Sun)	24 hr (Sat) 7 am - 3 am (Sun)
YRT	77A	Highway 7	Hwy 7 & Vaughan Valley	Finch Station	45	N/A	6-10 am and 3-8 pm	No service	
YRT VIVA	VIVA Orange		Martin Grove Rd & Hwy 7	Richmond Hill Centre	16	22	24 hr	20	4 am - 1 am (Sat) 6 am - 12 am (Sun)
Brampton	501	Zum Queen	York University	Brampton Downtown Terminal	15	18	4 am - 12 am	30	5 am – 12 am (Sat) 7 am - 12 am (Sun)
Brampton	501A*	Zum Queen	York University	Brampton Downtown Terminal	14	18	5 am - 12 am	30	6 am - 12 am
TTC	1**	Line 1	Finch Station	VMC	3	5	5 am - 1 am	5	5 am – 1 am (Sat) 7 am - 1 am (Sun)

* Route 10 operates with a 30 minute headway between 8:30p.m. to 10pm, and as a DAR service in the weekend

Source: YRT, Brampton Transit, and TTC transit service schedule (July 2018)

Route 10 operates as Dial-a-Ride (DAR) Woodbridge demand-responsive transit service on weekend and holidays. Residents can book the ride during the DAR Woodbridge service hours at least 60 minutes in advance of the trip and pay for a regular YRT fares. The DAR Woodbridge connects specific locations such as Blue Willow Terrace (senior apartments), Chancellor community centre, Fortinos, Walmart, and VMC Subway Station, as shown in **Figure 3-17**. The service operates on Saturdays between 10 a.m. and 7:45 p.m., and on Sundays or Holidays between 9:30 a.m. to 7:45 p.m.

Figure 3-17: Dial-a-Ride (DAR) Woodbridge



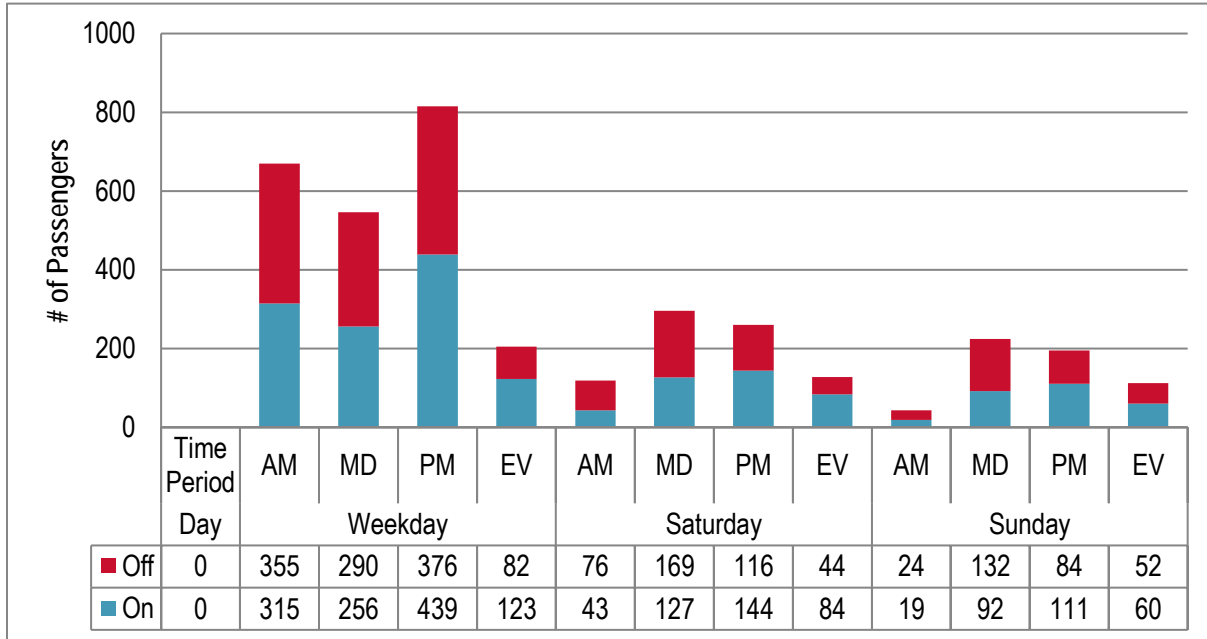
3.4.2 Transit Usage

Transit boardings and alightings in the study area were provided by York Region Transit (YRT). The data includes weekday, Saturday, and Sunday by time periods for the transit routes in the study area:

- Route 10 Woodbridge, which operates as a DAR service during the weekend;
- Route 165 Weston;
- Route 77/77A Highway 7;
- VIVA Orange; and
- Brampton 501 Züm as daily total only, as ridership by time period is not available.

The boardings and alightings by each time period for weekday, Saturday, and Sunday are shown in **Figure 3-18**. PM peak period (3-7 pm) in the weekday has the highest transit boarding and alighting activities, and weekday has significantly higher boardings and alightings compared to Saturday and Sunday.

Figure 3-18: Total On/Off by Time Period and Day in the Study Area (2018 Ridership)



Time Period:

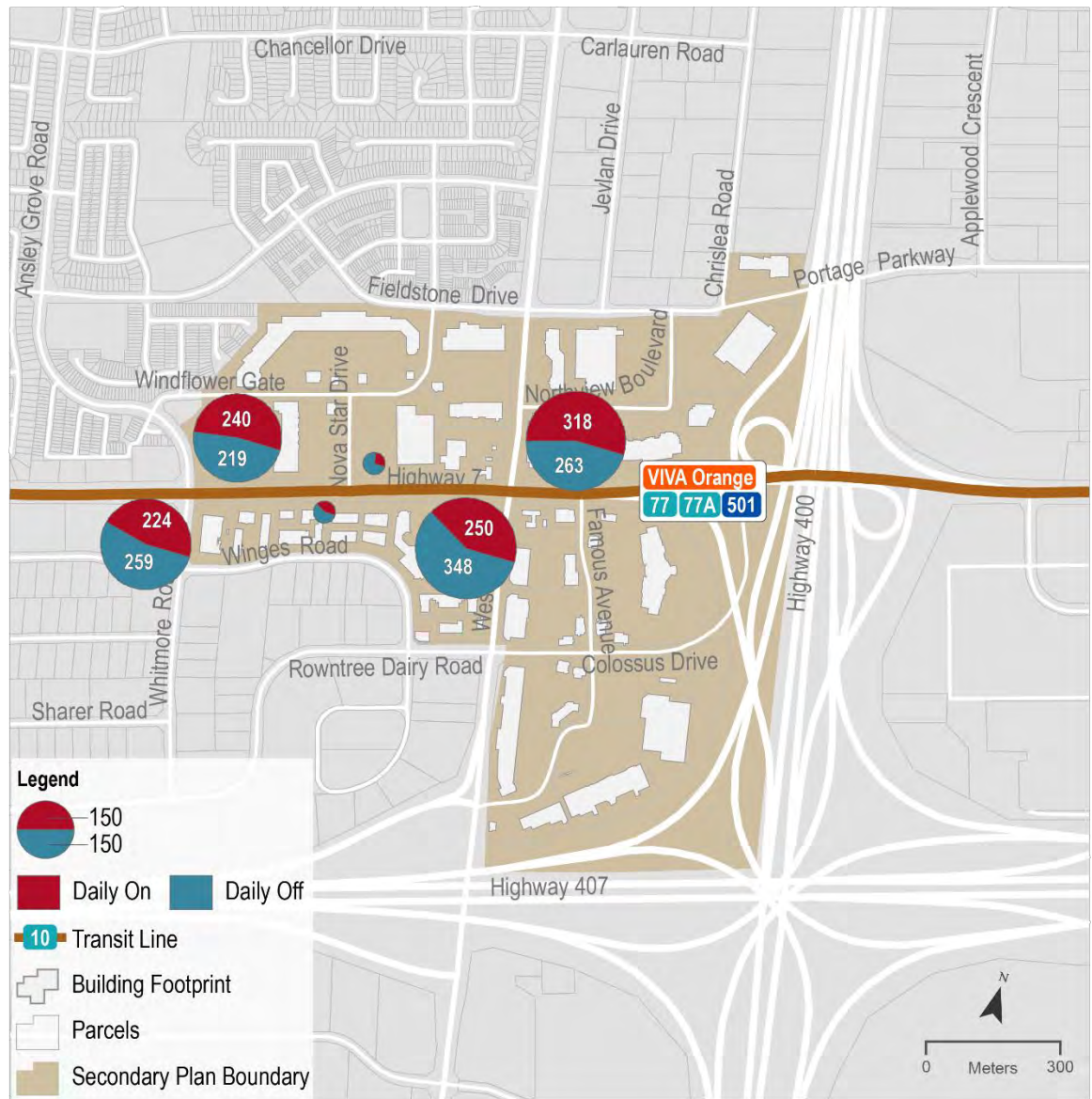
- AM: Start of service to 9:00 a.m.;
- Midday: 9:00 a.m - 3:00 p.m.;
- PM: 3:00 p.m. - 7:00 p.m and
- Evening: 7:00 p.m. to end of service.

* Zum 501 ridership not included as the ridership by time band is not available

** Route 10 operates as Dial-A-Ride service on weekends. Ridership within the Weston 7 study area is not available.

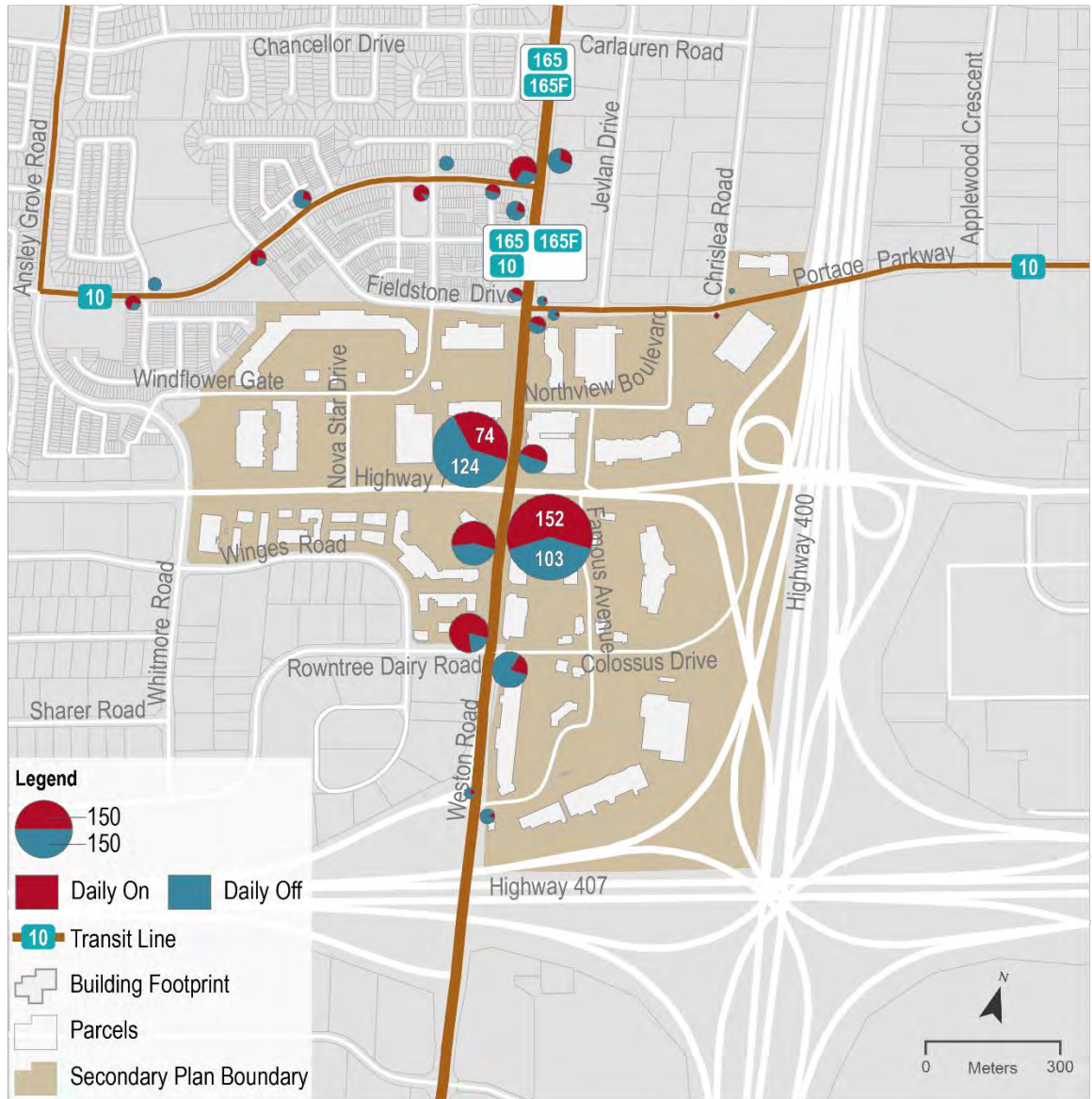
The daily boardings and alightings during the weekday at each stop are illustrated in **Figure 3-19** for east-west routes (Route 77/77A Highway 7, VIVA Orange, Brampton 501 Züm) and **Figure 3-20** for north-south routes (Route 16 Weston and 10 Woodbridge). The busiest stations are the eastbound and westbound stops at Highway 7 and Weston Road, with close to 600 boardings and alightings for each day. Eastbound and westbound transit stops at Highway 7 and Ansley Grove Road, as well as northbound and southbound transit stops at Weston and Highway 7, also have relatively high number of boardings and alightings. The rest of transit stops in the study area have limited ridership activity.

Figure 3-19: Weekday Daily Transit Demand, Route 77/77A Highway 7, VIVA Orange, and Brampton 501 Züm (2018 Ridership)



Source: York Region Transit

Figure 3-20: Weekday Daily Transit Demand, Route 16 Weston and 10 Woodridge (2018 Ridership)



Source: York Region Transit

3.5 Cyclists

3.5.1 Existing Cycling Network

With the exception of Windflower Gate west of Nova Start Drive, which is a signed bike route, there are no cycling facilities within the study area. The lack of physical separation from high speed and high volume traffic on the area's major arterials create a dangerous and unappealing cycling environment. Further, a large number of conflict zones exist, primarily at merge lanes at highway on-ramps, as well as at major intersections. The existing conditions culminate in poor cycling conditions that present a deterrent to cycling to and within the study area.

3.5.2 Cycling Network Plans

As mentioned in **Section 2.2.3**, York Region’s vivaNext Plan proposes raised bike lanes on Highway 7 and a multi-use path for pedestrians and cyclists in the median of the Highway 7 bridge over Highway 400. The project is currently under construction and is expected to be completed in 2019.

In addition, the City of Vaughan’s 2013 TMP proposed bike lanes in the study area. This includes community and neighbourhood bike lanes with formal pavement markings and signing on Weston Road, Windflower Gate, Fieldstone Drive, Chrislea Road, Wings Road, Rowntree Dairy Road, Colossus Drive, and Ansley Grove, as shown in **Figure 3-21**. It is noted that the City of Vaughan is currently undertaking the Pedestrian and Bicycle Master Plan Update, and the recommendations of this study should be considered in later phases of the Weston 7 Secondary Plan study.

Figure 3-21: Cycling Plan



Source: Urban Strategies Inc. / City-wide TMP 2013

3.5.3 Bicycle Level of Service

Bicycle LOS Methodology

The methodology for the bicycle level of service (BLOS) is based on the York Region Transportation Mobility Plan and enhanced by the City of Ottawa’s Multimodal Analysis Guideline. BLOS is calculated at the intersection and mid-block (segment) in recognition that a cyclist’s experience is determined by the conditions both between crossings and at the crossing itself.

The base criteria in the York Region and Ottawa evaluation are similar for the most part, but the BLOS analysis is more detailed under the Ottawa methodology, which considers not only the type and width of bikeway but also the adjacent road characteristics such as

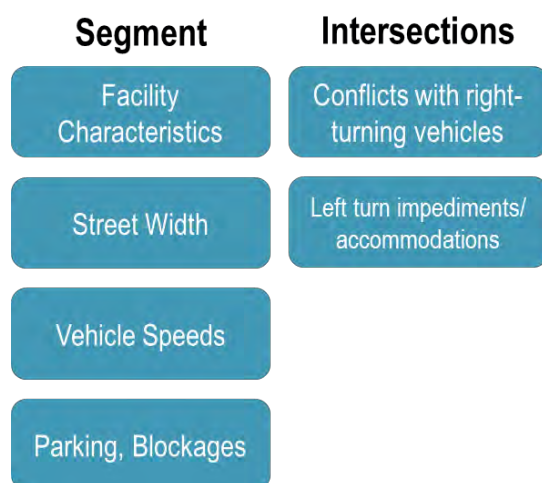
road and vehicular speeds. The differences between the Ottawa and York Region level of service approaches are most pronounced when reviewing the methodologies at the intersection level. The Ottawa methodology calls for a more involved list of inputs, including road-way characteristics such as the presence of turning lanes and turning speeds lead to a more rigorous evaluation of conditions at intersections. The Ottawa methodology offers a more detailed review of the user experience, especially at the intersection level. Overall, the York Region Transportation Mobility Plan multi-modal level of service methodology is a good baseline from which to conduct an existing conditions review. Nevertheless, the Ottawa methodology sets a higher level of standard that is arguably more appropriate for urbanizing areas that aim to prioritize active transportation first and foremost.

The methodology for the evaluation of segment BLOS utilizes a look-up table approach based on roadway characteristics and facility type and quality. The methodology measures each segment’s and intersection’s level of traffic stress (LTS) experienced by the cyclist, established in the Mineta Transportation Institute report (no. 11-19) and has been adopted widely by a variety of municipalities. Each LTS score is associated with a category of cyclist (e.g. “all ages” to “very confident cyclists only”) and score (A to F). Segment BLOS considers facility type, street width, operating speed, and parking characteristics.

At the intersection level, similar look-up table approach is used to evaluate the left and right turning conditions as well as the average score of the approaches to determine the overall intersection BLOS. Details of the methodology can be found in **Appendix A**.

The input of the BLOS is shown in **Figure 3-22**.

Figure 3-22: Inputs for Bicycle LOS



Segment BLOS is the most sensitive to facility type, with physically separated bikeways such as cycle tracks, protected bike lanes and multi-use paths receiving a score of ‘A’ while cycling in mixed traffic conditions with varying operating speeds and street widths generally scoring lower – ‘D’ to ‘F’. The scoring ranges as follows:

- **BLOS ‘A’ to ‘C’** – Physically separated facilities such as cycle tracks, protected bike lanes, and multi-use paths (MUP) are attractive to most cyclists. At intersections,

continuous cycling facilities are provided and separated from vehicles and pedestrians.

- **BLOS ‘D’ to ‘E’** – Designated bike lanes adjacent to high speed traffic lanes or shared facilities on low volume, low speed streets with wide curb lanes provide some comfort, but the majority of potential cyclists typically will not cycle. Greater conflicts at intersections with turning vehicles are experienced.
- **BLOS ‘F’** – Non-separated, shared roadways with high traffic volumes and speeds, and no accommodations at intersections.

Examples of the segment Bicycle LOS are shown in Figure 3-23.

Figure 3-23: Example of Bicycle LOS



Bicycle LOS Analysis

The BLOS results of the Weston 7 Secondary Plan study area is illustrated in **Figure 3-24**, and the segment and intersection BLOS are summarized in **Table 3-6** and **Table**

3-7. There is very limited cycling infrastructure in the study area, therefore many intersections and segments experience a BLOS of 'D' or worse due to high vehicular operating speeds and high traffic volumes. Windflower Gate west of Nova Star Drive is a quieter streets without bicycle infrastructure, operate with a BLOS of 'B' due to low operating speeds, low traffic volumes, and no centreline marking. Detailed analysis can be found in **Appendix B**.

Figure 3-24: Bicycle LOS



Table 3-6: Segment BLOS

Road	From	To	Segment BLOS
Weston Road	Highway 407	Famous Ave	F
	Famous Ave	Petsmart access	F
	Petsmart access	Collossus Dr	F
	Collossus Dr	Woodbridge Plaza Access	F
	Woodbridge Plaza Access	Hwy 7	F
	Hwy 7	Northview Blvd	F
	Northview Blvd	Fieldstone Dr	F
Highway 7	Whitmore Rd	Nova Star Dr	F
	Nova Star Dr	Weston Rd	F
	Weston Rd	Famous Ave	F
	Famous Ave	Collossus Dr	F
	Collossus Dr	Hwy 400	F
Windflower Gate	Ansley Grove Rd	Fieldstone Dr	B
Nova Star Drive	Highway 7	Windflower Gate	E
Northview Boulevard	Weston Road	Chrislea Road	D
Famous Avenue	Weston Rd	Costco Access	E
	Costco Access	Collossus Dr	D
	Collossus Dr	Highway 7	D
Winges Road	Whitmore Rd	Rowntree	D
Whitmore Road	Windflower Gate	Highway 7	E
	Highway 7	Winges Rd	E
Colossus Drive	Winges Rd	Weston Rd	E
	Weston Rd	Costco Access	E
	Costco Access	Hwy 7	E
Fieldstone Drive	Windflower Gate	Weston Rd	E
	Weston Rd	Chrislea Rd	E
	Chrislea Rd	Hwy 400	F

Table 3-7: Intersection BLOS

Road	Intersection	Intersection BLOS
Weston Road	Highway 7	F
	Chrislea Rd / Fieldstone	E
	Colossus Dr	F
Colossus Drive	Famous Ave	E
Highway 7	Colossus Dr	F
	Whitmore	F
	Nova Star Dr	E
Winges Road	Rowntree Dairy Rd	E
	Whitmore Rd	E
Nova Star Dr	Windflower Gate 1	D
Windflower Gate	Whitmore Rd	D
	Fieldstone Rd	C
Famous Ave	Weston Rd	F
	Hwy 7	F

3.6 Pedestrians

3.6.1 Existing Pedestrian Network

The existing sidewalk network within the study area is largely complete (**Figure 3-25**). Most streets have sidewalks on both sides, and some streets including Northview Boulevard, Famous Drive, and Wings Road, have sidewalk on one side. Roads under MTO jurisdiction, including the access road to 7777 Weston Road and provincial highways, do not have sidewalks.

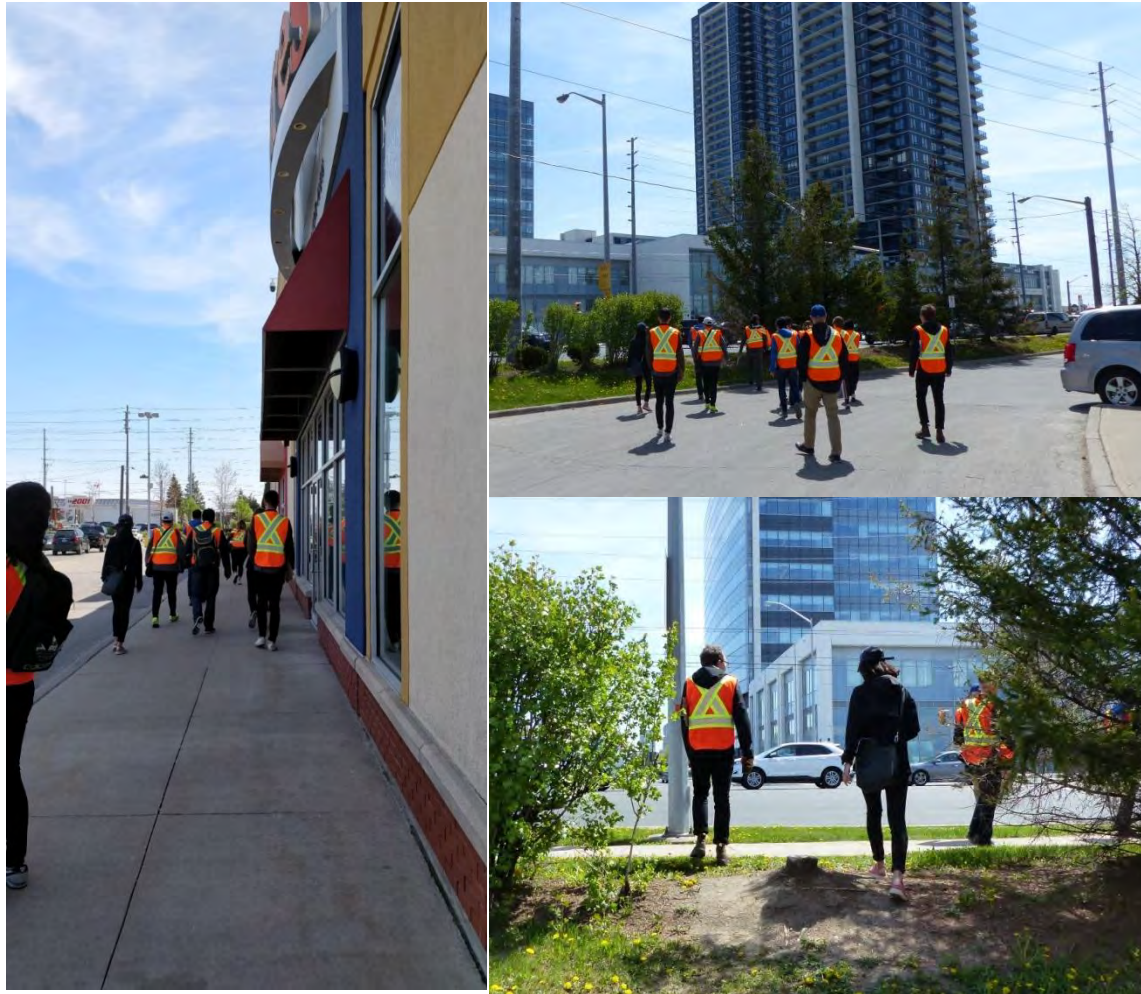
Most sidewalks have a width of 1.5m, while some roads, such as Nova Star Drive, have 2m sidewalks. On some streets, the sidewalk is separated from traffic by a grass or asphalt buffer that occasionally contains street furniture or trees. This buffer provides some safety benefits for pedestrians. The majority of Highway 7 from west of Nova Star Drive to Highway 400 has minimum or no buffer, where high volumes of traffic are operating at a speed of 60 to 70 km/hr.

Given the high vehicular traffic volumes and speed on the major arterial roads and limited amenity provided, the overall environment for pedestrians is poor. Furthermore, the large block pattern of the street network and large surface parking lots within the study area, with limited midblock crossings, creates poor connectivity from buildings to the arterial roads and most transit stops. Consequently, informal connections through private property, storefront walkways, informal point of access, and parking lots have emerged, but do not adequately provide for pedestrian safety and comfort. Examples of the informal paths are shown in **Figure 3-26**, where the study team walked from Windflower Gate to Weston Road where a direct link was absent.

Figure 3-25: Existing Pedestrian Network



Figure 3-26: Informal Pathway between Windflower Gate and Weston Road



Source: Weston 7 Secondary Plan Site Tour, May 2018

Safety issues arise where pedestrian and vehicular traffic meets at intersections and private driveways. **Figure 3-27** illustrates a pedestrian crossing design typical to the study area along Highway 7, long crossing distances with a minimal or non-existent mid-crossing median. However, zebra markings have been employed at most major intersections, increasing crossing visibility to motorists.

Large turning radii are employed at most intersection in the study area. While this facilitates vehicular flow, especially for goods movement, it impacts pedestrian safety by increasing crossing length and vehicle speed. **Figure 3-28** exhibits a large turning radii where vehicles can make turns at higher speeds than intersections with smaller turning radii.

The pedestrian safety issue is especially critical at provincial highways. At the Highway 400 southbound on-ramp, eastbound traffic on Highway 7 towards the ramp is free-flow at high speed with minimal gaps making this ramp dangerous for pedestrians and cyclists to cross. There are no visible markings (such as zebra markings) for pedestrian crossing over the highway on-ramp. In addition, the existing sidewalk over Highway 400 is under 2 metres without any buffer to vehicles operating at a high speed, making it uncomfortable and unsafe for pedestrian to use. Similar issues exist at the Highway 407

westbound on-ramp where southbound traffic on Weston Road accesses the ramp. These create a major barriers for pedestrians to access the study area and to nearby mobility hubs such as the VMC subway station.

A number of private driveways interrupt the pedestrian realm along the study area's major arterials, providing vehicular access to buildings that are well set back from the street. These driveways increase the amount of instances where pedestrians and vehicles must interact, as illustrated in **Figure 3-30**.

Some driveways are not signed appropriately with stop control, which can be increasingly hazardous for pedestrians at the high volume driveways common within the study area.

Figure 3-27: Signalized Crossing Highway 7 on the West Side of Weston Road



Source: Google Maps

Figure 3-28. Large Turning Radii at the Northeast Corner of Whitmore Road and Wings Road



Source: Google Maps

Figure 3-29: Channelized Right-turn, Southbound on-ramp to Highway 400 from Highway 7



Source: Google Maps

Figure 3-30: Private Driveways Example on Whitmore Road



Source: Google Maps

3.6.2 Pedestrian Level of Service

Pedestrian LOS Methodology

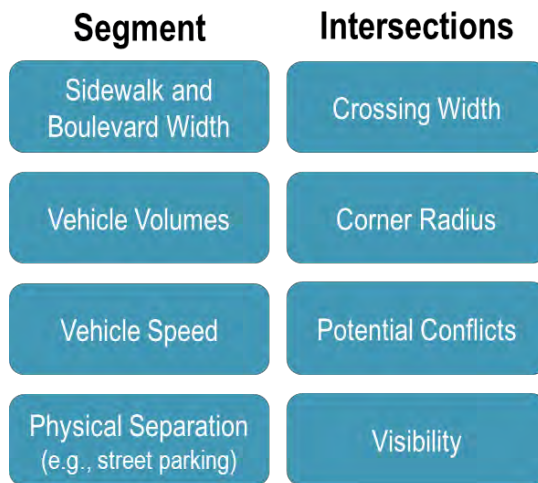
Similar to the BLOS, the pedestrian level of service (PLOS) methodology is based on the York Region Transportation Mobility Plan and enhanced by the City of Ottawa's Multimodal Analysis Guideline. PLOS is calculated at the intersection and mid-block in recognition that a pedestrian's experience is determined by the conditions both between crossings and at the crossing itself.

The base criteria used to measure the performance or level of service are similar for the most part, such as the width of active transportation facilities and their separation from the roadway curb. Compared to the York Region methodology, the Ottawa methodology incorporates additional considerations that help better capture the nuances of different road typologies and their effect on user experience. When walking, these factors such as traffic volumes on the adjacent roadways, on-street parking, and roadway operating speeds have an impact on a pedestrian's level of comfort and should not be neglected. At the intersection level, the Ottawa methodology offers a more detailed review of the user experience, including crossing distances, corner radii and signal phasing and timing features, to produce an intersection level of service for pedestrians. Overall, the York Region Transportation Mobility Plan multi-modal level of service methodology is a good baseline from which to conduct an existing conditions review. Nevertheless, the Ottawa methodology sets a higher level of standard that is arguably more appropriate for urbanizing areas that aim to prioritize active transportation first and foremost. For

example, a 1.5m sidewalk with no buffer adjacent to a 70km/hr road receives an “F” under the Ottawa MMLOS methodology but a “C” under York Region’s guidelines.

The methodology for the evaluation of segment PLOS utilizes a look-up table approach based on cross-section and roadway characteristics (e.g., sidewalk and boulevard width, traffic volumes, presence of on-street parking, and operating speed). Intersection PLOS uses the Pedestrian Exposure to Traffic at Signalized Intersections (PETSI) and assigns points based on a number of crossing characteristics (e.g., crossing distance, presence of a median, presence of a crossing refuge, turning restrictions, right hand turn characteristics, curb radii, etc.). The input for the PLOS is summarized in **Figure 3-31**.

Figure 3-31: Inputs for Pedestrian LOS



The average score of each intersection approach is averaged to determine the overall intersection PLOS. Scoring ranges as follows:

- **PLOS ‘A’ to ‘C’** – Attractive to most pedestrians, including locations where lower speeds and volumes, wider sidewalks, and larger boulevards with ample separation from moving traffic are present. Crosswalks are provided on all four legs of the intersections and with shorter crossing distances at intersections.
- **PLOS ‘D’ to ‘E’** – Elements may not appeal to pedestrians due to narrow sidewalks, lack of separation from traffic, longer crossing distances, etc.
- **PLOS ‘F’** – Not adequate – locations without any facility or where no buffer is provided adjacent to high speed and high volume traffic. No crosswalks provided and long crossing distances at intersections.

Higher segment scores are characterized by locations where lower vehicle speeds and volumes, wider sidewalks, and larger boulevards with ample separation from moving traffic are present. Lower segment scores are observed in locations where high vehicle speeds, narrow sidewalks, and minimal separation from traffic are present.

Examples of the Pedestrian LOS are shown in **Figure 3-32**.

Figure 3-32: Examples of Pedestrian Level of Service



Pedestrian LOS Analysis

The segment and intersection PLOS analysis results are summarized in **Table 3-8** and **Table 3-9** and illustrated in **Figure 3-33**. The majority of intersections and segments operating with a PLOS of 'D' or worse. The segment analysis shows that the majority of arterials experience a PLOS of 'E' or 'F' due to high vehicle operating speeds, narrow sidewalks, and little to no separation from vehicular traffic. Detailed analysis for the Pedestrian LOS can be found in **Appendix A**.

Figure 3-33: PLOS Results

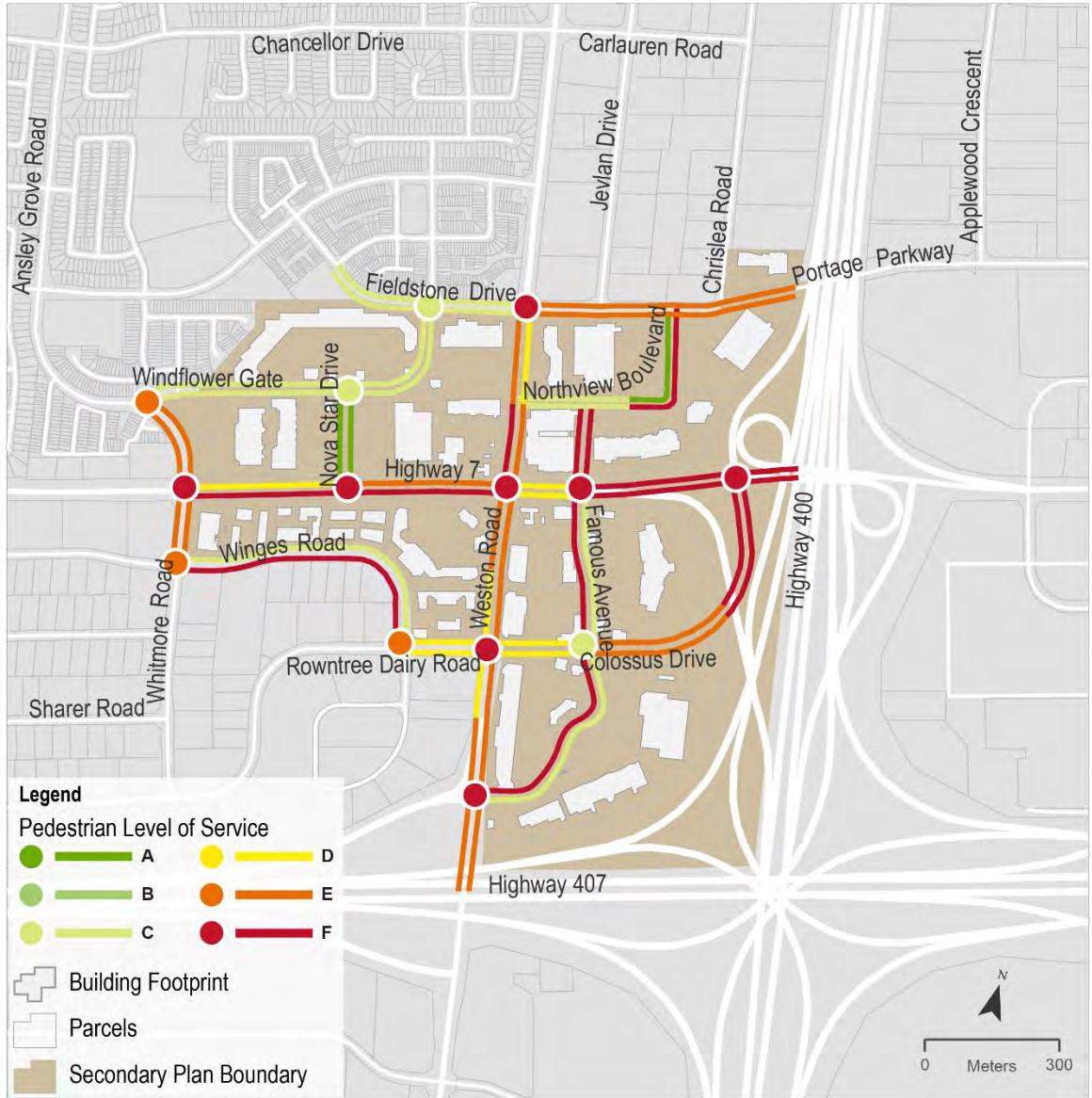


Table 3-8: Segment PLOS

Road	From	To	West / North Side	East / South Side
Weston Road	Highway 407	Famous Ave	E	E
	Famous Ave	Petsmart access	E	E
	Petsmart access	Collossus Dr	D	E
	Collossus Dr	Woodbridge Plaza Access	D	E
	Woodbridge Plaza Access	Hwy 7	E	E
	Hwy 7	Northview Blvd	F	E
	Northview Blvd	Fieldstone Dr	E	D
Nova Star Drive	Highway 7	Windflower Gate	A	A
Whitmore Road	Windflower Gate	Hwy 7	E	E
	Hwy 7	Winges Rd	E	E
Famous Avenue	Costco Access	Collossus Dr	F	C
	Collossus Dr	Highway 7	F	C
Collossus Drive	140 m East of Costco far access	Hwy 7	F	F
Northview Boulevard	Goodlife Fitness Access	Chrislea Road	C	F
Highway 7	Whitmore Rd	Nova Star Dr	D	F
	Nova Star Dr	Weston Rd	E	F
	Weston Rd	Famous Ave	D	D
	Famous Ave	Collossus Dr	F	F
	Collossus Dr	Hwy 400	F	F
Windflower Gate	Ansley Grove Rd	Fieldstone Dr	C	C
Northview Boulevard	Weston Road	Goodlife Fitness Access	C	A
Famous Avenue	Weston Rd	Costco Access	F	C
Collossus Drive	Weston Rd	Famous Ave	D	D
	Famous Ave	140 m East of Costco far access	E	E
Rowntree Dairy Road	Winges Rd	Weston Rd	D	D
Winges Road	Whitmore Road	Rowntree Dairy Road	C	F
Fieldstone	Windflower Gate	Weston Rd	C	C
	Weston Rd	Jevlan Dr	E	E
	Jevlan Dr	Chrislea Rd	E	E
	Chrislea Rd	Hwy 400	E	E

Table 3-9: Intersection PLOS

Road	Intersection	Intersection PLOS
Weston Road	Famous Avenue	F
	Colossus Dr	F
	Hwy 7	F
	Chrislea Rd / Fieldstone Dr	F
Highway 7	Ansley Grove Rd / Whitmore Rd	F
	Nova Star Dr	F
	Famous Ave	F
	Colossus Dr	F
	Colossus Dr	F
Windflower Gate	North Star Dr	C
	Fieldstone Dr	B
	Whitmore Road / Ansley Grove Dr	F
Whitmore Road	Winges Road	E
Winges Road	Rowntree Dairy Road	E
Colossus Drive	Famous Drive	C

3.6.3 Walkshed Analysis to/from BRT Stops

Transit walkshed refers to the pedestrian catchment area of a transit facility. It is determined by the distance people are generally willing to walk to a transit stop, for example 500 m. The simplest way of measuring the walkshed of a transit facility is to include the entire area within a 500 m radius. However, this approach may include areas that are, in reality, not accessible to pedestrians (i.e. over a highway) or require longer walking distances due to barriers or irregular street patterns. An alternative method is to map the “true” linear walking distance from a transit facility using the existing street network accessible to pedestrians. Comparing the two methods can illustrate issues with connectivity and point to where new pedestrian links may be necessary.

Figure 3-34 illustrates the radial and linear walkshed analysis of the vivaNext BRT stations within the study area, based on the 500-metre walking distances. When comparing the radial and linear walkshed analysis, the linear walkshed meets the radial walkshed only when there is a straight line trip. However, there are many areas where the linear walkshed does not cover the same area as the radial walkshed. This includes the northern portion of Nova Star Drive and much of Piazza Del Sore (north of Windflower Gate), where many popular attractions, such as Toys R Us and Winners, are located. As a result, transit users are often required to cut through parking lots or other informal footpaths to reach their destination.

The walkshed analysis also illustrates the lack of walking connectivity across the big blocks and relates to the low street connectivity score seen in **Section 3.3.1**. There is

very limited continuous east-west connection within the study area except for Highway 7 and no continuous north-south connection except for Weston Road.

Figure 3-34: Walkshed Analysis from the vivaNext BRT Stops



3.6.4 Walk Score

Walk Score is a number between 0 to 100 that measures the walkability of any address. It measures the potential for walking trips, and points are awarded based on the distance to amenities. The description of different walk score ranges is shown in **Table 3-10**. Similarly, Transit Score and Bike Score measures how well a location is served by public transit and whether an area is good for biking.

Walk Score, Transit Score, and Bike Score are evaluated for 7777 Weston Road, which is located at Highway 7 and Weston Road. The results are summarized in **Table 3-11**. Although the area is not well served with side walks, the large variety of retail uses results in a “somewhat walkable” score. There is strong potential in the study area to

facilitate more walking, with a finer-grid street network and improved pedestrian facilities. With transit operating on Highway 7 and Weston Road, the area received a “good transit” score, although as mentioned in **Section 3.4**, the area has potential for improvements. Lastly, due to the lack of bicycle facilities and high traffic volumes and speeds on arterial roads, the area received a bike score of 0.

Table 3-10: Walk Score Description

Walk Score®	Description
90-100	Walker’s Paradise: daily errands do not require a car
70-89	Very Walkable: most errands can be accomplished on foot
50-69	Somewhat Walkable: some amenities within walking distance
25-49	Car-Dependent: a few amenities within walking distance
0-24	Car-Dependent: almost all errands require a car

Source: WalkScore

Table 3-11: Walk Score, Transit Score, and Bike Score for 7777 Weston Road

Measure	Score	Description
Walk Score	69	Somewhat Walkable Some errands can be accomplished on foot.
Transit Score	57	Good Transit Many nearby public transportation options.
Bike Score	0	Somewhat Bikeable Minimal bike infrastructure.

Source: WalkScore

3.7 Vehicles

3.7.1 Vehicular Intersection Traffic Analysis

Existing traffic operations were assessed using turning movement count data and existing signal timing plans provided to HDR by the City of Vaughan and York Region and through additional counts conducted in June 2018 to supplement missing data. The available data are summarized in **Table 3-12**.

Table 3-12: Dates of Turning Movement Counts, Availability of Signal Timing Cards and Assumptions

Intersection	Weekday PM Peak Hour Count Date	Weekend Peak Hour Count Date	Signal Timing Card Available	Assumption(s) on Estimation of Missing Signal Timings and Intersection Turning Volumes
Chrislea Rd @ Portage Pkwy / Commercial Access	May 17 , 2011	June 23, 2018	No	120 sec Cycle Length Assumed, May 2011 traffic count was adjusted with an annual growth rate of 1.5% compounded up to 2018 for Weekday PM Peak Hour
Weston Rd @ Chrislea Rd / Fieldstone Drive	June 26, 2018	June 23, 2018	Yes	-
Ansley Grove Rd @ Windflower Gate / Pinedale Gate	June 26, 2018	June 23, 2018	Yes	-
Highway 7 @ Ansley Grove Rd / Whitmore Rd	June 26, 2018	June 23, 2018	Yes	-
Highway 7 @ Nova Star Dr / Commercial Access	June 26, 2018	June 23, 2018	Yes	-
Highway 7 @ Weston Rd	Dec. 20, 2016	June 23, 2018	Yes	-
Highway 7 @ Famous Rd	June 26, 2018	June 23, 2018	Yes	-
Highway 7 @ Colossus Dr / Highway 400 SB Off Ramp	March 21, 2017	N/A	Yes	-
Highway 7 @ Highway 400 NB Off Ramp	May 31, 2016	N/A	No	140 sec Cycle Length Assumed
Weston Road @ Rowntree Dairy Rd./Colossus Drive	June 26, 2018	June 23, 2018	Yes	-
Rowntree Dairy Rd @ Wings Rd / Auto Park Cir	June 26, 2018	June 23, 2018	No	120 sec Cycle Length Assumed
Ansley Grove Rd / Whitmore Rd @ Wings Rd / Trowers Rd	June 26, 2018	June 23, 2018	No	120 sec Cycle Length Assumed
Weston Road @ 407ETR WB On Ramp / Famous Avenue	June 26, 2018	June 23, 2018	Yes	-
Weston Road @ Northview Blvd	June 26, 2018	June 23, 2018	No	140 sec Cycle Length Assumed
Fieldstone Drive @ Windflower Gate/Pottery PI [Unsignalized]	March 4, 2015	June 23, 2018	-	-
Northview Blvd. @ 7777 Weston Road Access [Unsignalized]	N/A	June 23, 2018	-	Assumed from current PM peak volumes of the neighboring intersections, and an older count of July 31, 2012 of another neighboring intersection



Intersection Analysis Methodology

The analysis, conducted using Synchro 9, considered three separate measures of performance:

- The volume to capacity (V/C) ratio for each movement and overall intersection. This ratio reflects peak hour traffic demand measured against roadway capacity;
- The level of service (LOS) for each for each movement and overall intersection. LOS is based on the average control delay per vehicle; and
- The 95th percentile queue length of each movement/lane group.

LOS definitions (**Table 3-13**) are based on the Highway Capacity Manual (HCM) 2000. The HCM defines LOS for signalized and unsignalized intersections as a function of the average vehicle control delay. LOS may be calculated per movement or per approach for any intersection configuration, but LOS for the intersection as a whole is only defined for signalized and all-way stop configurations.

Table 3-13: Highway Capacity Manual Level of Service Definitions for Intersections

LOS	Signalized Intersection Average Vehicle Control Delay	Unsignalized Intersection Average Vehicle Control Delay	LOS Recommendation
A	≤10 sec	≤10 sec	Acceptable
B	10-20 sec	10-15 sec	Acceptable
C	20-35 sec	15-25 sec	Acceptable
D	35-55 sec	25-35 sec	Somewhat undesirable
E	55-80 sec	35-50 sec	Undesirable
F	≥80 sec	≥50 sec	Unacceptable

It is noted that the analysis may indicate that certain movements at an intersection operate with volume-capacity ratios greater than 1.0. Theoretically, a maximum volume-capacity ratio for existing conditions cannot be greater than 1.0, since the observed volumes used in the analysis represent volumes that were actually served at the intersection. Thus, a volume-capacity ratio exceeding 1.0 under existing conditions is a result of conservative parameters used in the Synchro analysis. For future conditions, V/C ratios exceeding 1.0 may either be a result of these conservative parameters, but may also indicate a likelihood that traffic will divert to other routes. Volume inputs in Synchro are static and any diversion would have to be manually accounted for and assigned to different intersections.

On the other hand, LOS F indicates average delays in excess of 80 seconds. While this is generally characterized as “poor” operation, it does not necessarily imply that the movement, approach, or intersection is experiencing demand in excess of capacity. When cycle lengths are in the range of 120 seconds (or longer), it is possible to have delays in the range of 80 seconds even in low-demand situations.

In addition to V/C ratio and LOS, 95th percentile queue lengths are also reported to identify any storage length deficiencies.

Existing Traffic Operations

Based on the existing traffic volumes and the existing signal timing plans obtained from the operating municipalities, **Figure 3-35** and **Figure 3-36** shows the summary of the resulting performance measures for the study area intersections, during both the weekday PM peak hour and weekend peak hour. Results for each intersection and the turning movements are shown in **Table 3-14**. The weekend analysis for Highway 7 at Highway 400 SB Off-ramp and Highway 400 NB Off-ramp were not included due to the lack of data. Detailed analysis can be found in **Appendix C**.

Table 3-14: Existing Intersection LOS

Intersection & Turning Movements	Weekday PM Peak Hour			Weekend Peak Hour		
	LOS	v/c	Queue	LOS	v/c	Queue
Chrislea Rd @ Portage Pkwy / Commercial Access [Signalized]	C	0.5		B	0.24	
EBL	B	0.46	22.2	A	0.18	11.1
EBTR	B	0.25	41.9	B	0.27	45.7
WBL	B	0.07	7.9	B	0.08	8.3
WBT	C	0.62	117.1	C	0.24	41
WBR	C	0.18	19.3	B	0.06	9.1
NBL	C	0.02	5.2	C	0.04	7.5
NBTR	C	0.03	8.4	C	0.05	11.1
SBL	C	0.34	46	C	0.17	24.8
SBTR	C	0.12	16.9	C	0.08	14.9
Weston Rd @ Chrislea Rd / Fieldstone Drive [Signalized]	D	0.87		C	0.82	
EBL	F	1.07	59.6	E	0.86	73.4
EBT	D	0.6	87.5	D	0.43	59
EBR	D	0.04	4.3	C	0.1	14.7
WBL	F	1.13	121.8	C	0.78	80.9
WBTR	D	0.75	119.4	B	0.22	30
NBL	B	0.33	16.2	C	0.76	84.3
NBT	C	0.71	94.1	C	0.69	135.9
NBR	C	0.15	7	C	0.13	19.3
SBL	C	0.53	22.4	C	0.57	30.8
SBT	C	0.41	87.6	D	0.66	112.7
SBR	B	0.05	5.8	C	0.12	18.3
Ansley Grove Rd @ Windflower Gate / Pinedale Gate [Signalized]	C	0.55		C	0.53	
EBL	D	0.62	69	B	0.47	85.5
EBTR	C	0.16	27.2	B	0.12	26.7
WBL	A	0.04	6.8	A	0.04	6.5
WBT	A	0.35	77.1	A	0.23	51.9
WBR	A	0.13	8.5	A	0.16	10.9
NBLTR	D	0.07	9.8	D	0.13	12.1
SBL	E	0.78	74.8	D	0.73	81.2



Intersection & Turning Movements	Weekday PM Peak Hour			Weekend Peak Hour		
	LOS	v/c	Queue	LOS	v/c	Queue
SBTR	D	0.33	34.2	D	0.28	24.2
Highway 7 @ Ansley Grove Rd / Whitmore Rd [Signalized]	C	0.55		C	0.49	
EBL	B	0.44	18.7	A	0.41	21.7
EBT	B	0.35	61.3	B	0.33	64.7
EBR	B	0.03	1	B	0.04	2.4
WBL	A	0.23	2.5	A	0.23	5.6
WBT	A	0.41	9.7	A	0.33	27.8
WBR	A	0.09	0	A	0.08	0.2
NBL	E	0.63	59.7	E	0.67	49.7
NBT	E	0.83	104.5	E	0.63	61
NBR	D	0.26	33.8	D	0.08	14.2
SBL	F	0.92	48.9	F	0.8	49.6
SBT	D	0.28	36	D	0.43	42.6
SBR	D	0.09	17.1	D	0.16	23.1
Highway 7 @ Nova Star Dr / Commercial Access [Signalized]	C	0.47		C	0.5	
EBL	C	0.44	30.7	B	0.45	29.6
EBT	B	0.45	72.3	B	0.44	60.6
EBR	B	0	0	B	0.01	0
WBL	B	0.13	4.4	A	0.21	6.3
WBT	C	0.49	73.2	B	0.4	44
WBR	C	0.21	17.1	A	0.27	5.9
NBL	E	0.13	12.8	E	0.07	8.5
NBTR	F	0.74	57.9	E	0.5	34.9
SBL	D	0.27	24.4	D	0.58	59.5
SBTR	D	0.17	21.4	D	0.17	23
Highway 7 @ Famous Ave [Signalized]	D	0.71		D	0.79	
EBT	B	0.47	139	B	0.57	132
EBR	A	0.09	6.3	A	0.14	22.2
WBL	E	0.53	59	D	0.75	107
WBT	A	0.4	33.1	A	0.37	39
WBR	A	0.16	2	B	0.13	5.9
NBR	F	1.72	268.6	F	1.4	281.1
Highway 7 @ Weston Rd [Signalized]	F	1.15		E	1.05	
EBL	F	1.13	115.5	E	0.87	94.9
EBT	E	0.94	182.7	D	0.68	96.5
EBR	E	0.24	26.8	E	0.19	29.1
WBL	F	1.11	81.2	F	1.09	81.3
WBT	F	0.96	181	D	0.57	121.8
WBR	F	0.37	75.5	F	0.3	77.6
NBL	F	1.14	113.8	F	1.17	118.9
NBT	F	1.03	219.5	E	0.93	195.1
NBR	E	0.67	94.4	E	0.8	152.6
SBL	F	1.12	75	F	1.26	93.8

Intersection & Turning Movements	Weekday PM Peak Hour			Weekend Peak Hour		
	LOS	v/c	Queue	LOS	v/c	Queue
SBT	D	0.88	123	D	0.8	150.3
SBR	B	0.25	12.7	C	0.17	23.2
Highway 7 @ Colossus Dr / Highway 400 SB Off Ramp [Signalized]	D	0.89				
EBTR	B	0.83	70.4	NA		
WBT	C	0.76	174.1			
NBR	F	1.51	136.5			
SBL	E	0.78	131.2			
SBTR	D	0.67	90.4			
SBR	D	0.55	79.8			
Highway 7 @ Highway 400 NB Off Ramp [Signalized]	C	0.69				
EBT	A	0.38	56.9	NA		
WBT	B	0.59	116.6			
NBL	E	0.91	153.8			
NBR	D	0.43	51.5			
Weston Road @ Rowntree Dairy Rd. / Colossus Drive [Signalized]	D	1.06		D	1.06	
EBL	D	0.61	50.2	D	0.69	57.5
EBTR	D	0.76	116.2	C	0.38	26.3
WBL	F	1.42	71.3	F	0.95	84
WBT	D	0.6	109.6	C	0.46	69
WBR	D	0.25	36.8	D	0.65	85.9
NBL	D	0.89	64.9	C	0.75	75.9
NBTR	C	0.59	119.4	D	0.6	117.5
SBL	E	0.87	44.8	F	1.08	147.9
SBT	B	0.59	42.5	C	0.55	105.6
SBR	A	0.16	2.1	C	0.23	27.5
Rowntree Dairy Rd @ Winges Rd / Auto Park Cir [Signalized]	C	0.56		C	0.41	
EBLTR	C	0.49	84.6	B	0.2	37
WBL	B	0.24	21.2	B	0.2	26.3
WBTR	B	0.31	41.6	A	0.24	31.4
NBLTR	E	0.78	71.9	E	0.61	46
SBL	C	0.58	49.7	C	0.63	61.9
SBTR	C	0.07	12.9	C	0.04	9.4
Ansley Grove Rd / Whitmore Rd @ Winges Rd / Trowers Rd [Signalized]	C	0.57		C	0.43	
EBL	C	0.66	29.2	C	0.44	20.6
EBTR	C	0.18	26.8	C	0.11	17.8
WBL	C	0.04	7	D	0.06	7.9
WBTR	D	0.83	111.8	D	0.8	89.9
NBL	B	0.02	5.9	B	0	2.3
NBTR	B	0.31	61.8	B	0.05	11.8
SBL	C	0.39	46.1	B	0.26	47.2
SBTR	B	0.08	12.4	B	0.08	11.7



Intersection & Turning Movements	Weekday PM Peak Hour			Weekend Peak Hour		
	LOS	v/c	Queue	LOS	v/c	Queue
Weston Road @ Highway 407 WB On Ramp / Famous Avenue [Signalized]	C	0.81		C	0.79	
WBLT	E	0.78	87.9	E	0.81	100.7
WBR	D	0.07	13.5	D	0.58	66
NBL	C	0.68	69.6	B	0.14	7.2
NBT	C	0.81	239.7	C	0.62	129.5
NBR	B	0.39	53.4	B	0.33	31.4
SBL	B	0.39	9.9	B	0.75	62.5
SBTR	C	0.81	180	B	0.52	127.5
Fieldstone Drive @ Windflower Gate/Pottery PI [Unsignalized]	F			E		
EBLTR	B	0.12	0.4	B	0.29	1.2
WBL	F	1.35	32.1	F	0.93	10.9
WBTR	B	0.36	1.7	B	0.31	1.3
NBLTR	E	0.94	9.6	F	0.98	14.2
SBLTR	B	0.16	0.5	B	0.23	0.9
Northview Blvd. @ 7777 Weston Road Access [Unsignalized]						
WBLT	C	0.54	3.2	A	0	0
NBLR	A	0	0	B	0.31	1.3
Weston Road @ Northview Blvd [Signalized]	D	0.72		C	0.63	
WBLR	F	0.98	192	E	0.92	148
NBT	C	0.62	169.7	C	0.52	168.3
NBR	F	0.17	20.9	E	0.17	27.3
SBL	B	0.29	11.1	B	0.29	15.4
SBT	B	0.47	86.4	B	0.54	113.3

Figure 3-35: Intersection LOS, Weekday PM Peak

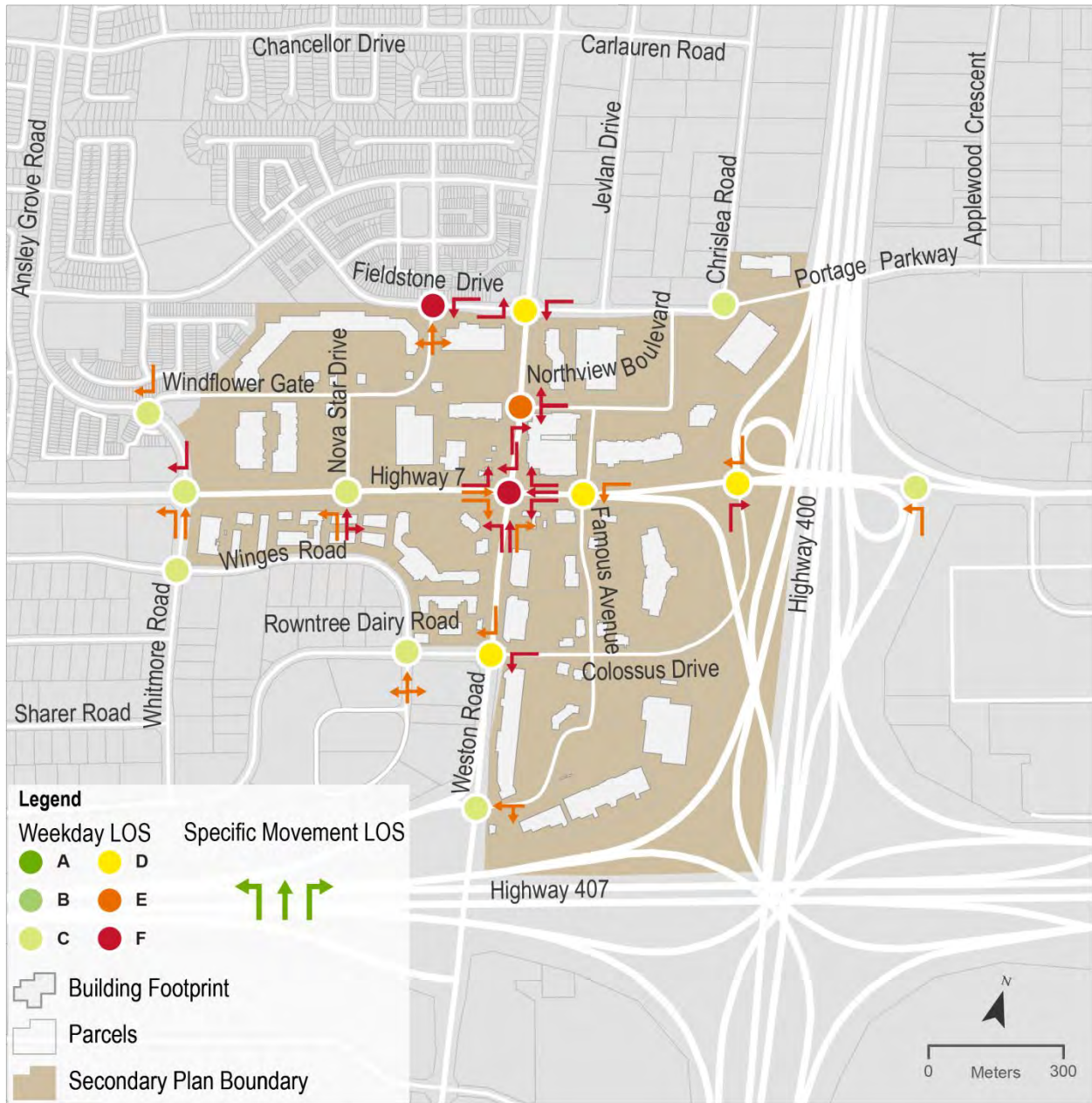
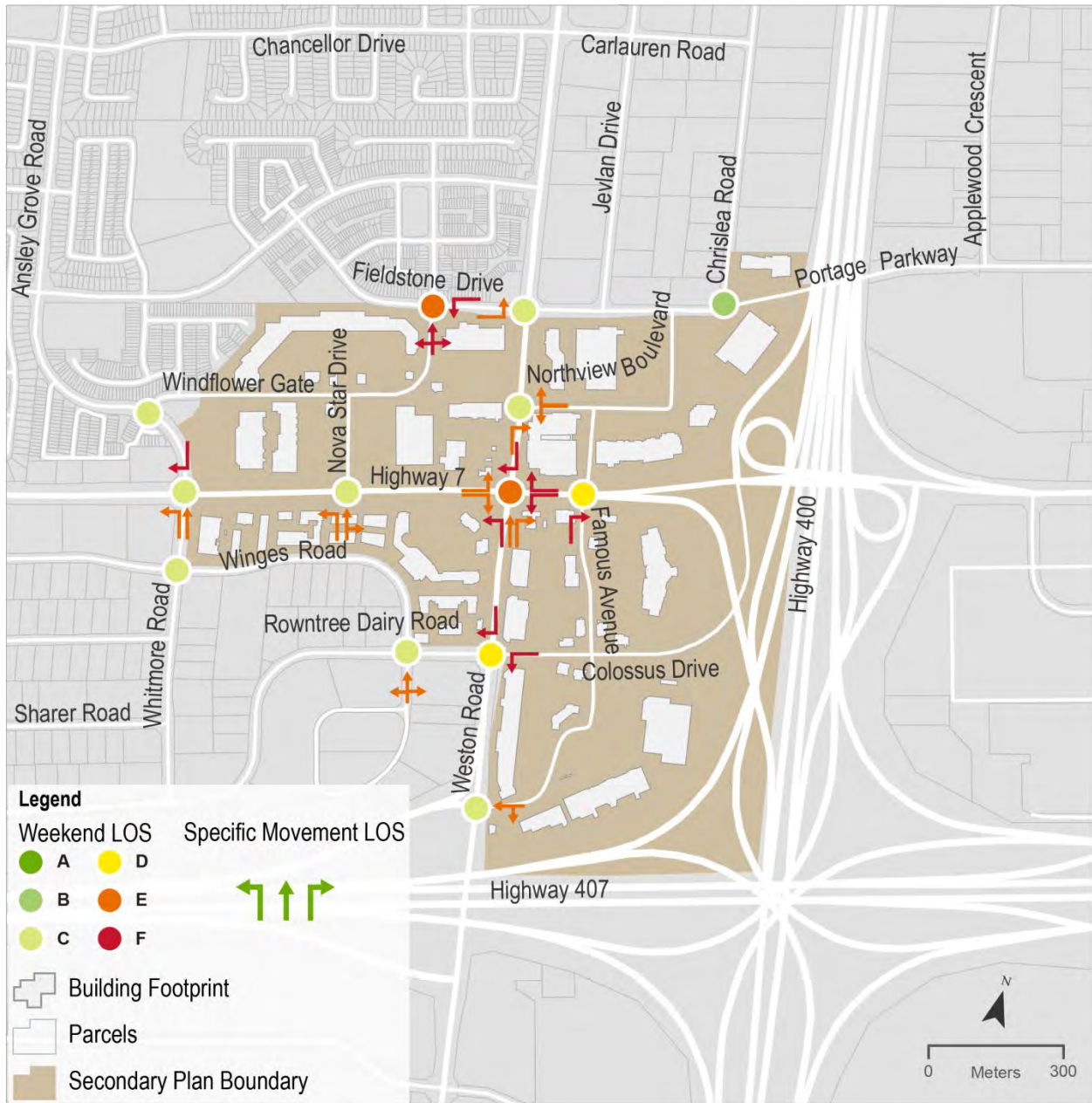


Figure 3-36: Intersection LOS, Weekend PM Peak



Based on the results presented, the following conclusions can be drawn from the analysis of the study area intersections, under existing traffic and signal timing plans:

Most signalized intersections currently operate at overall intersection LOS D or better and with overall v/c ratios less than 1.0 during both weekday PM and weekend peak hours, with the exception of the following:

- Highway 7 @ Weston Road intersection currently operates at LOS F during the weekday PM peak hour because of high demands of EBL, WBL, NBL and SBL movements; and

- Weston Road @ Rowntree Dairy Rd. / Colossus Drive intersection currently operates at LOS D; however, with an overall intersection v/c ratio of 1.06 due to high WBL and SBL movements.

The following turning movement constraints are noted for existing conditions:

- WBL movement of Weston Rd @ Chrislea Rd & Fieldstone Drive intersection operates with a v/c ratio of 1.12 during the Weekday PM peak hour;
- NBR movement of Highway 7 @ Famous Rd intersection operates with a v/c ratio of 1.72 and 1.40 during the Weekday PM and weekend peak hour, respectively;
- NBR movement of Highway 7@ Colossus Dr / Highway 400 SB Off Ramp Access intersection operates with a v/c ratio of 1.51 during the Weekday PM peak hour; and
- WBL movement of Weston Road & Rowntree Dairy Rd / Colossus Dr intersection operates with a v/c ratio of 1.42 during the Weekday PM peak hour, and the SBL operates with a v/c ratio of 1.08 during the Weekend peak hour.

All study area intersections currently experience queues at least one vehicle queue length longer than the corresponding storage length during either of the two peak hours, except the following four intersections:

- Ansley Grove Rd @ Windflower Gate / Pinedale Gate;
- Highway 7 @ Weston Road;
- Highway 7@ Colossus Dr / Highway 400 SB On Ramp; and
- Weston Road @ 407ETR WB On Ramp/Famous Avenue.

The following conclusions can be drawn from the analysis of unsignalized intersections under existing traffic conditions:

- WBL movement of Fieldstone Drive @ Windflower Gate/Pottery PI intersection operates at v/c ratio of 1.35 during the Weekday PM peak hour; and
- No queue concerns were noted for the unsignalized intersections.

4 Transportation Challenges and Opportunities

Based upon the review of existing conditions, eight major opportunities were identified:

1. Creation of a grid street network;
2. A transportation network for all mobility users;
3. Improving safety for all modes of travel;
4. New innovative smart mobility plan and TDM measures;
5. Increase sustainable modal share;
6. Optimize the existing road network;
7. Consider partial ramp access at Portage Parkway; and
8. Extend Portage Parkway / Chrislea Road west of Weston Road.

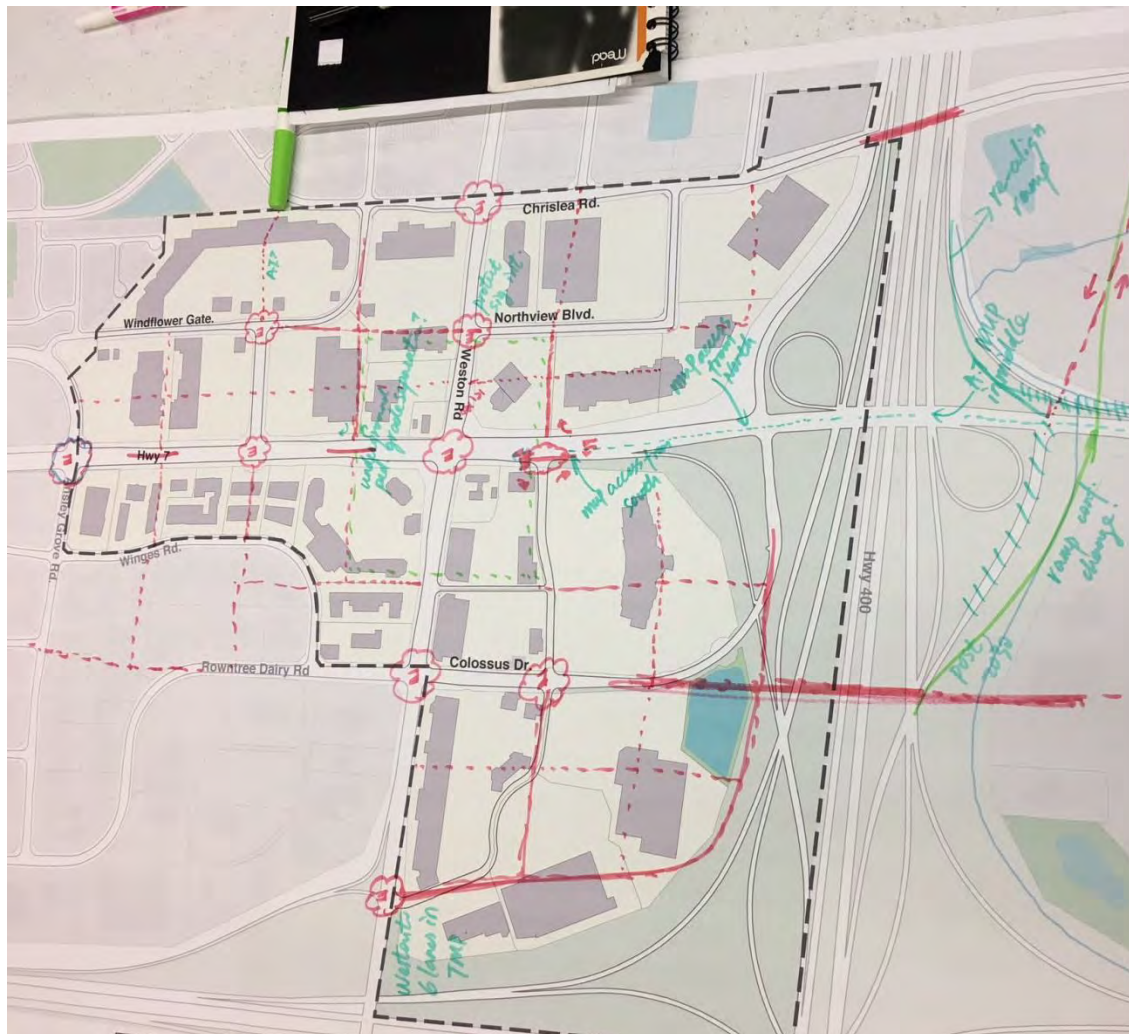
4.1 Creation of a Grid Street Network

At present, the Weston 7 Secondary Plan study area street network is characterized by very large blocks bounded by arterial and collector roads with extensive surface parking lots. This built form encourages driving by requiring pedestrians to walk longer distances to reach their destinations, often across unfriendly environment or informal paths such as surface parking lots. It also reduces choices for all modes, funneling traffic into a discontinuous hierarchy of a few roads, rather than a continuous network.

The expected redevelopment of the study area offers an opportunity to break up the existing “superblock” pattern, establishing a finer-grained street network with a walkable block structure. Increasing the grid network density would increase the number of options available to all modes, add road capacity to the network, balance mobility choices for walking and cycling trips within the study area due to improved connections across the land uses, and increase the pedestrian catchment area to vivaNext BRT stations.

A stakeholder workshop was held at the outset of this study where attendees brainstormed a preliminary street network for consideration in future phases of this study. The map is shown in **Figure 4-1**.

Figure 4-1: Preliminary Street Network from the Stakeholder Workshop



4.2 A Transportation Network for All Mobility Users

The existing transportation network is designed to accommodate vehicles. As a result, the ROW for various roads were allocated to primaries for vehicles and lacks facilities to accommodate other modes of transportation, such as walking and biking. A large portion of the land use is parking, again for the purpose of accommodating access to retail stores through driving. Streets in the study area do not fulfill their vital role as public spaces to enhance the environment and community.

There is a need to create a Complete Street network in the study area to balance the needs of pedestrians, cyclists, transit users, drivers, and goods movement. Many guidelines provide recommendations on how to build a complete street, such as the National Association of City Transportation Officials (NACTO) Guidelines and the Ontario Traffic Manual (OTM) Book 15—Pedestrian Crossing Facilities and Book 18—Cycling Facilities. They can provide guidance in the redesign of the existing street network to improve the comfort and safety of the road system and to provide road capacity for all modes of travel.

In addition, pedestrian and cycling only connections can be created to improve the accessibility and connectivity of the study area. Pedestrian crossing should be improved, especially at Weston Road and Highway 7, as they are the major barriers for pedestrians to access the study area. It can be done through redesigning the existing pedestrian crossings or adding new dedicated pedestrian crossings at necessary locations.

There is also a need to improve roadway connections at specific areas, such as on-ramps and off-ramps to provincial highways. The use of parking lot should be reviewed as well to determine options to provide better accessibility and connectivity for all modes of travel.

The transportation network will have to take into account the area's ongoing role as a retail hub, the needs of pedestrians and cyclists accessing vivaNext BRT and VMC subway station from areas, future residential densification, and truck traffic through and within the study area, particularly to light industrial sites to the southwest of the study area and to the north of the study area. Future phases of the study should take these mobility needs and priorities into account when making recommendations, while recognizing streets' roles in placemaking and prosperity.

4.3 Improve Safety for All Modes of Travel

Safety can be improved for all modes of travel in the study area. As mentioned in Section 3.3.4, the intersection at Highway 7 and Weston Road has been consistently ranked as one of the highest collision intersections in York Region. It is recognized that safety may be improved for this intersection after the reconstruction of Highway 7. This should be considered in late phases of the study.

As mentioned earlier, with a complete street network and better pedestrian connections at highways, the safety will be improved for vulnerable users such as pedestrians and cyclists.

More specifically, as mentioned in **Section 3.6.1**, safety challenges exist where cyclists and pedestrians must traverse Highway 400 and Highway 407 ETR interchanges. However, with the Highway 7 West vivaNext project is planning to implement a median multi-use trail between Famous Avenue towards the VMC, and this will eliminate pedestrian and cyclist conflicts at the free-flow on-ramps. The issue remains however at the Highway 407 ETR ramps however, and solutions to allow pedestrians and cyclists to traverse these ramps safely should be explored in later phases of this study.

4.4 New Innovative Smart Mobility Plan and TDM Measures

The Smart Commute program has demonstrated successful shifts in mobility behaviour away from the single occupant vehicle. This Secondary Plan has the opportunity to encourage or require the program for developments in the study area and tailored it to the needs of local businesses and residents. Existing smart mobility technology (such as Uber / Lyft) and car share programs for trips during the day could also be used to shift travel behaviour away from single-occupancy vehicles to other modes.

Emerging technologies and increased sustainability awareness are pushing the population towards non-traditional travel behaviours via shared and pay-per-use economy, such as car-sharing, ride-sharing, and bike-sharing. They can be facilitated by City policies, initiatives, and infrastructure by creating designated, comfortable waiting areas to find a bike-share rack, car-share vehicle, or wait for a ride-share driver. Such infrastructure has the potential to address the “first and last mile” problem via a one-stop service point for multimodal systems called “EcoMobility hubs”^{7 8}. An illustration of an EcoMobility hub is provided in **Figure 4-2**, which shows a large scale hub incorporating multiple systems. These hubs may also be smaller scale, such as an on-street car-share station or an integrated bike share and bus stop. These measures can improve the transit mode share in the study area and help achieve the targets indicated in York Region and City of Vaughan OP.

Figure 4-2: EcoMobility Hub Concept



Source: multi mobility, Sophia von Berg, 2014

4.5 Increase Sustainable Modal Share

The VMC subway station was opened in December 2017, and the vivaNext Woodbridge is scheduled to open in 2019 and includes two stops in the study area: Weston Road and Ansley Grove Road. These critical higher order transit investments provide the spine of a sustainable transportation system. Further to the policy direction to increase transit mode share in the study area to meet the York Region and City of Vaughan Official Plan targets of 40-50% in the study area, the key opportunity in the Weston- Secondary Plan

⁷ Karim D. M., Innovative Mobility Master Plan: Connecting Multimodal Systems with Smart Technologies, Disrupting Mobility Conference, MIT Media Lab, Cambridge, USA, November 11~13, 2015.

⁸ Karim D. M., Creating an Innovative Mobility Ecosystem for Urban Planning Areas, Disrupting Mobility - Impacts of Sharing Economy and Innovative Transportation on Cities, Springer Book, Lectures in Mobility, ISBN: 978-3-319-51601-1, pages 21-47, 2017.

is to develop a land use and mobility plan which maximizes connectivity to the Major Transit Station Areas within and adjacent to the study area.

As mentioned in **Section 3.5.2**, multi-use path and bike lanes are planned on Highway 7 as part of the VivaNext Plan, and bike lanes are planned on Weston Road and collector roads such as Chrislea Road and Colossus Drive. This will bring better connections for people to access the study area and transit stations in the area.

According to the pedestrian walkshed analysis in **Section 3.6.3**, all roads in the study area are included as part of the 500 metres that people are willing to walk to a higher order transit stop. As a result, pedestrian infrastructure should be provided or improved on all roads in the study area, especially those with lower PLOS scores as seen in **Section 3.6.2**. Pedestrian network improvements have the dual role of increasing the attractiveness of transit as a travel option through improved pedestrian connections from transit stops to local businesses.

With these opportunities in mind, the land use and built form alternatives to be explored in later phases of this study will need to consider significant shifts in transit and non-auto modal share in line with the Region and City policy goals.

4.6 Optimize the Existing Road Network

The existing road network should be optimized including improved traffic signal coordination along Weston Road between Northview and Highway 7 intersection, as well as coordination at adjacent intersections, review of turn lane requirements, queue jump lanes.

4.7 Consider Partial Ramp Access at Portage Parkway

One of the keys to unlocking the growth potential of the study area not only for Weston 7 but also for the VMC, is to provide alternate access to Highway 400. Highway 7 is extremely congested at Weston Road today, and providing additional options to vehicular traffic will significantly improve congestion in the study area. While it is recognized that MTO has concerns about interchange spacing, future phases of this study should explore the potential opportunities to provide an alternative Highway 400 access to Portage Parkway.

4.8 Extend Portage Parkway / Chrislea Road west of Weston Road

A more direct connection back to Highway 7 from Portage Parkway / Chrislea Road should be considered west of Weston Road. Right now, there is access via Fieldstone Drive, Windflower Gate and Ansley Grove Road, but the route is already congested with multiple turns and does not provide a feasible through-route. Through development however as lands become available, the possibility of reconstructing the roadway along the north-western boundary of the study area should be strongly considered. This through-route will prioritize movements into the nearby residential neighbourhoods, which should be restructured as development proceeds.

5 Draft Problem and Opportunity Statement

The Weston 7 Secondary Plan study area was planned and built for cars and is characterized by large blocks and low-rise buildings set-back and separated from streets by surface parking. Streets are wide with a lack of connectivity and no formal cycling facilities within the Secondary Plan Area.

With the opening of the VMC subway station and the planned vivaNext transitway on Highway 7, there is an opportunity to renew the study area with the following measures:

1. Creation of a grid street network;
2. A transportation network for all mobility users;
3. Improving safety for all modes of travel;
4. New innovative smart mobility plan and TDM measures;
5. Increase sustainable modal share;
6. Optimize the existing road network;
7. Consider partial ramp access at Portage Parkway; and
8. Extend Portage Parkway / Chrislea Road west of Weston Road.



Appendix A: Multimodal Level of Service (MMLoS) Methodology

Pedestrian Level of Service: Segments

Sidewalk Width (m)	Boulevard Width (m)	Motor Vehicle Traffic Volume (AADT)	Presence of On-street Parking	Segment PLOS			
				Operating Speed (km/h)			
				≤30	>30 or 50	>50 or 60	>60 ₁
2.0 or more	> 2	≤ 3000	N/A	A	A	A	B
		> 3000	Yes	A	B	B	N/A
			No	A	B	C	D
	0.5 to 2	≤ 3000	N/A	A	A	A	B
		> 3000	Yes	A	B	C	N/A
			No	A	C	D	E
	0	≤ 3000	NA	A	B	C	D
		> 3000	Yes	B	B	D	N/A
			No	B	C	E	F
1.8	> 2	≤ 3000	N/A	A	A	A	B
		> 3000	Yes	A	B	C	N/A
			No	A	C	D	E
	0.5 to 2	≤ 3000	N/A	A	B	B	D
		> 3000	Yes	A	C	C	N/A
			No	B	C	E	E
	0	≤ 3000	N/A	A	B	C	D
		> 3000	Yes	B	C	D	N/A
			No	C	D	F	F
1.5	> 2	≤ 3000	N/A	C	C	C	C
		> 3000	Yes	C	C	D	N/A
			No	C	D	E	E
	0.5 to 2	≤ 3000	N/A	C	C	C	D
		> 3000	Yes	C	C	D	N/A
			No	D	E	E	E
	0	N/A		D	E	F ₂	F ₂
	<1.5	N/A		F ₃	F ₃	F ₃	F ₃
	No sidewalk	N/A		C ₄	F ₃	F ₃	F ₃

Pedestrian Level of Service: Intersections

The level of service for pedestrians is determined through a points system. The total number of points from tables 5.1 to 5.4 determine the level of service of the intersection for the pedestrians.

5.1 Crossing Distance & Conditions		
Total travel lanes crossed	No median	With Median (>2.4m)
2	120	120
3	105	105
4	88	90
5	72	75
6	55	60
7	39	45
8	23	30
9	6	15
10	-10	0
Island Refuge	Points	
No	-4	
Yes	0	

5.2 Signal Phasing & Timing Features	
Left turn conflict	Points
Permissive	-8
Protected/permissive	-8
Protected	0
No left turn/prohibited	0
Right turn conflict ("Right_turns")	Points
Permissive or yield control	-5
Protected/permissive	-5
Protected	0
No right turn	0
Right turns on red ("RTOR")	Points
RTOR allowed	-3
RTOR prohibited at certain time(s)	-2
RTOR prohibited	0
Leading ped interval? ("LPI")	Points
No	-2
Yes	0

5.3 Corner Radius	
Corner radius	Points
Greater than 25m	-9
> 15m to 25m	-8
> 10m to 15m	-6
> 5m to 10m	-5
> 3m to 5m	-4
Less than/equal to 3m	-3
No right turn	0
Right turn channel with receiving	-3
Right turn "smart channel"	2

5.4 Crosswalk Treatment	
Crosswalk treatment	Points
Standard transverse markings	-7
Textured/coloured pavement	-4
Zebra stripe hi-vis markings	-4
Raised crosswalk	0

Pedestrian Exposure to Traffic LOS	
Points threshold	LOS
≥ 90	A
≥ 75	B
≥ 60	C
≥ 45	D
≥ 30	E
< 30	F

Bicycle Level of Service: Segments

Type of Bikeway		LOS
Physically Separated Bikeway (cycle tracks, protected bike lanes and multi-use paths). Physical separation refers to, but is not limited to, curbs, raised medians, bollards and parking lanes (adjacent to the bike lane along the travelled way i.e. not curbside).		A
Bike Lanes Not Adjacent Parking Lane - Select Worst Scoring Criteria		
No. of Travel Lanes	1 travel lane in each direction	A
	2 travel lanes in each direction separated by a raised median	B
	2 travel lanes in each direction without a separating median	C
	More than 2 travel lanes in each direction	F
Bike Lane Width	> 1.8 m wide bike lane (includes marked buffer and paved gutter width)	A
	≥1.5 m to <1.8 m wide bike lane (includes marked buffer and paved gutter width)	B
	≥1.2 m to <1.5 m wide bike lane (includes marked buffer and paved gutter width)	C
Operating Speed	≤ 50 km/h operating speed	A
	60 km/h operating speed	C
	> 70 km/h operating speed	E
Bike lane blockage (commercial areas)	Rare	A
	Frequent	C
Bike Lanes Adjacent to curbside Parking Lane - Select Worst Scoring Criteria		
No. of Travel Lanes	1 travel lane in each direction	A
	2 or more travel lanes in each direction	C
Bike Lane Width	4.5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)	A
	4.25 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)	B
	≤ 4.0 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)	C
Operating Speed	< 40 km/h operating speed	A
	50 km/h operating speed	B
	60 km/h operating speed	D
	> 70 km/h operating speed	F
Bike lane blockage (commercial areas)	Rare	A
	Frequent	C
Mixed Traffic		
No. of Travel Lanes and Operating	2 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential	A
	2 to 3 travel lanes; ≤ 40 km/h	B
	2 travel lanes; 50 km/h; no marked centerline or classified as residential	B
	2 to 3 travel lanes; 50 km/h	D
	4 to 5 travel lanes; ≤ 40 km/h	D
	4 to 5 travel lanes; ≥ 50 km/h	E

	6 or more travel lanes; ≤ 40 km/h	E
	≥ 60 km/h	F
Unsignalized Crossing along Route: no median refuge		
No. of Travel Lanes on Side Street	3 or less lanes being crossed; ≤ 40 km/h	A
	4 to 5 lanes being crossed; ≤ 40 km/h	B
	3 or less lanes being crossed; 50 km/h	B
	4 to 5 lanes being crossed; 50 km/h	C
	3 or less lanes being crossed; 60 km/h	C
	4 to 5 lanes being crossed; 60 km/h	D
	6 or more lanes being crossed; ≤ 40 km/h	E
	3 or less lanes being crossed; ≥ 65 km/h	E
	6 or more lanes being crossed; ≥ 50 km/h	F
	4 to 5 lanes being crossed; ≥ 65 km/h	F
Unsignalized Crossing along Route: with median refuge (> 1.8 m wide)		
No. of Travel Lanes on Side Street	5 or less lanes being crossed; ≤ 40 km/h	A
	3 or less lanes being crossed; 50 km/h	A
	6 or more lanes being crossed; ≤ 40 km/h	B
	4 to 5 lanes being crossed; 50 km/h	B
	3 or less lanes being crossed; 60 km/h	B
	6 or more lanes being crossed; 50 km/h	C
	4 to 5 lanes being crossed; 60 km/h	C
	3 or less lanes being crossed; ≥ 65 km/h	D
	6 or more lanes being crossed; 60 km/h	E
	4 to 5 lanes being crossed; ≥ 65 km/h	E
	6 or more lanes being crossed; ≥ 65 km/h	F

Bicycle Level of Service: Intersections

Bikeway and Intersection Type		
Bike Lanes or higher order facility on a Signalized Intersection Approach		
Right-turn Lane and Turning Speed of Motorists	No impact on LTS (as long as cycling facility remains to the right of any turn lane - otherwise see pocket bike lanes below)	A
Cyclist Making a Left-turn and Operating Speed of Motorists (refer to figure)	Two-stage, left-turn bike box; ≤ 50 km/h	A
	No lane crossed, ≤ 50 km/h	B
	1 lane crossed, ≤ 40 km/h	B
	No lane crossed, ≥ 60 km/h	C
	1 lane crossed, 50 km/h	C
	2 or more lanes crossed, ≤ 40 km/h	D
	1 lane crossed, ≥ 60 km/h	E
	2 or more lanes crossed, ≥ 50 km/h	F
	All other single left-turn lane configurations	F
Dual left-turn lanes (shared or exclusive)	F	
Pocket Bike Lanes on a Signalized Intersection Approach		
Right-turn Lane and Turning Speed of Motorists	Right-turn lane introduced to the right of the bike lane and ≤ 50 m long, turning speed ≤ 25 km/h (based on curb radii and angle of intersection)	B
	Right-turn lane introduced to the right of the bike lane and > 50 m long, turning speed ≤ 30 km/h (based on curb radii and angle of intersection)	D
	Bike lane shifts to the left of the right-turn lane, turning speed ≤ 25 km/h (based on curb radii and angle of intersection)	D
	Right-turn lane with any other configurations	F
	Dual right-turn lanes (shared or exclusive)	F
Cyclist Making a Left-turn and Operating Speed of Motorists (refer to figure)	Two-stage, left-turn bike box; ≤ 50 km/h	A
	No lane crossed, ≤ 50 km/h	B
	1 lane crossed, ≤ 40 km/h	B
	No lane crossed, ≥ 60 km/h	C
	1 lane crossed, 50 km/h	C
	2 or more lanes crossed, ≤ 40 km/h	D
	1 lane crossed, ≥ 60 km/h	E
	2 or more lanes crossed, ≥ 50 km/h	F
	All other single left-turn lane configurations	F
Dual left-turn lanes (shared or exclusive)	F	
Mixed Traffic on a Signalized Intersection Approach		
Right-turn Lane and Turning Speed of Motorists	Right-turn lane 25 to 50 m long, turning speed ≤ 25 km/h (based on curb radii and angle of intersection)	D
	Right-turn lane 25 to 50 m long, turning speed > 25 km/h (based on curb radii and angle of intersection)	E
	Right-turn lane longer than 50 m	F
	Dual right-turn lanes (shared or exclusive)	F

Cyclist Making a Left-turn and Operating Speed of Motorists (refer to figure)	Two-stage, left-turn bike box; ≤ 50 km/h	A
	No lane crossed, ≤ 50 km/h	B
	1 lane crossed, ≤ 40 km/h	B
	No lane crossed, ≥ 60 km/h	D
	1 lane crossed, 50 km/h	D
	2 or more lanes crossed, ≤ 40 km/h	D
	1 lane crossed, ≥ 60 km/h	F
	2 or more lanes crossed, ≥ 50 km/h	F
	All other single left-turn lane configurations	F
	Dual left-turn lanes (shared or exclusive)	F

Appendix B: Multimodal Level of Service (MMLoS) Results

Segment BLOS - Results

Weston Road - From Hwy 407 to Fieldstone Drive

From	Highway 407	Famous Ave	Petsmart access	Collossus Dr	Woodbridge Plaza Access	Hwy 7	Northview Blvd
To	Famous Ave	Petsmart access	Collossus Dr	Woodbridge Plaza Access	Hwy 7	Northview Blvd	Fieldstone Dr
Segment BLOS	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7
Bikeway Type*	4	4	4	4	4	4	4
No. Travel Lanes**	6	6	6	6	6	6	6
Bike Lane width (if applicable)	NA	NA	NA	NA	NA	NA	NA
Operating Speed (kph)	60	60	60	60	60	60	60
Bike Lane Bolckage (if applicable)	NA	NA	NA	NA	NA	NA	NA
LOS	F	F	F	F	F	F	F

	From	To	LOS
Segment 1	Highway 407	Famous Ave	F
Segment 2	Famous Ave	Petsmart access	F
Segment 3	Petsmart access	Collossus Dr	F
Segment 4	Collossus Dr	Woodbridge Plaza Access	F
Segment 5	Woodbridge Plaza Access	Hwy 7	F
Segment 6	Hwy 7	Northview Blvd	F
Segment 7	Northview Blvd	Fieldstone Dr	F

Highway 7 - From Whitmore Road to Hwy 400

From	Whitmore Rd	Nova Star Dr	Weston Rd	Famous Ave	Collossus Dr
To	Nova Star Dr	Weston Rd	Famous Ave	Collossus Dr	Hwy 400
Segment BLOS	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5
Bikeway Type*	4	4	4	4	4
No. Travel Lanes**	6	6	6	6	6
Bike Lane width (if applicable)	NA	NA	NA	NA	NA
Operating Speed (kph)	70	70	70	70	70
Bike Lane Bolckage (if applicable)	NA	NA	NA	NA	NA
LOS	F	F	F	F	F

	From	To	LOS
Segment 1	Whitmore Rd	Nova Star Dr	F
Segment 2	Nova Star Dr	Weston Rd	F
Segment 3	Weston Rd	Famous Ave	F
Segment 4	Famous Ave	Collossus Dr	F
Segment 5	Collossus Dr	Hwy 400	F

Windflower Gate - From Ansley Grove Rd to Fieldstone Dr

From	Ansley Grove Rd	100m west of nova star
To	100m west of nova star	Fieldstone Dr
Segment BLOS	Segment 1	Segment 2
Bikeway Type*	4	4
No. Travel Lanes**	2	2
Bike Lane width (if applicable)	NA	NA
Operating Speed (kph)	50	50
Bike Lane Bolckage (if applicable)	NA	NA
LOS	B	D

Assumed speed of 50 km/hr for private roads

no marked centreline marked centreline

	From	To	LOS
Segment 1	Ansley Grove Rd	Fieldstone Dr	B

Nova Star Drive- From Highway 7 to Windflower Gate

From	Highway 7
To	Windflower Gate
Segment BLOS	Segment 1
Bikeway Type*	4
No. Travel Lanes**	4
Bike Lane width (if applicable)	NA
Operating Speed (kph)	50
Bike Lane Bolckage (if applicable)	NA
LOS	E

	From	To	LOS
Segment 1	Highway 7	Windflower Gate	E

Northview Blvd - From Weston Road to Chrislea Road

From	Weston Road	Goodlife Finess Access
To	Goodlife Finess Access	Chrislea Road
Segment BLOS	Segment 1	Segment 2
Bikeway Type*	4	4
No. Travel Lanes**	2	2
Bike Lane width (if applicable)	NA	NA
Operating Speed (kph)	50	50
Bike Lane Bolckage (if applicable)	NA	NA
LOS	D	D

	From	To	LOS
Segment 1	Weston Road	Goodlife Finess Access	D
Segment 2	Goodlife Finess Access	Chrislea Road	D

Famous Avenue - From Weston Road to Hwy 7

From	Weston Rd	Costco Access	Collosus Dr
To	Costco Access	Collosus Dr	Highway 7
Segment BLOS	Segment 1	Segment 2	Segment 3
Bikeway Type*	4	4	4
No. Travel Lanes**	4	3	3
Bike Lane width (if applicable)	NA	NA	NA
Operating Speed (kph)	50	50	50
Bike Lane Bolckage (if applicable)	NA	NA	
LOS	E	D	D

	From	To	LOS
Segment 1	Weston Rd	Costco Access	E
Segment 2	Costco Access	Collosus Dr	D
Segment 3	Collosus Dr	Highway 7	D

Winges Road - From Whitmore Road to Rowntree

From	Whitmore Rd
To	Rowntree
Segment BLOS	Segment 1
Bikeway Type*	4
No. Travel Lanes**	2
Bike Lane width (if applicable)	NA
Operating Speed (kph)	50
Bike Lane Bolckage (if applicable)	NA
LOS	D

	From	To	LOS
Segment 1	Whitmore Rd	Rowntree	D

Whitmore Road - From Windflower Gate to Winges Road

From	Windflower Gate	Highway 7
To	Highway 7	Winges Rd
Segment BLOS	Segment 1	Segment 2
Bikeway Type*	4	4
No. Travel Lanes**	5	4
Bike Lane width (if applicable)	NA	NA
Operating Speed (kph)	60	60
Bike Lane Bolckage (if applicable)	NA	NA
LOS	E	E

	From	To	LOS
Segment 1	Windflower Gate	Highway 7	E
Segment 2	Highway 7	Winges Rd	E

Colossus Drive - From Wings Road to Hwy 7

From	Winges Rd	Weston Rd	Costco Access
To	Weston Rd	Costco Access	Hwy 7
Segment BLOS	Segment 1	Segment 2	Segment 3
Bikeway Type*	4	4	4
No. Travel Lanes**	5	4	4
Bike Lane width (if applicable)	NA	NA	NA
Operating Speed (kph)	60	60	60
Bike Lane Bolckage (if applicable)	NA	NA	NA
LOS	E	E	E

major collectors assumed 60km/hr

	From	To	LOS
Segment 1	Winges Rd	Weston Rd	E
Segment 2	Weston Rd	Costco Access	E
Segment 3	Costco Access	Hwy 7	E

Fieldstone Drive - From Windflower Gate to Hwy 400

From	Windflower Gate	Weston Rd	Chrislea Rd
To	Weston Rd	Chrislea Rd	Hwy 400
Segment BLOS	Segment 1	Segment 2	Segment 3
Bikeway Type*	4	4	4
No. Travel Lanes**	5	5	6
Bike Lane width (if applicable)	NA	NA	NA
Operating Speed (kph)	50	60	60
Bike Lane Bolckage (if applicable)	NA	NA	NA
LOS	E	E	F

	From	To	LOS
Segment 1	Windflower Gate	Weston Rd	E
Segment 2	Weston Rd	Chrislea Rd	E
Segment 3	Chrislea Rd	Hwy 400	F

INTERSECTION BLOS - RESULTS

Score	Letter Grade
5	A
4	B
3	C
2	D
1	E
0	F

V (MPH)	E	F	R (FT)
10	0	0.38	18
15	0	0.32	47
20	0	0.27	99
25	0	0.22	174

NOTES

Round down to account for worst case

If radius is larger than 14 m, then turning speed > 25km/hr

Any intersections with RT > 50m and more than 2 lanes to cross turning --> BLOS F

Weston Road

Intersection (Signalized)		Highway 7			
		NORTH	SOUTH	EAST	WEST
BLOS	Right turn lane length	>50m	>50m	>50m	>50m
	Turning Speed (based on curb radii)	>25km/h	>25km/h	>25km/h	>25km/h
	Dual right-turn lanes?	No	No	No	No
	Right Turn LOS	F	F	F	F
	Operating Speed	60 km/h	60 km/h	70 km/h	70 km/h
	Number of Lanes Crossed	2 or more	2 or more	2 or more	2 or more
	Two-stage, left-turn bike box?	No	No	No	No
	Dual left-turn lanes (share or exclusive)?	No	No	No	No
	Left Turn LOS	F	F	F	F
	Overall Approach LOS	F	F	F	F
LEVEL OF SERVICE (average)		F			

Weston Road

Intersection (Signalized)		Chrislea Rd / Fieldstone			
		NORTH	SOUTH	EAST	WEST
BLOS	Right turn lane length	>50m	>50m	None	None
	Turning Speed (based on curb radii)	> 25 km/h	=<25km/h	> 25 km/h	=<25km/h
	Dual right-turn lanes?	No	No	No	No
	Right Turn LOS	F	F	D	D
	Operating Speed	60 km/h	60 km/h	50 km/h	50 km/h
	Number of Lanes Crossed	2 or more	2 or more	2 or more	2 or more
	Two-stage, left-turn bike box?	No	No	No	No
	Dual left-turn lanes (share or exclusive)?	No	No	No	No
	Left Turn LOS	F	F	F	F
	Overall Approach LOS	F	F	E	E
LEVEL OF SERVICE (average)		E			

Colossus Dr

Intersection (Signalized)		Famous Ave			
		NORTH	SOUTH	EAST	WEST
BLOS	Right turn lane length	None	None	None	None
	Turning Speed (based on curb radii)	=<25km/h	=<25km/h	=<25km/h	=<25km/h
	Dual right-turn lanes?	No	No	No	No
	Right Turn LOS	D	D	D	D
	Operating Speed	60 km/h	60 km/h	60 km/h	60 km/h
	Number of Lanes Crossed	1 lane	1 lane	1 lane	1 lane
	Two-stage, left-turn bike box?	No	No	No	No
	Dual left-turn lanes (share or exclusive)?	No	No	No	No
	Left Turn LOS	F	F	F	F
	Overall Approach LOS	E	E	E	E
LEVEL OF SERVICE (average)		E			

Weston Road

Intersection (Signalized)		Colossus Dr			
		NORTH	SOUTH	EAST	WEST
BLOS	Right turn lane length	>50m	>50m	>50m	None
	Turning Speed (based on curb radii)	> 25 km/h	>25km/h	> 25 km/h	>25km/h
	Dual right-turn lanes?	No	No	No	No
	Right Turn LOS	F	F	F	E
	Operating Speed	60 km/h	60 km/h	60 km/h	60 km/h
	Number of Lanes Crossed	2 or more	2 or more	2 or more	2 or more
	Two-stage, left-turn bike box?	No	No	No	No
	Dual left-turn lanes (share or exclusive)?	No	No	No	No
	Left Turn LOS	F	F	F	F
	Overall Approach LOS	F	F	F	F
LEVEL OF SERVICE (average)		F			

Highway 7

Intersection (Signalized)		Colossus Dr			
		NORTH	SOUTH	EAST	WEST
BLOS	Right turn lane length	>50m	None	None	None
	Turning Speed (based on curb radii)	> 25 km/h	>25km/h	> 25 km/h	>25km/h
	Dual right-turn lanes?	No	No	No	No
	Right Turn LOS	F	F	F	E
	Operating Speed	60 km/h	60 km/h	70 km/h	70 km/h
	Number of Lanes Crossed	2 or more	None	2 or more	2 or more
	Two-stage, left-turn bike box?	No	No	No	No
	Dual left-turn lanes (share or exclusive)?	No	No	No	No
	Left Turn LOS	F	D	F	F
	Overall Approach LOS	F	E	F	F
LEVEL OF SERVICE (average)		F			

Highway 7

Intersection (Signalized)		Whitmore Rd			
		NORTH	SOUTH	EAST	WEST
BLOS	Right turn lane length	25m to 50m	25m to 50m	>50m	>50m
	Turning Speed (based on curb radii)	> 25 km/h	>25km/h	> 25 km/h	>25km/h
	Dual right-turn lanes?	No	No	No	No
	Right Turn LOS	F	F	F	F
	Operating Speed	60 km/h	60 km/h	70 km/h	70 km/h
	Number of Lanes Crossed	2 or more	2 or more	2 or more	2 or more
	Two-stage, left-turn bike box?	No	No	No	No
	Dual left-turn lanes (share or exclusive)?	No	No	No	No
	Left Turn LOS	F	F	F	F
	Overall Approach LOS	F	F	F	F
LEVEL OF SERVICE (average)		F			

Highway 7

Intersection (Signalized)		Nova Star Dr			
		NORTH	SOUTH	EAST	WEST
BLOS	Right turn lane length	None	None	>50m	>50m
	Turning Speed (based on curb radii)	=<25km/h	=<25km/h	=<25km/h	=<25km/h
	Dual right-turn lanes?	No	No	No	No
	Right Turn LOS	D	D	F	F
	Operating Speed	50 km/h	50 km/h	70 km/h	70 km/h
	Number of Lanes Crossed	2 or more	None	2 or more	2 or more
	Two-stage, left-turn bike box?	No	No	No	No
	Dual left-turn lanes (share or exclusive)?	No	No	No	No
	Left Turn LOS	F	B	F	F
	Overall Approach LOS	E	C	F	F
LEVEL OF SERVICE (average)		E			

Nova Star

Intersection (Signalized)		Windflower Gate			
		NORTH	SOUTH	EAST	WEST
BLOS	Right turn lane length	None	None	None	None
	Turning Speed (based on curb radii)	>25km/h	>25km/h	>25km/h	>25km/h
	Dual right-turn lanes?	No	No	No	No
	Right Turn LOS	E	E	E	E
	Operating Speed	50 km/h	50 km/h	50 km/h	50 km/h
	Number of Lanes Crossed	1 lane	1 lane	None	None
	Two-stage, left-turn bike box?	No	No	No	No
	Dual left-turn lanes (share or exclusive)?	No	No	No	No
	Left Turn LOS	D	D	B	B
	Overall Approach LOS	E	E	C	C
LEVEL OF SERVICE (average)		D			

Winges Road

Intersection (Signalized)		Rowntree Dairy Road			
		NORTH	SOUTH	EAST	WEST
BLOS	Right turn lane length	None	None	None	None
	Turning Speed (based on curb radii)	>25km/h	>25km/h	>25km/h	>25km/h
	Dual right-turn lanes?	No	No	No	No
	Right Turn LOS	E	E	E	E
	Operating Speed	50 km/h	50 km/h	60 km/h	60 km/h
	Number of Lanes Crossed	1 lane	None	2 or more	1 lane
	Two-stage, left-turn bike box?	No	No	No	No
	Dual left-turn lanes (share or exclusive)?	No	No	No	No
	Left Turn LOS	D	B	F	F
	Overall Approach LOS	E	C	F	F
LEVEL OF SERVICE (average)		E			

1

Winges Road

Intersection (Signalized)		Whitmore Road			
		NORTH	SOUTH	EAST	WEST
BLOS	Right turn lane length	None	None	None	None
	Turning Speed (based on curb radii)	>25km/h	>25km/h	>25km/h	>25km/h
	Dual right-turn lanes?	No	No	No	No
	Right Turn LOS	E	E	E	E
	Operating Speed	60 km/h	60 km/h	50 km/h	50 km/h
	Number of Lanes Crossed	2 or more	2 or more	1 lane	1 lane
	Two-stage, left-turn bike box?	No	No	No	No
	Dual left-turn lanes (share or exclusive)?	No	No	No	No
	Left Turn LOS	F	F	D	D
	Overall Approach LOS	F	F	E	E
LEVEL OF SERVICE (average)		E			

1

Windflower Gate

Intersection (Signalized)		Whitmore Road			
		NORTH	SOUTH	EAST	WEST
BLOS	Right turn lane length	None	None	>50m	None
	Turning Speed (based on curb radii)	>25km/h	>25km/h	>25km/h	>25km/h
	Dual right-turn lanes?	No	No	No	No
	Right Turn LOS	D	D	F	E
	Operating Speed	50 km/h	50 km/h	60 km/h	60 km/h
	Number of Lanes Crossed	None	None	2 or more	2 or more
	Two-stage, left-turn bike box?	No	No	No	No
	Dual left-turn lanes (share or exclusive)?	No	No	No	No
	Left Turn LOS	B	B	F	F
	Overall Approach LOS	C	C	F	F
LEVEL OF SERVICE (average)		D			

2

Windflower Gate

Intersection (Signalized)		Fieldstone Road			
		NORTH	SOUTH	EAST	WEST
BLOS	Right turn lane length	None	None	None	None
	Turning Speed (based on curb radii)	=<25km/h	=<25km/h	=<25km/h	=<25km/h
	Dual right-turn lanes?	No	No	No	No
	Right Turn LOS	D	D	D	D
	Operating Speed	50 km/h	50 km/h	50 km/h	50 km/h
	Number of Lanes Crossed	None	None	None	None
	Two-stage, left-turn bike box?	No	No	No	No
	Dual left-turn lanes (share or exclusive)?	No	No	No	No
	Left Turn LOS	B	B	B	B
	Overall Approach LOS	C	C	C	C
LEVEL OF SERVICE (average)		C			

3

Famous Ave

West is a highway on-ramp

Intersection (Signalized)		Weston Road			
		NORTH	SOUTH	EAST	WEST
BLOS	Right turn lane length	None	>50m	>50m	
	Turning Speed (based on curb radii)	>25km/h	>25km/h	>25km/h	
	Dual right-turn lanes?	No	No	No	
	Right Turn LOS	D	F	F	
	Operating Speed	60 km/h	60 km/h	60 km/h	
	Number of Lanes Crossed	2 or more	2 or more	1 lane	
	Two-stage, left-turn bike box?	No	No	No	
	Dual left-turn lanes (share or exclusive)?	No	No	No	
	Left Turn LOS	F	F	F	
	Overall Approach LOS	E	F	F	
LEVEL OF SERVICE (average)		F			

0

Famous Ave

can't turn right from the north

Intersection (Signalized)		Hwy 7			
		NORTH	SOUTH	EAST	WEST
BLOS	Right turn lane length		None		>50m
	Turning Speed (based on curb radii)		>25km/h		>25km/h
	Dual right-turn lanes?		No		No
	Right Turn LOS		D		F
	Operating Speed	70 km/h			
	Number of Lanes Crossed	1 lane			
	Two-stage, left-turn bike box?	No			
	Dual left-turn lanes (share or exclusive)?	No			
	Left Turn LOS	F			
	Overall Approach LOS	F	D		F
LEVEL OF SERVICE (average)		F			

1

East approach is only eastbound

West approach cant' turn left

This option was penalized to account for accessibility issues. Cyclists cannot turn right and left from several approaches.

Segment PLOS - Results

Weston Road - From Hwy 407 to Fieldstone Drive

		From	Highway 407	Famous Ave	Petsmart access	Colossus Dr	Woodbridge Plaza Access	Hwy 7	Northview Blvd
		To	Famous Ave	Petsmart access	Colossus Dr	Woodbridge Plaza Access	Hwy 7	Northview Blvd	Fieldstone Dr
Segment PLOS			Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7
West Side	Sidewalk Width		1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Boulevard Width		3.7	2.4	4.6	4.6	2.1	0.4	3.3
	AADT		>3000	>3000	>3000	>3000	>3000	>3000	>3000
	Presence of on-street parking or other equivalent barrier **		No	No	No	No	No	No	No
	Operating Speed (km/h)		60	60	60	60	60	60	60
	LOS		E	E	D	D	E	F	E
East Side	Sidewalk Width		1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Boulevard Width		3.5	2.3	1.5	2.4	2.4	1.8	4.5
	AADT		>3000	>3000	>3000	>3000	>3000	>3000	>3000
	Presence of on-street parking or other equivalent barrier **		No	No	No	No	No	No	No
	Operating Speed (km/h)		60	60	60	60	60	60	60
	LOS		E	E	E	E	E	E	D

Operating speed: 60 km/h

** A boulevard width of >= 4.5m is considered here to be an 'equivalent barrier'; this does not necessarily reflect the presence of parking or an actual barrier

	From	To	West Side	East Side
Segment 1	Highway 407	Famous Ave	E	E
Segment 2	Famous Ave	Petsmart access	E	E
Segment 3	Petsmart access	Colossus Dr	D	E
Segment 4	Colossus Dr	Woodbridge Plaza Access	D	E
Segment 5	Woodbridge Plaza Access	Hwy 7	E	E
Segment 6	Hwy 7	Northview Blvd	F	E
Segment 7	Northview Blvd	Fieldstone Dr	E	D

Highway 7 - From Whitmore Road to Hwy 400

		From	Whitmore Rd	Nova Star Dr	Weston Rd	Famous Ave	Colossus Dr
		To	Nova Star Dr	Weston Rd	Famous Ave	Colossus Dr	Hwy 400
Segment PLOS			Segment 1	Segment 2	Segment 3	Segment 4	Segment 5
North Side	Sidewalk Width		1.5	1.5	2.5	2	2.2
	Boulevard Width		9.5	1.3	0	0.7	0
	AADT		>3000	>3000	>3000	>3000	>3000
	Presence of on-street parking or other equivalent barrier **		No	No	No	No	No
	Operating Speed (km/h)		70	70	70	70	70
	LOS		D	E	D	F	F
South Side	Sidewalk Width		2	2	1.5	2	2
	Boulevard Width		0	0	4.5	0	0
	AADT		>3000	>3000	>3000	>3000	>3000
	Presence of on-street parking or other equivalent barrier **		No	No	No	No	No
	Operating Speed (km/h)		70	70	70	70	70
	LOS		F	F	D	F	F

** A boulevard width of >= 4.5m is considered here to be an 'equivalent barrier'; this does not necessarily reflect the presence of parking or an actual barrier

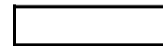
	From	To	North	South
Segment 1	Whitmore Rd	Nova Star Dr	D	F
Segment 2	Nova Star Dr	Weston Rd	E	F
Segment 3	Weston Rd	Famous Ave	D	D
Segment 4	Famous Ave	Colossus Dr	F	F
Segment 5	Colossus Dr	Hwy 400	F	F

Windflower Gate - From Ansley Grove Rd to Fieldstone Dr

	From	Ansley Grove Rd	Note: the road characteristics within these bounds are very consistent over the road length
	To	Fieldstone Dr	
Segment PLOS			Segment 1
North / West Side	Sidewalk Width	1.5	
	Boulevard Width	2.5	
	AADT	<3000	
	Presence of on-street parking or other equivalent barrier **	No	
	Operating Speed (km/h)	50	Assumed speed of 50 km/hr for private roads
	LOS		C
South / East Side	Sidewalk Width	1.5	
	Boulevard Width	2.3	
	AADT	<3000	
	Presence of on-street parking or other equivalent barrier **	No	
	Operating Speed (km/h)	50	Assumed speed of 50 km/hr for private roads
	LOS		C

** A boulevard width of $\geq 4.5m$ is considered here to be an 'equivalent barrier'; this does not necessarily reflect the presence of parking or an actual barrier

	From	To	North	South
Segment 1	Ansley Grove Rd	Fieldstone Dr	C	C



Nova Star Drive- From Highway 7 to Windflower Gate

	From	Highway 7	
	To	Windflower Gate	
Segment PLOS			Segment 1
West Side	Sidewalk Width	2	
	Boulevard Width	2.4	
	AADT	<3000	
	Presence of on-street parking or other equivalent barrier **	No	
	Operating Speed (km/h)	50	Assumed speed of 50 km/hr for private roads
	LOS		A
East Side	Sidewalk Width	2	
	Boulevard Width	0.7	
	AADT	<3000	
	Presence of on-street parking or other equivalent barrier **	No	
	Operating Speed (km/h)	50	Assumed speed of 50 km/hr for private roads and minor collectors
	LOS		A

** A boulevard width of $\geq 4.5m$ is considered here to be an 'equivalent barrier'; this does not necessarily reflect the presence of parking or an actual barrier

	From	To	West	East
Segment 1	Highway 7	Windflower Gate	A	A

Northview Blvd - From Weston Road to Chrislea Road

		From	Weston Road	Goodlife Fitness Access
		To	Goodlife Fitness Access	Chrislea Road
Segment PLOS			Segment 1	Segment 2
North Side	Sidewalk Width		1.5	1.5
	Boulevard Width		3.4	3.4
	AADT		<3000	<3000
	Presence of on-street parking or other equivalent barrier **		No	No
	Operating Speed (km/h)		50	50
	LOS		C	C
South Side	Sidewalk Width		1.8	0
	Boulevard Width		4	0
	AADT		<3000	<3000
	Presence of on-street parking or other equivalent barrier **		No	No
	Operating Speed (km/h)		50	50
	LOS		A	F

Assumed speed of 50 km/hr for private roads and minor collectors

Assumed speed of 50 km/hr for private roads and minor collectors

** A boulevard width of $\geq 4.5m$ is considered here to be an 'equivalent barrier'; this does not necessarily reflect the presence of parking or an actual barrier

	From	To	North	South
Segment 1	Weston Road	Goodlife Fitness Access	C	A
Segment 2	Goodlife Fitness Access	Chrislea Road	C	F

Famous Avenue - From Weston Road to Hwy 7

		From	Weston Rd	Costco Access	Collosus Dr
		To	Costco Access	Collosus Dr	Highway 7
Segment PLOS			Segment 1	Segment 2	Segment 3
North / West Side	Sidewalk Width		0	0	0
	Boulevard Width		0	0	0
	AADT		>3000	>3000	>3000
	Presence of on-street parking or other equivalent barrier **		No	No	No
	Operating Speed (km/h)		50	50	50
	LOS		F	F	F
South / East Side	Sidewalk Width		1.5	1.5	1.5
	Boulevard Width		2	2.9	3
	AADT		>3000	>3000	>3000
	Presence of on-street parking or other equivalent barrier **		No	No	No
	Operating Speed (km/h)		50	50	50
	LOS		C	C	C

Assumed > 3000 to be conservative

Assumed speed of 50 km/hr for private roads and minor collectors

Assumed > 3000 to be conservative

** A boulevard width of $\geq 4.5m$ is considered here to be an 'equivalent barrier'; this does not necessarily reflect the presence of parking or an actual barrier

	From	To	North/West	South/East
Segment 1	Weston Rd	Costco Access	F	C
Segment 2	Costco Access	Collosus Dr	F	C
Segment 3	Collosus Dr	Highway 7	F	C

Collosus Drive - From Weston Road to Hwy 7

		From	Weston Rd	Famous Ave	140 m East of Costco far access
		To	Famous Ave	140 m East of Costco far access	Hwy 7
Segment PLOS			Segment 1*	Segment 2	Segment 3
North / West Side	Sidewalk Width		1.5	1.5	0
	Boulevard Width		3	2.5	0
	AADT		>3000	>3000	>3000
	Presence of on-street parking or other equivalent barrier **		No	No	No
	Operating Speed (km/h)		60	60	60
	LOS		D	E	F
South / East Side	Sidewalk Width		1.5	1.5	0
	Boulevard Width		3	2.5	0
	AADT		>3000	>3000	>3000
	Presence of on-street parking or other equivalent barrier **		No	No	No
	Operating Speed (km/h)		60	60	60
	LOS		D	E	F

TMC Diagram @ Collosus and Hwy 7

major collectors assumed 60km/hr

Segment 1 PLOS was elevated by a letter to account for the wide planted median that separates

Segment 1 PLOS was elevated by a letter to account for the wide planted median that separates

** A boulevard width of >= 4.5m is considered here to be an 'equivalent barrier'; this does not necessarily reflect the presence of parking or an actual barrier

	From	To	North/West	South/East
Segment 1	Weston Rd	Famous Ave	D	D
Segment 2	Famous Ave	140 m East of Costco far access	E	E
Segment 2	140 m East of Costco far access	Hwy 7	F	F

Rowntree Dairy Road- From Winges Road to Weston Road

		From	Winges Rd
		To	Weston Rd
Segment PLOS			Segment 1
North Side	Sidewalk Width		1.5
	Boulevard Width		4.5
	AADT		>3000
	Presence of on-street parking or other equivalent barrier **		No
	Operating Speed (km/h)		60
	LOS		D
South Side	Sidewalk Width		1.5
	Boulevard Width		4.5
	AADT		>3000
	Presence of on-street parking or other equivalent barrier **		No
	Operating Speed (km/h)		60
	LOS		D

major collectors assumed 60km/hr

** A boulevard width of >= 4.5m is considered here to be an 'equivalent barrier'; this does not necessarily reflect the presence of parking or an actual barrier

	From	To	North	South
Segment 1	Winges Rd	Weston Rd	D	D

Winges Road - From Whitmore Road to Rowntree Dairy Road

		From	Whitmore Road
		To	Rowntree Dairy Road
Segment PLOS			Segment 1
North/East Side	Sidewalk Width		1.5
	Boulevard Width		3.5
	AADT		>3000
	Presence of on-street parking or other equivalent barrier **		No
	Operating Speed (km/h)		50
	LOS		C
South / West Side	Sidewalk Width		0
	Boulevard Width		0
	AADT		>3000
	Presence of on-street parking or other equivalent barrier **		No
	Operating Speed (km/h)		50
	LOS		F

Minor Collectors assumed 50km/hr

Minor Collectors assumed 50km/hr

** A boulevard width of >= 4.5m is considered here to be an 'equivalent barrier'; this does not necessarily reflect the presence of parking or an actual barrier

	From	To	North/East	South/West
Segment 1	Whitmore Road	Rowntree Dairy Road	C	F

Fieldstone Drive - From Windflower Gate

		From	Windflower Gate	Weston Rd	Jevlan Dr	Chrislea Rd
		To	Weston Rd	Jevlan Dr	Chrislea Rd	Hwy 400
Segment PLOS			Segment 1	Segment 2	Segment 3	Segment 4
North Side	Sidewalk Width		1.5	1.5	1.5	1.5
	Boulevard Width		3	3	1.4	1.2
	AADT		<3000	>3000	>3000	>3000
	Presence of on-street parking or other equivalent barrier **		No	No	No	No
	Operating Speed (km/h)		50	60	60	60
	LOS		C	E	E	E
South Side	Sidewalk Width		1.5	1.5	1.5	1.5
	Boulevard Width		3.5	3	1.4	1.2
	AADT		<3000	>3000	>3000	>3000
	Presence of on-street parking or other equivalent barrier **		No	No	No	No
	Operating Speed (km/h)		50	60	60	60
	LOS		C	E	E	E

minor collectors assumed 50 km/hr, major collectors 60 km/hr

	From	To	North	South
Segment 1	Windflower Gate	Weston Rd	C	C
Segment 2	Weston Rd	Jevlan Dr	E	E
Segment 3	Jevlan Dr	Chrislea Rd	E	E
Segment 4	Chrislea Rd	Hwy 400	E	E

Whitmore Road - From Windflower Gate

		From	Windflower Gate	Hwy 7
		To	Hwy 7	Winges Rd
Segment PLOS			Segment 1	Segment 2
East Side	Sidewalk Width		1.5	1.5
	Boulevard Width		3.5	3
	AADT		>3000	>3000
	Presence of on-street parking or other equivalent barrier **		No	No
	Operating Speed (km/h)		60	60
	LOS		E	E
West Side	Sidewalk Width		1.5	1.5
	Boulevard Width		3.5	3
	AADT		>3000	>3000
	Presence of on-street parking or other equivalent barrier **		No	No
	Operating Speed (km/h)		60	60
	LOS		E	E

TMC

major collectors 60 km/hr assumed

TMC

major collectors 60 km/hr assumed

	From	To	East	West
Segment 1	Windflower Gate	Hwy 7	E	E
Segment 2	Hwy 7	Winges Rd	E	E

Speed Assumptions

limits for their respective jurisdictions. The standards of legal speed limits set by TAC and other municipalities are compared to that of Vaughan in **Table 5.2**. The speed limits are generally based on the road classification. The higher the classification, the higher the recommended speed limits and vice versa. **Table 3.2** shows the minimum design speed for different road classes as specified in the TAC Geometric Design Guide.

Table 3.2 Minimum Design Speed of Different Road Classes as per TAC Guide

Road Classification	Minimum Design Speed, km/h	Vaughan Existing Design Speed	Recommendation Design Speed
Locals	30-50	50	60 (10 km/hr above the posted speed limit)
Collectors	50-80	50	80 (20 km/hr above the posted speed limit)
Minor Arterial	50-70	60	80 (20 km/hr above the posted speed limit)

The recommended design speed for Vaughan should be 10 km/hr above the typical posted speed limit (50 km/hr) for local road and 20 km/hr above the typical posted speed limit for collectors and minor arterials (60 km/hr) respectively. The City Vaughan can also add to TAC and Toronto's standards by adopting York Region's annual studies and review policy to confirm or adjust speed limits for optimum road safety. This process involves a number of considerations including: on-street measurement of speed, a review of collision, the physical features of the road, and the effect of the transitions of the speed limit from one zone to the next.

PLOS Intersection - Results

Intersection		Famous Avenue				
		NORTH	SOUTH	EAST	WEST	
Weston Road	Pedestrian	Lanes	6		4	
		Median	Yes		No	
		Island Refuge	No		No	
		Conflicting Left Turn	No left turn/prohibited		Protected/permisive	
		Conflicting Right Turn	Permisive or yield control		Permisive or yield control	
		RTOR	RTOR allowed		RTOR allowed	
		Ped Leading Interval	No		No	
		Corner Radius (largest)	> 10m to 15m		> 10m to 15m	
		Crosswalk Type	Zebra stripe hi-vis markings		Zebra stripe hi-vis markings	
		LEVEL OF SERVICE	E (36)	F (0)	D (56)	F ()
F						

Intersection		Colossus Dr				
		NORTH	SOUTH	EAST	WEST	
Weston Road	Pedestrian	Lanes	7	6	5	5
		Median	Yes	Yes	No	No
		Island Refuge	No	No	No	Yes
		Conflicting Left Turn	Permisive	Permisive	Protected/permisive	Protected/permisive
		Conflicting Right Turn	Permisive or yield control	Permisive or yield control	Permisive or yield control	Permisive or yield control
		RTOR	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
		Ped Leading Interval	No	No	No	No
		Corner Radius (largest)	> 10m to 15m	> 10m to 15m	> 10m to 15m	> 10m to 15m
		Crosswalk Type	Standard transverse markings	Standard transverse markings	Standard transverse markings	Standard transverse markings
		LEVEL OF SERVICE	F (10)	F (25)	E (37)	E (41)
F						

Intersection		Hwy 7				
		NORTH	SOUTH	EAST	WEST	
		Selection	Selection	Selection	Selection	
Weston Road	Pedestrian	Lanes	8	8	9	9
		Median	Yes	Yes	No	No
		Island Refuge	No	No	No	No
		Conflicting Left Turn	Protected/permisive	Protected	Protected	Protected/permisive
		Conflicting Right Turn	Permisive or yield control	Permisive or yield control	Permisive or yield control	Permisive or yield control
		RTOR	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
		Ped Leading Interval	No	No	No	No
		Corner Radius (largest)	> 15m to 25m	> 10m to 15m	> 15m to 25m	> 10m to 15m
		Crosswalk Type	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings
		LEVEL OF SERVICE	F (-4)	F (6)	F (-20)	F (-26)
F						

Intersection		Chrislea Rd / Fieldstone Dr				
		NORTH	SOUTH	EAST	WEST	
Weston Road	Pedestrian	Lanes	6	6	5	5
		Median	Yes	Yes	Yes	Yes
		Island Refuge	No	No	No	No
		Conflicting Left Turn	Protected/permisive	Protected/permisive	Protected/permisive	Protected/permisive
		Conflicting Right Turn	Permisive or yield control	Permisive or yield control	Permisive or yield control	Permisive or yield control
		RTOR	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
		Ped Leading Interval	No	No	No	No
		Corner Radius (largest)	> 15m to 25m	> 10m to 15m	> 15m to 25m	> 15m to 25m
		Crosswalk Type	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings
		LEVEL OF SERVICE	F (26)	F (28)	E (41)	E (41)
F						

not allowed to cross = F

not allowed to cross = F

Weston Road

Intersection	PLOS
Famous Avenue	F
Colossus Dr	F
Hwy 7	F
Chrislea Rd / Fieldstone Dr	F

Highway 7

Intersection		Ansley Grove Rd / Whitmore Rd			
		NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	6	6	8	8
	Median	Yes	Yes	Yes	Yes
	Island Refuge	No	No	No	No
	Conflicting Left Turn	Permissive	Protected/permissive	Protected	Protected/permissive
	Conflicting Right Turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	RTOR	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Leading Interval	No	No	No	No
	Corner Radius (largest)	> 15m to 25m	> 10m to 15m	> 15m to 25m	> 15m to 25m
	Crosswalk Type	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings
	LEVEL OF SERVICE	F (26)	F (28)	F (4)	F (-4)

Highway 7

Intersection		Nova Star Dr			
		NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	5	2		8
	Median	No	No		No
	Island Refuge	No	No		No
	Conflicting Left Turn	Protected/permissive	Protected/permissive		Protected/permissive
	Conflicting Right Turn	Permissive or yield control	Permissive or yield control		Permissive or yield control
	RTOR	RTOR allowed	RTOR allowed		RTOR allowed
	Ped Leading Interval	No	No		No
	Corner Radius (largest)	> 10m to 15m	> 10m to 15m		> 10m to 15m
	Crosswalk Type	Standard transverse markings	Standard transverse markings		Standard transverse markings
	LEVEL OF SERVICE	E (37)	B (85)	F (0)	F (-12)

not allowed to cross = F

Highway 7

Intersection		Famous Ave			
		NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes		3		
	Median		Yes		
	Island Refuge		Yes		
	Conflicting Left Turn		No left turn/prohibited		
	Conflicting Right Turn		Permissive or yield control		
	RTOR		RTOR allowed		
	Ped Leading Interval		No		
	Corner Radius (largest)		> 10m to 15m		
	Crosswalk Type		Standard transverse markings		
	LEVEL OF SERVICE		B (82)	F (0)	F (0)

T intersection

not allowed to cross = F

Highway 7

Intersection		Colossus Dr			
		NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	4	3		6
	Median	Yes	Yes		No
	Island Refuge	No	Yes		Yes
	Conflicting Left Turn	No left turn/prohibited	No left turn/prohibited		No left turn/prohibited
	Conflicting Right Turn	No right turn	Permissive or yield control		Permissive or yield control
	RTOR	RTOR prohibited	RTOR prohibited		RTOR prohibited
	Ped Leading Interval	No	No		No
	Corner Radius (largest)	> 15m to 25m	> 10m to 15m		> 15m to 25m
	Crosswalk Type	Standard transverse markings	Standard transverse markings		Standard transverse markings
	LEVEL OF SERVICE	F ()	B (85)	F (0)	E (33)

Not allowed to cross on east side

Highway 7

Intersection	PLOS
Ansley Grove Rd / Whitmore Rd	F
Nova Star Dr	F
Famous Ave	F
Colossus Dr	F

Windflower Gate

Intersection		North Star Dr			
		NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	3	4	2	2
	Median	No	Yes	No	No
	Island Refuge	No	Yes	Yes	Yes
	Conflicting Left Turn	Permissive	Protected/permissive	Permissive	Permissive
	Conflicting Right Turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	RTOR	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Leading Interval	No	No	No	No
	Corner Radius (largest)	> 15m to 25m	> 10m to 15m	> 10m to 15m	> 15m to 25m
	Crosswalk Type	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement
	LEVEL OF SERVICE	C (71)	C (62)	A (92)	A (90)
C					

Intersection	PLOS
North Star Dr	C

Windflower Gate

Intersection		Fieldstone Dr*			
		NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	2	2	3	2
	Median	No	No	No	No
	Island Refuge	No	Yes	Yes	Yes
	Conflicting Left Turn	Permissive	Permissive	Permissive	Permissive
	Conflicting Right Turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	RTOR	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Leading Interval	No	No	No	No
	Corner Radius (largest)	> 15m to 25m	> 10m to 15m	> 10m to 15m	> 15m to 25m
	Crosswalk Type	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement
	LEVEL OF SERVICE	B (86)	A (92)	B (77)	A (90)
B					

* This is an unsignalized intersection. However, its configuration is very similar to the Windflower Gate and Nova Start intersection (PLOS C) but has less lanes. Therefore, using our engineering judgement, we have assigned a PLOS B to this intersection.

Intersection	PLOS
Fieldstone Dr*	B

Windflower Gate

Intersection		Whitmore Road / Ansley Grove Dr			
		NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	3	2	7	6
	Median	No	No	Yes	Yes
	Island Refuge	No	No	No	No
	Conflicting Left Turn	Protected/permissive	Permissive	Protected/permissive	Permissive
	Conflicting Right Turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	RTOR	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Leading Interval	No	No	No	No
	Corner Radius (largest)	> 10m to 15m	> 10m to 15m	> 10m to 15m	> 10m to 15m
	Crosswalk Type	Standard transverse markings	Standard transverse markings	Standard transverse markings	Standard transverse markings
	LEVEL OF SERVICE	C (70)	B (85)	F (10)	F (25)
F					

Intersection	PLOS
Whitmore Road / Ansley Grove Dr	F

Whitmore Rd

Intersection		Winges Road			
		NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	5	5	3	3
	Median	No	No	No	No
	Island Refuge	No	No	No	No
	Conflicting Left Turn	Permissive	Permissive	Permissive	Permissive
	Conflicting Right Turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	RTOR	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Leading Interval	No	No	No	No
	Corner Radius (largest)	> 10m to 15m	> 10m to 15m	> 10m to 15m	> 10m to 15m
	Crosswalk Type	Standard transverse markings	Standard transverse markings	Standard transverse markings	Standard transverse markings
	LEVEL OF SERVICE	E (37)	E (37)	C (70)	C (70)
E					

Intersection	PLOS
Winges Road	E

Winges Road

Intersection		Rowntree Dairy Road			
		NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	3	2	5	4
	Median	No	No	No	No
	Island Refuge	No	No	No	No
	Conflicting Left Turn	Permissive	Permissive	Permissive	Permissive
	Conflicting Right Turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	RTOR	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Leading Interval	No	No	No	No
	Corner Radius (largest)	> 10m to 15m	> 10m to 15m	> 10m to 15m	> 10m to 15m
	Crosswalk Type	Standard transverse markings	Standard transverse markings	Standard transverse markings	Standard transverse markings
	LEVEL OF SERVICE	C (70)	B (85)	E (37)	D (53)
E					

Intersection	PLOS
Rowntree Dairy Road	E

Colossus Drive

Intersection		Famous Drive			
		NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	3	3	4	4
	Median	No	No	Yes	Yes
	Island Refuge	No	No	Yes	Yes
	Conflicting Left Turn	Permissive	Permissive	Permissive	Permissive
	Conflicting Right Turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	RTOR	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Leading Interval	No	No	No	No
	Corner Radius (largest)	> 10m to 15m	> 10m to 15m	> 10m to 15m	> 10m to 15m
	Crosswalk Type	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings
	LEVEL OF SERVICE	C (73)	C (73)	C (62)	C (62)
C					

Intersection	PLOS
Famous Drive	C



Appendix C: Existing Traffic Conditions



Memo

Date: Friday, August 03, 2018

Project: Weston Road and Highway 7 Secondary Plan

To: Type recipient(s) here

From: Type sender(s) here

Subject: Existing Traffic Conditions - DRAFT

Introduction

HDR has been retained by City of Vaughan to conduct transportation analysis for the Weston Road and Highway 7 Secondary Plan. The traffic analysis documented in this memo provides the technical information for the transportation component for the Secondary Plan, currently under the Phase 1 – Problem and Opportunity Statement process. The purpose of this traffic analysis is to assess existing traffic conditions and establish a baseline for the Phase 2 - Alternatives work.

Study Area and Existing Traffic Volumes

The study area for the analysis is bounded by Chrislea Road / Fieldstone Drive to the north, Highway 400 to the east, 407ETR to the south, and Ansley Grove Road to the west. A total of 15 study area intersections were analyzed, and their locations are shown in **Exhibit 1**. The turning movement counts were provided by City of Vaughan, dated June 23rd and 26th, 2018 for most of the study area intersections. Some additional older counts data were provided by York Region and Ministry of Transportation (MTO). All TMC data received are listed in **Table 1**. **Table 1** also lists the assumptions made for the locations with missing traffic volumes and signal timing data.

Exhibit 2 shows the summary of intersection turning volumes during the weekday PM peak hour, and **Exhibit 3** shows the summary of intersection turning volumes during the weekend peak hour.

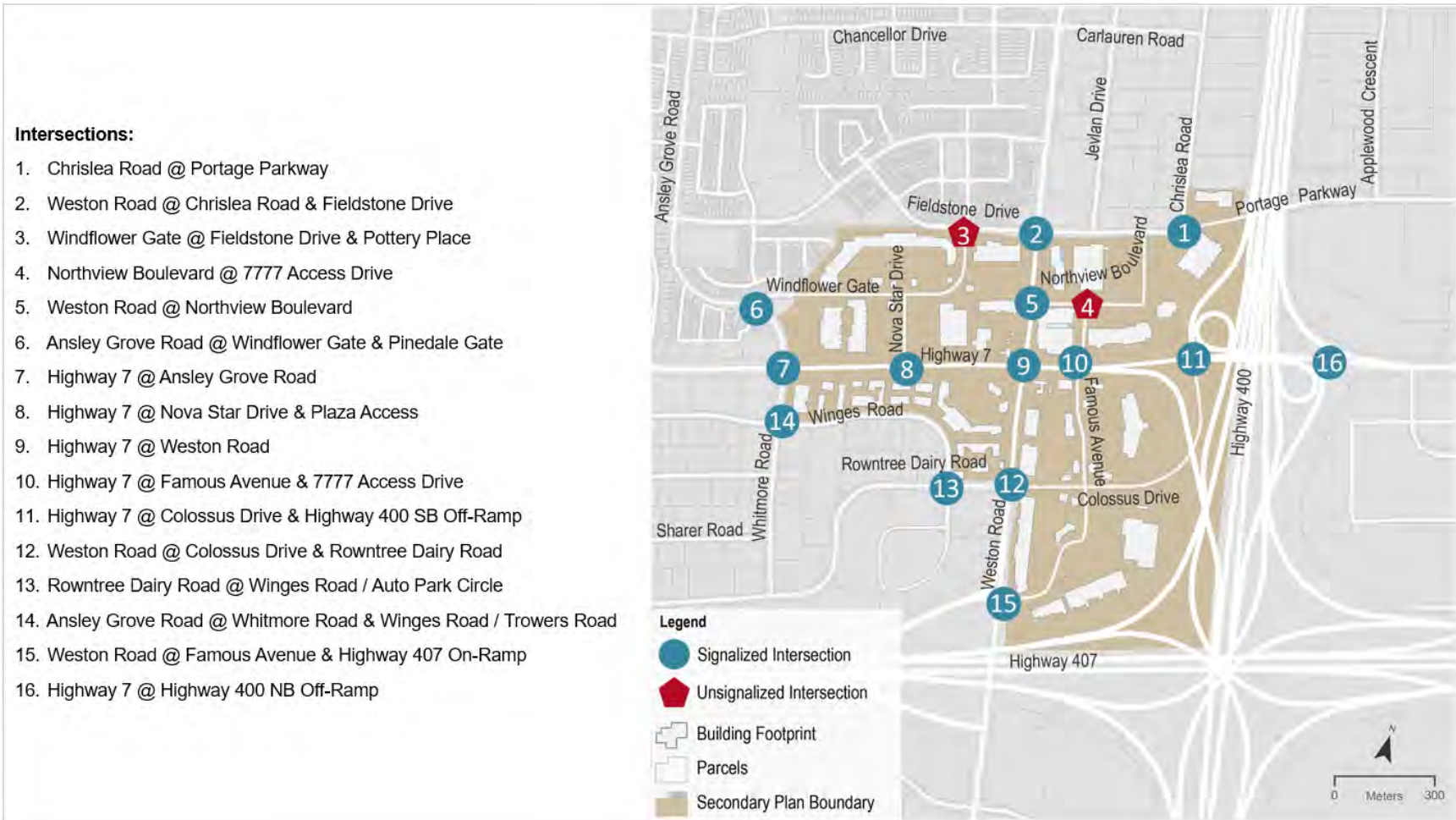


Exhibit 1: Locations of the Study Area Intersections



Table 1: Dates of Turning Movement Counts, Availability of Signal Timing Cards and Assumptions

Intersection	Weekday PM Peak Hour Count Date	Weekend Peak Hour Count Date	Signal Timing Card Available	Assumption(s) on Estimation of Missing Signal Timings and Intersection Turning Volumes
Chrislea Rd @ Portage Pkwy / Commercial Access	May 17 , 2011	June 23, 2018	No	120 sec Cycle Length Assumed, May 2011 traffic count was adjusted with an annual growth rate of 1.5% compounded up to 2018 for Weekday PM Peak Hour
Weston Rd @ Chrislea Rd / Fieldstone Drive	June 26, 2018	June 23, 2018	Yes	-
Ansley Grove Rd @ Windflower Gate / Pinedale Gate	June 26, 2018	June 23, 2018	Yes	-
Highway 7 @ Ansley Grove Rd / Whitmore Rd	June 26, 2018	June 23, 2018	Yes	-
Highway 7 @ Nova Star Dr / Commercial Access	June 26, 2018	June 23, 2018	Yes	-
Highway 7 @ Weston Rd	Dec. 20, 2016	June 23, 2018	Yes	-
Highway 7 @ Famous Rd	June 26, 2018	June 23, 2018	Yes	-
Highway 7 @ Colossus Dr / Highway 400 SB Off Ramp	March 21, 2017	N/A	Yes	-
Highway 7 @ Highway 400 NB Off Ramp	May 31, 2016	N/A	No	140 sec Cycle Length Assumed
Weston Road @ Rowntree Dairy Rd./Colossus Drive	June 26, 2018	June 23, 2018	Yes	-
Rowntree Dairy Rd @ Wings Rd / Auto Park Cir	June 26, 2018	June 23, 2018	No	120 sec Cycle Length Assumed
Ansley Grove Rd / Whitmore Rd @ Wings Rd / Trowers Rd	June 26, 2018	June 23, 2018	No	120 sec Cycle Length Assumed
Weston Road @ 407ETR WB On Ramp / Famous Avenue	June 26, 2018	June 23, 2018	Yes	-
Weston Road @ Northview Blvd	June 26, 2018	June 23, 2018	No	140 sec Cycle Length Assumed
Fieldstone Drive @ Windflower Gate/Pottery PI [Unsignalized]	March 4, 2015	June 23, 2018	-	-
Northview Blvd. @ 7777 Weston Road Access [Unsignalized]	N/A	June 23, 2018	-	Assumed from current PM peak volumes of the neighboring intersections, and an older count of July 31, 2012 of another neighboring intersection



Weekday PM Peak Hour: Existing Traffic Volumes

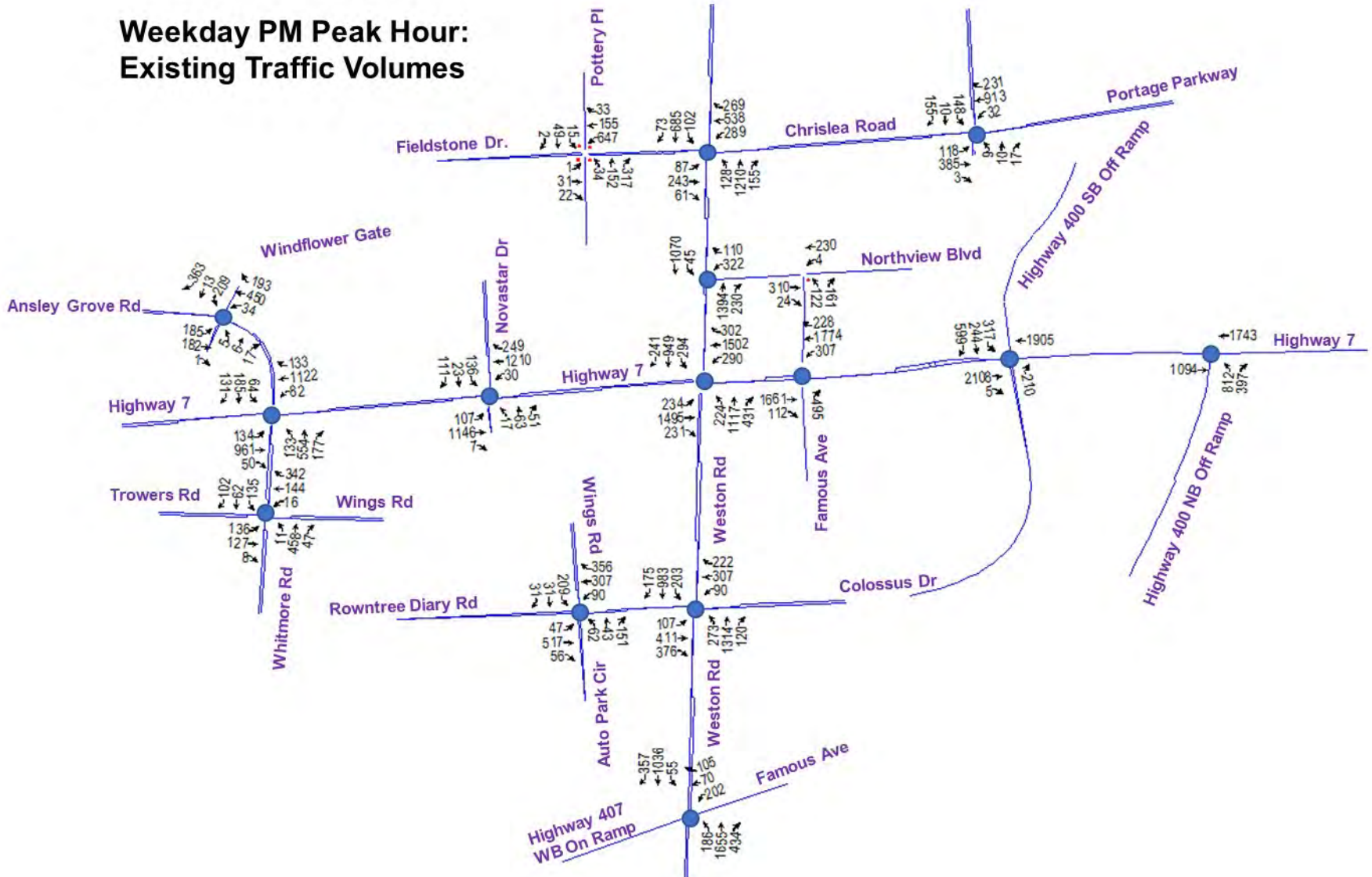


Exhibit 2: Existing Weekday PM Peak Hour Traffic Volumes

Weekend Peak Hour: Existing Traffic Volumes

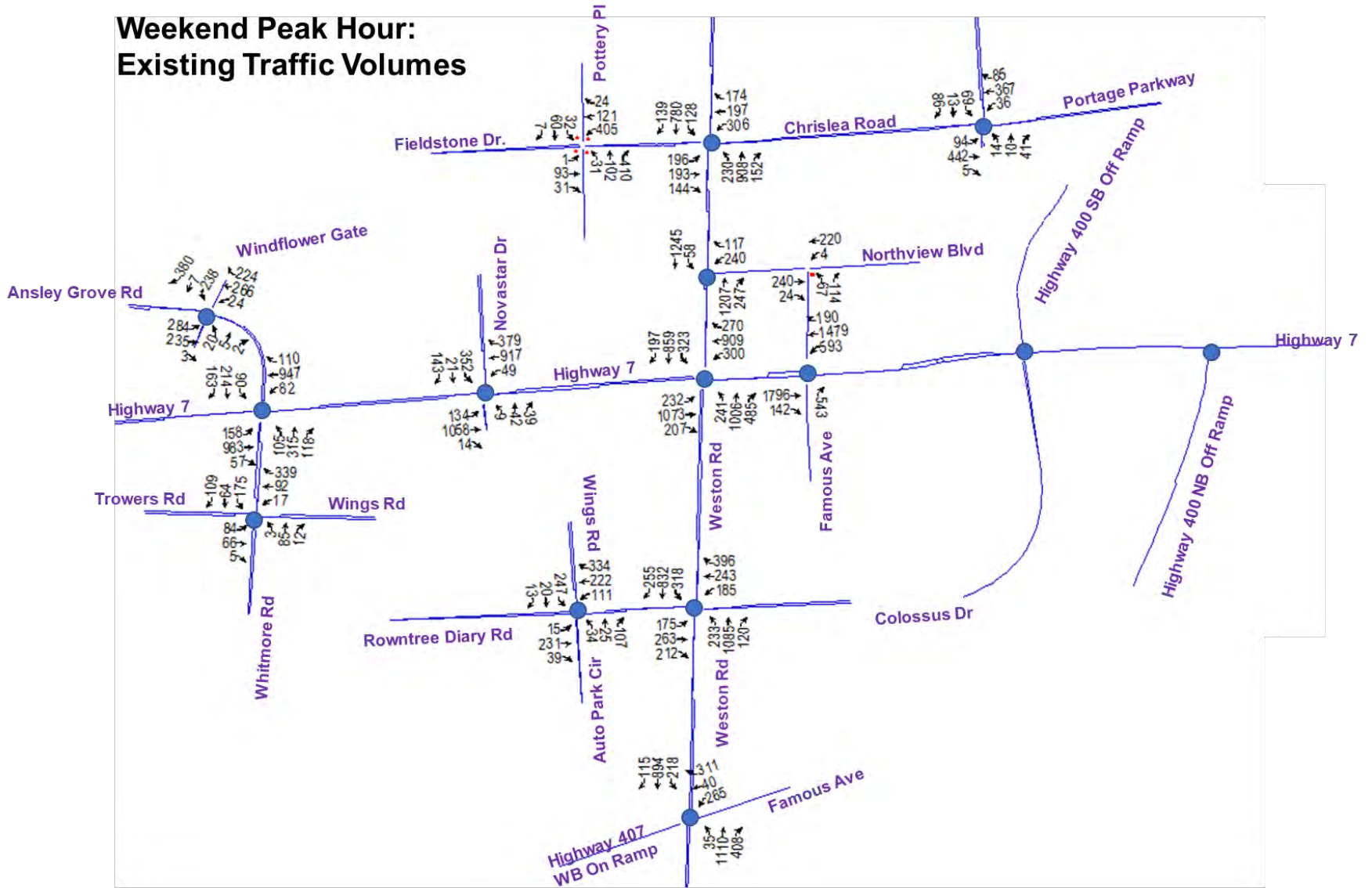


Exhibit 3: Existing Weekend Peak Hour Traffic Volumes



Intersection Analysis Methodology

Intersection operations were conducted to assess the capacity and operational deficiencies on the study area intersections (**Exhibit 1**). The analysis, conducted using Synchro 9, considered three separate measures of performance:

- The volume to capacity (V/C) ratio for each movement and overall intersection. This ratio reflects peak hour traffic demand measured against roadway capacity.
- The level of service (LOS) for each for each movement and overall intersection. LOS is based on the average control delay per vehicle.
- The 95th percentile queue length of each movement/lane group.

LOS definitions (**Table 2**) are based on the Highway Capacity Manual (HCM) 2000. The HCM defines LOS for signalized and unsignalized intersections as a function of the average vehicle control delay. LOS may be calculated per movement or per approach for any intersection configuration, but LOS for the intersection as a whole is only defined for signalized and all-way stop configurations.

Table 2: Highway Capacity Manual Level of Service Definitions for Intersections

LOS	Signalized Intersection Average Vehicle Control Delay	Unsignalized Intersection Average Vehicle Control Delay	LOS Recommendation
A	≤10 sec	≤10 sec	Acceptable
B	10-20 sec	10-15 sec	Acceptable
C	20-35 sec	15-25 sec	Acceptable
D	35-55 sec	25-35 sec	Somewhat undesirable
E	55-80 sec	35-50 sec	Undesirable
F	≥80 sec	≥50 sec	Unacceptable

It is noted that the analysis may indicate that certain movements at an intersection operate with volume-capacity ratios greater than 1.0. Theoretically, a maximum volume-capacity ratio for existing conditions cannot be greater than 1.0, since the observed volumes used in the analysis represent volumes that were actually served at the intersection. Thus, a volume-capacity ratio exceeding 1.0 under existing conditions is a result of conservative parameters used in the Synchro analysis. For future conditions, V/C ratios exceeding 1.0 may either be a result of these conservative parameters, but may also indicate a likelihood that traffic will divert to other routes. Volume inputs in Synchro are static and any diversion would have to be manually accounted for and assigned to different intersections.

On the other hand, LOS F indicates average delays in excess of 80 seconds. While this is generally characterized as “poor” operation, it does not necessarily imply that the movement, approach, or intersection is experiencing demand in excess of capacity. When cycle lengths are in the range of 120 seconds (or longer), it is possible to have delays in the range of 80 seconds even in low-demand situations.



In addition to V/C ratio and LOS, 95th percentile queue lengths are also reported to identify any storage length deficiencies.



Existing Intersection Operations

Based on the existing traffic volumes (**Exhibit 2** and **Exhibit 3**) and the existing signal timing plans obtained from the operating municipalities, **Table 3** shows the summary of the resulting performance measures for the study area intersections, during both the weekday PM peak hour and weekend peak hour. The weekend analysis for Highway 7 at Highway 400 SB Off-ramp and Highway 400 NB Off-ramp were not included due to the lack of data.

Table 3: Existing Traffic Conditions Analysis

Intersection & Turning Movements	Weekday PM Peak Hour			Weekend Peak Hour		
	LOS	v/c	Queue	LOS	v/c	Queue
Chrislea Rd @ Portage Pkwy / Commercial Access [Signalized]	C	0.5		B	0.24	
EBL	B	0.46	22.2	A	0.18	11.1
EBTR	B	0.25	41.9	B	0.27	45.7
WBL	B	0.07	7.9	B	0.08	8.3
WBT	C	0.62	117.1	C	0.24	41
WBR	C	0.18	19.3	B	0.06	9.1
NBL	C	0.02	5.2	C	0.04	7.5
NBTR	C	0.03	8.4	C	0.05	11.1
SBL	C	0.34	46	C	0.17	24.8
SBTR	C	0.12	16.9	C	0.08	14.9
Weston Rd @ Chrislea Rd / Fieldstone Drive [Signalized]	D	0.87		C	0.82	
EBL	F	1.07	59.6	E	0.86	73.4
EBT	D	0.6	87.5	D	0.43	59
EBR	D	0.04	4.3	C	0.1	14.7
WBL	F	1.13	121.8	C	0.78	80.9
WBTR	D	0.75	119.4	B	0.22	30
NBL	B	0.33	16.2	C	0.76	84.3
NBT	C	0.71	94.1	C	0.69	135.9
NBR	C	0.15	7	C	0.13	19.3
SBL	C	0.53	22.4	C	0.57	30.8
SBT	C	0.41	87.6	D	0.66	112.7
SBR	B	0.05	5.8	C	0.12	18.3
Ansley Grove Rd @ Windflower Gate / Pinedale Gate [Signalized]	C	0.55		C	0.53	
EBL	D	0.62	69	B	0.47	85.5
EBTR	C	0.16	27.2	B	0.12	26.7
WBL	A	0.04	6.8	A	0.04	6.5
WBT	A	0.35	77.1	A	0.23	51.9
WBR	A	0.13	8.5	A	0.16	10.9
NBLTR	D	0.07	9.8	D	0.13	12.1
SBL	E	0.78	74.8	D	0.73	81.2
SBTR	D	0.33	34.2	D	0.28	24.2
Highway 7 @ Ansley Grove Rd /	C	0.55		C	0.49	



Intersection & Turning	Weekday PM Peak Hour			Weekend Peak Hour		
Whitmore Rd [Signalized]						
EBL	B	0.44	18.7	A	0.41	21.7
EBT	B	0.35	61.3	B	0.33	64.7
EBR	B	0.03	1	B	0.04	2.4
WBL	A	0.23	2.5	A	0.23	5.6
WBT	A	0.41	9.7	A	0.33	27.8
WBR	A	0.09	0	A	0.08	0.2
NBL	E	0.63	59.7	E	0.67	49.7
NBT	E	0.83	104.5	E	0.63	61
NBR	D	0.26	33.8	D	0.08	14.2
SBL	F	0.92	48.9	F	0.8	49.6
SBT	D	0.28	36	D	0.43	42.6
SBR	D	0.09	17.1	D	0.16	23.1
Highway 7 @ Nova Star Dr / Commercial Access [Signalized]	C	0.47		C	0.5	
EBL	C	0.44	30.7	B	0.45	29.6
EBT	B	0.45	72.3	B	0.44	60.6
EBR	B	0	0	B	0.01	0
WBL	B	0.13	4.4	A	0.21	6.3
WBT	C	0.49	73.2	B	0.4	44
WBR	C	0.21	17.1	A	0.27	5.9
NBL	E	0.13	12.8	E	0.07	8.5
NBTR	F	0.74	57.9	E	0.5	34.9
SBL	D	0.27	24.4	D	0.58	59.5
SBTR	D	0.17	21.4	D	0.17	23
Highway 7 @ Famous Ave [Signalized]	D	0.71		D	0.79	
EBT	B	0.47	139	B	0.57	132
EBR	A	0.09	6.3	A	0.14	22.2
WBL	E	0.53	59	D	0.75	107
WBT	A	0.4	33.1	A	0.37	39
WBR	A	0.16	2	B	0.13	5.9
NBR	F	1.72	268.6	F	1.4	281.1
Highway 7 @ Weston Rd [Signalized]	F	1.15		E	1.05	
EBL	F	1.13	115.5	E	0.87	94.9
EBT	E	0.94	182.7	D	0.68	96.5
EBR	E	0.24	26.8	E	0.19	29.1
WBL	F	1.11	81.2	F	1.09	81.3
WBT	F	0.96	181	D	0.57	121.8
WBR	F	0.37	75.5	F	0.3	77.6
NBL	F	1.14	113.8	F	1.17	118.9
NBT	F	1.03	219.5	E	0.93	195.1
NBR	E	0.67	94.4	E	0.8	152.6
SBL	F	1.12	75	F	1.26	93.8



Intersection & Turning	Weekday PM Peak Hour			Weekend Peak Hour		
SBT	D	0.88	123	D	0.8	150.3
SBR	B	0.25	12.7	C	0.17	23.2
Highway 7 @ Colossus Dr / Highway 400 SB Off Ramp [Signalized]	D	0.89				
EBTR	B	0.83	70.4	NA		
WBT	C	0.76	174.1			
NBR	F	1.51	136.5			
SBL	E	0.78	131.2			
SBTR	D	0.67	90.4			
SBR	D	0.55	79.8			
Highway 7 @ Highway 400 NB Off Ramp [Signalized]	C	0.69				
EBT	A	0.38	56.9	NA		
WBT	B	0.59	116.6			
NBL	E	0.91	153.8			
NBR	D	0.43	51.5			
Weston Road @ Rowntree Dairy Rd. / Colossus Drive [Signalized]	D	1.06		D	1.06	
EBL	D	0.61	50.2	D	0.69	57.5
EBTR	D	0.76	116.2	C	0.38	26.3
WBL	F	1.42	71.3	F	0.95	84
WBT	D	0.6	109.6	C	0.46	69
WBR	D	0.25	36.8	D	0.65	85.9
NBL	D	0.89	64.9	C	0.75	75.9
NBTR	C	0.59	119.4	D	0.6	117.5
SBL	E	0.87	44.8	F	1.08	147.9
SBT	B	0.59	42.5	C	0.55	105.6
SBR	A	0.16	2.1	C	0.23	27.5
Rowntree Dairy Rd @ Wings Rd / Auto Park Cir [Signalized]	C	0.56		C	0.41	
EBLTR	C	0.49	84.6	B	0.2	37
WBL	B	0.24	21.2	B	0.2	26.3
WBTR	B	0.31	41.6	A	0.24	31.4
NBLTR	E	0.78	71.9	E	0.61	46
SBL	C	0.58	49.7	C	0.63	61.9
SBTR	C	0.07	12.9	C	0.04	9.4
Ansley Grove Rd / Whitmore Rd @ Wings Rd / Trowers Rd [Signalized]	C	0.57		C	0.43	
EBL	C	0.66	29.2	C	0.44	20.6
EBTR	C	0.18	26.8	C	0.11	17.8
WBL	C	0.04	7	D	0.06	7.9
WBTR	D	0.83	111.8	D	0.8	89.9
NBL	B	0.02	5.9	B	0	2.3

Intersection & Turning	Weekday PM Peak Hour			Weekend Peak Hour		
	Grade of Service	v/c	Queue Length	Grade of Service	v/c	Queue Length
NBTR	B	0.31	61.8	B	0.05	11.8
SBL	C	0.39	46.1	B	0.26	47.2
SBTR	B	0.08	12.4	B	0.08	11.7
Weston Road @ Highway 407 WB On Ramp / Famous Avenue [Signalized]	C	0.81		C	0.79	
WBLT	E	0.78	87.9	E	0.81	100.7
WBR	D	0.07	13.5	D	0.58	66
NBL	C	0.68	69.6	B	0.14	7.2
NBT	C	0.81	239.7	C	0.62	129.5
NBR	B	0.39	53.4	B	0.33	31.4
SBL	B	0.39	9.9	B	0.75	62.5
SBTR	C	0.81	180	B	0.52	127.5
Fieldstone Drive @ Windflower Gate/Pottery Pl [Unsignalized]	F			E		
EBLTR	B	0.12	0.4	B	0.29	1.2
WBL	F	1.35	32.1	F	0.93	10.9
WBTR	B	0.36	1.7	B	0.31	1.3
NBLTR	E	0.94	9.6	F	0.98	14.2
SBLTR	B	0.16	0.5	B	0.23	0.9
Northview Blvd. @ 7777 Weston Road Access [Unsignalized]						
WBLT	C	0.54	3.2	A	0	0
NBLR	A	0	0	B	0.31	1.3
Weston Road @ Northview Blvd [Signalized]	D	0.72		C	0.63	
WBLR	F	0.98	192	E	0.92	148
NBT	C	0.62	169.7	C	0.52	168.3
NBR	F	0.17	20.9	E	0.17	27.3
SBL	B	0.29	11.1	B	0.29	15.4
SBT	B	0.47	86.4	B	0.54	113.3

Findings

Based on the results presented in **Table 3**, the following conclusions can be drawn from the analysis of the study area intersections, under existing traffic and signal timing plans:

- Most signalized intersections currently operate at overall intersection LOS D or better and with overall v/c ratios less than 1.0 during both Weekday PM and Weekend peak hours, with the exception of the following:
 - Highway 7 @ Weston Road intersection currently operates at LOS F during the weekday PM peak hour because of high demands of EBL, WBL, NBL and SBL movements.

- Weston Road @ Rowntree Dairy Rd. / Colossus Drive intersection currently operates at LOS D; however, with an overall intersection v/c ratio of 1.06 due to high WBL and SBL movements.
- The following turning movement constraints are noted for existing conditions:
 - WBL movement of Weston Rd @ Chrislea Rd & Fieldstone Drive intersection operates with a v/c ratio of 1.12 during the Weekday PM peak hour
 - NBR movement of Highway 7 @ Famous Rd intersection operates with a v/c ratio of 1.72 and 1.40 during the Weekday PM and weekend peak hour, respectively.
 - NBR movement of Highway 7@ Colossus Dr / Highway 400 SB Off Ramp Access intersection operates with a v/c ratio of 1.51 during the Weekday PM peak hour.
 - WBL movement of Weston Road & Rowntree Dairy Rd / Colossus Dr intersection operates with a v/c ratio of 1.42 during the Weekday PM peak hour, and the SBL operates with a v/c ratio of 1.08 during the Weekend peak hour
- All study area intersections currently experience queues at least one vehicle queue length longer than the corresponding storage length during either of the two peak hours, except the following four intersections :
 - Ansley Grove Rd @ Windflower Gate / Pinedale Gate
 - Highway 7 @ Weston Road
 - Highway 7@ Colossus Dr / Highway 400 SB On Ramp
 - Weston Road @ 407ETR WB On Ramp/Famous Avenue

The following conclusions can be drawn from the analysis of unsignalized intersections (as shown in **Table 3**) under existing traffic conditions:

- WBL movement of Fieldstone Drive @ Windflower Gate/Pottery PI intersection operates at v/c ratio of 1.35 during the Weekday PM peak hour
- No queue concerns were noted for the unsignalized intersections.

Conclusions and Next Steps

For the Phase 1 - Problem and Opportunity analysis of the Weston Road and Highway 7 Secondary Plan, the analysis undertaken has demonstrated that the study area currently experiences traffic congestion focused around the Highway 7 / Weston Road intersection during peak periods.

Preliminary sensitivity analysis indicates that there are opportunities for the Region and City to consider signal timing adjustments for optimization and coordination and improving the operations of the constrained intersections and turning movements within acceptable limits of the Region's and City's signal timing practices.

As noted there are also some v/c ratios that are very high, well above 1.0. This may also indicate the need to consider Synchro parameter adjustments including saturation flow rates, lane utilization, and specific peak hour factors. The analysis of existing traffic conditions has

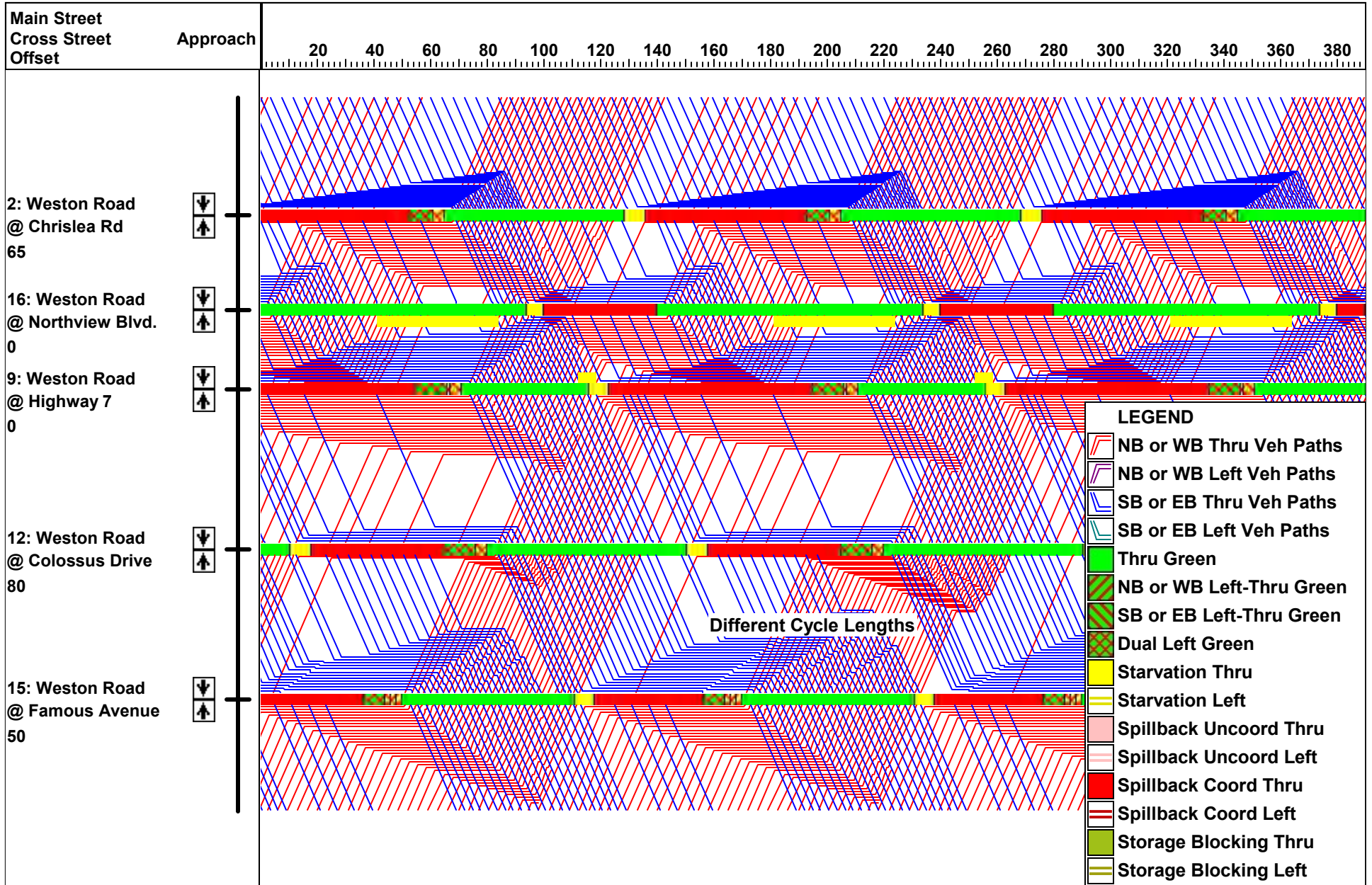


been conducted using default Synchro parameters and a peak hour factor of 0.95 for all intersections to reflect the secondary planning level analysis at this stage.

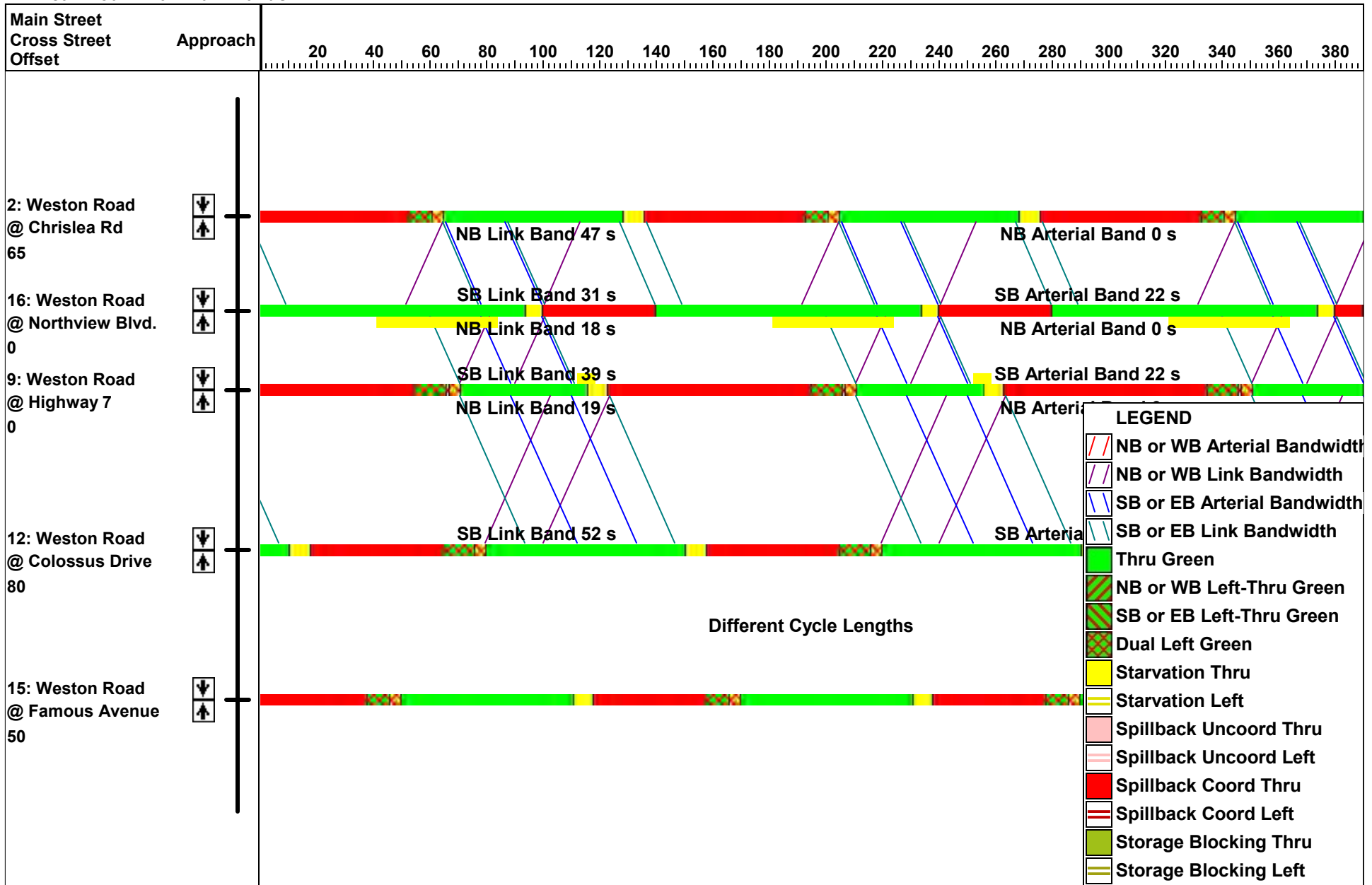
The following actions are also recommended to refine the existing traffic analysis:

- Update turning movement counts at the Highway 7 @ Weston Road during the weekday PM peak hour, considering the latest count was from Dec 20, 2016.
- Obtain turning movement counts for the two ramp terminal intersections during the weekend
- Obtain and verify the signal timing cards for the intersections where signal timings were assumed

**Time Space Diagram of Weston Road
PM Peak Hour - 90th Percentile Flows**



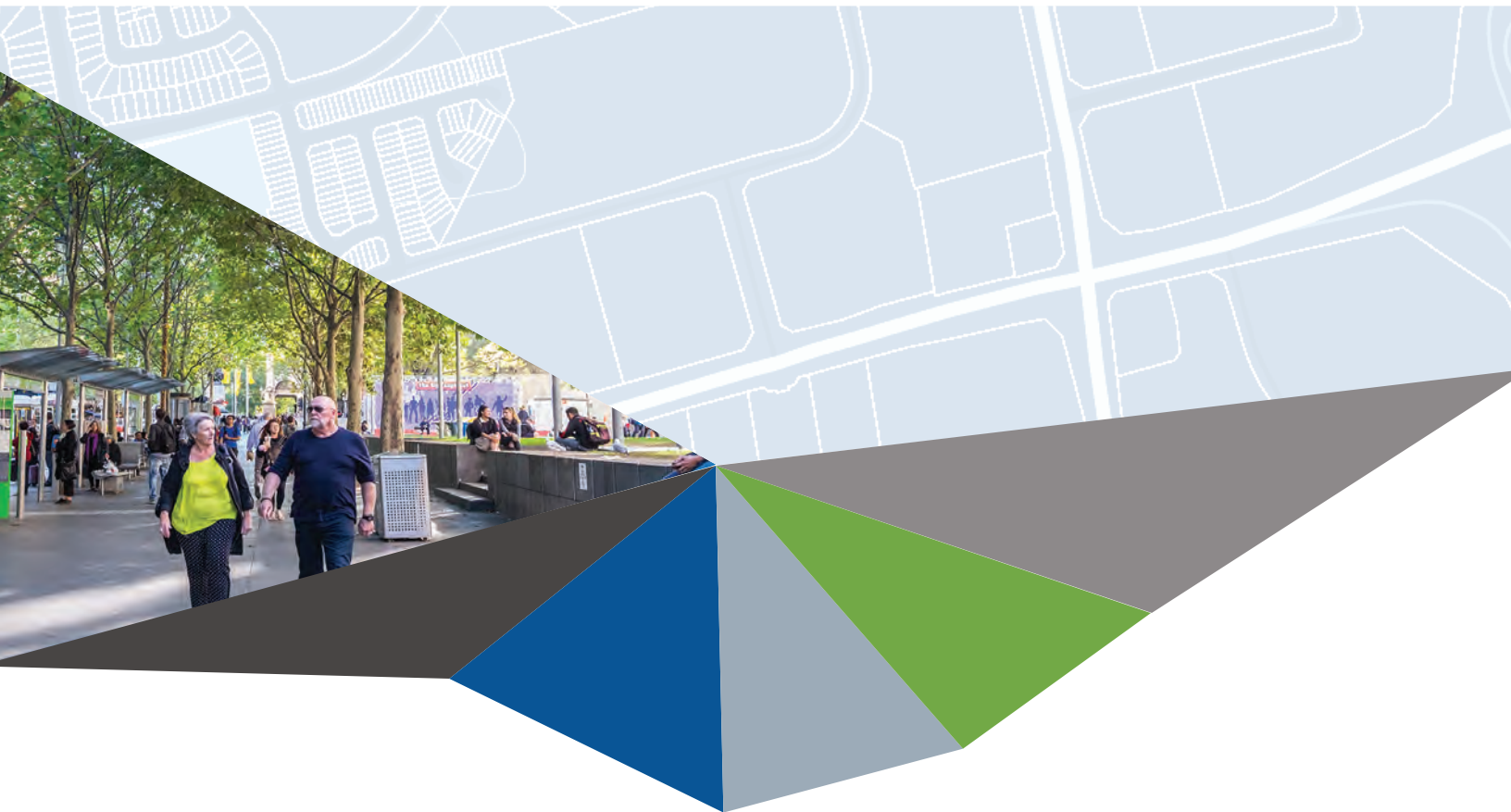
**Time Space Diagram of Weston Road
PM Peak Hour - Maximum Bands**



POPULATION AND EMPLOYMENT OUTLOOK AND COMMERCIAL USE ASSESSMENT

APPENDIX 2

October 29, 2018



HEMSON

Consulting Ltd.

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MEMORANDUM

To: Leigh McGrath
Mark Reid
Urban Strategies

From: Russell Mathew and Yousaf Shah

Date: October 25, 2018

Re: Weston7 Secondary Plan Population and Employment Outlook
and Commercial Use Assessment

The City of Vaughan has retained Hemson Consulting as part of a team led by Urban Strategies to undertake the first phase of work towards the development of a secondary plan for the Weston Road and Highway 7 Secondary Plan Area (Weston7 SPA). Hemson's role in the project is to prepare a growth outlook to assist other members of the team to prepare land use and infrastructure plans for the area. This memo describes the work undertaken for the Background Review and Needs Assessment in Stage 2 of the work plan. The following sections detail the methods and assumptions used to establish the growth outlook and commercial use assessment for the Weston7 SPA. The analysis involved preparing estimates of employment and development trends in the study area, supplemented with recent development application data in the Vaughan Metropolitan Centre (VMC). Following discussions with City staff, development potential was also assessed with regards to the Major Transit Station Area (MTSA) density requirements for the vivaNext Highway 7 Corridor station areas.

The growth outlook and commercial use assessment were based on assumptions of the development capacity in the study area as well as the demand for new residential and non-residential development in the VMC, which was used to inform assumptions on

the type and scale of development in the absence of existing applications in Weston⁷. In addition to a general understanding of the outlook for growth in the broader Vaughan and York Region markets, the following background materials informed the assumptions for the growth outlook:

- Population and housing data in the 2016 Census, Statistics Canada;
- Planning and development applications, City of Vaughan; and
- York Region Employment Survey 2007-2017.

The assumptions and estimates used to form the population and employment growth outlook are informed by both policy considerations as well as market trends within the local and regional contexts. These assumptions and estimates are intended to provide guidance to the subsequent planning and land-use policy development and not to be interpreted as prescriptive targets. The following sections of the memo describe each component of the study in detail, starting with the population and employment outlook and followed by the commercial use assessment.

I POPULATION AND EMPLOYMENT OUTLOOK

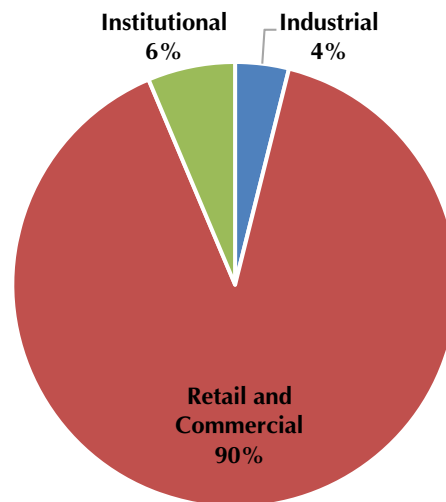
The Population and Employment Outlook describes Task 5.1 of Part 1 of Stage 2 of the study. This component of the scope of work describes the assumptions used to estimate population and employment outlook based on a series of density targets.

A. EXISTING CONDITIONS

The Weston7 SPA as it exists today is largely a commercial employment area. As of Census day in 2016, it hosted approximately 4,800 jobs and no residents. Since then, with the completion of the residential development at 7777 Weston Road in 2017, approximately 1,700 new residents have moved to the study area and total employment has increased to approximately 5,000 jobs, mostly in retail and commercial activities (see Figure 1). The overall shares of employment by type have stayed consistent since 2007.

Employment by Sector Groups for Weston7, 2017

Figure 1



Source: York Region Employment Survey

Total employment in the Weston7 SPA has grown steadily during the 10 years of data reported in the York Region Employment Survey: from 4,500 total jobs in 2007 to just over 5,000 jobs in 2017, with most of the growth occurring in the retail sector. Of the businesses that have remained in the area to 2017, 80% of the businesses (accounting for 60% of the employment) were established after 2000.

The following sections will describe the development assumptions used to estimate demand to higher levels of density.

B. DEVELOPMENT ASSUMPTIONS

Development assumptions for the Weston7 SPA are determined in conjunction with planning for the MTSA's to comply with policy 2.2.4.3 of the *Growth Plan for the Greater Golden Horseshoe*:

Major transit station areas on priority transit corridors or subway lines will be planned for a minimum density target of:

b) 160 residents and jobs combined per hectare for those that are served by light rail transit or bus rapid transit;

Per Vaughan City staff's discussions with York Region regarding the boundaries of the MTSA's, the Weston7 SPA study area falls completely within the boundaries of two MTSA's. As a result, the development outlook for Weston7 takes into consideration density requirements for conformity to the *Growth Plan*, starting with planning to 160 persons-and-jobs per gross ha as the minimum density target. For reference, Figure 2 shows the boundaries of the Weston7 SPA and how it intersects with the two MTSA's.

Figure 2

Weston7 SPA and MTSA Boundaries

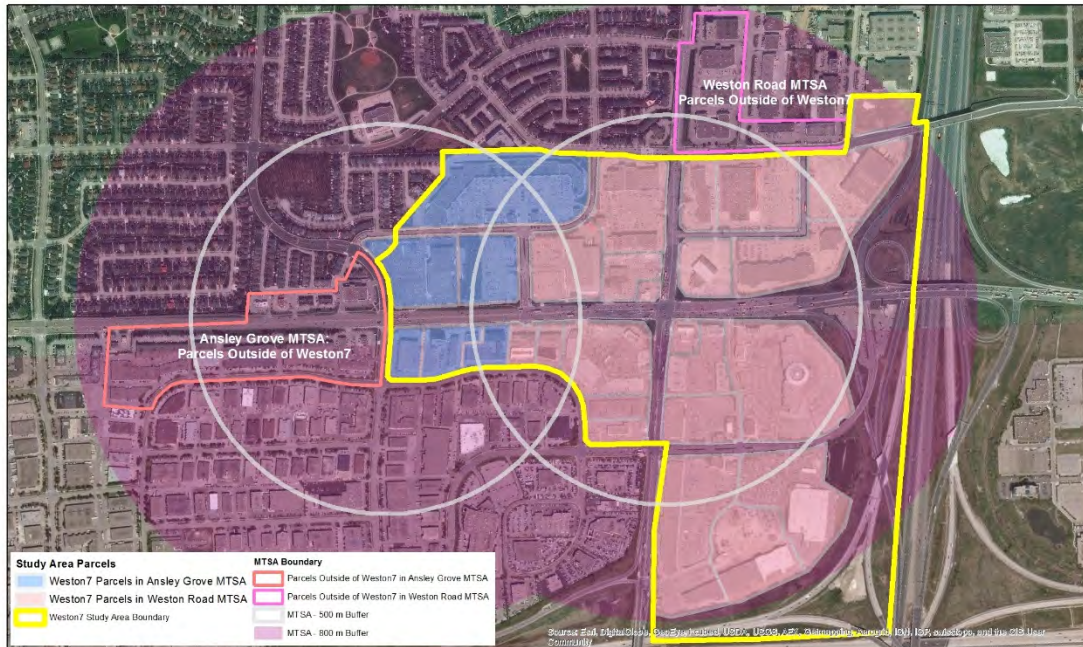


Table 1 describes the gross land area, parcel area (after taking out roads and highways) and developable area for the Weston7 SPA¹. The total gross area of the Weston7 SPA is approximately 126 ha, of which approximately 22 ha make up parts of the Highway 400/407 interchanges and another 20 ha make up existing local roads and the storm water management pond (SWM), leaving 84 ha of parcel area on which future development may occur.

¹ The same assumptions and outlook for the two MTSA's that intersect with the SPA are provided in section D.

Table 1

Weston7 SPA Land Area Estimates

Category	Land Area (ha)
Total Land Area	126
- Highway 400/407 Lands	(22)
Gross Land Area (for density calculation)	104
- Current Local Roads and SWM	(20)
Developable area	84
Net Developable Area (25% Gross-to-Net)	63
Net Developable Area (30% Gross-to-Net)	59

Note: Numbers may not add due to rounding.

The 84 ha is reduced by 25–30% as a gross-to-net factor to account for new local roads, storm water infrastructure and park space², resulting in a range of 59–63 ha of net developable land. These net developable land areas are used to calculate the new floor space, population and employment in the Weston7 SPA. The gross-to-net factor is a generalized estimate of take-outs to account for local infrastructure and open space requirements prior to the preparation of detailed engineering estimates, which can inform more precise requirements for community infrastructure further in the process.

The development outlook assumes new development will occur at a ratio of 87% residential space and 13% non-residential space, comprised of supportive retail, commercial and service employment for the future residents of the Weston7 SPA, as well as additional office space either in freestanding buildings or as part of mixed-use developments. Development densities to determine total unit counts and non-residential space are determined as follows:

² *The range from 25-30% covers increasing community infrastructure requirements as increased density levels demand more land for transportation, servicing and park space. Park space in particular is assumed as a share of the net-to-gross factor as with increasing density the amount of parkland required increases significantly. It is assumed that as density increases some developers may opt for a cash-in-lieu option rather than providing the full amount of park space required per the parkland calculation used by the City.*

- Within the residential development outlook, we assume a 20–80% split between townhouses (including stacked townhouses) and apartment units. The overall floor space demand is based on a blended rate for unit sizes based on 167 m² for townhouses and 87 m² for apartments. Resident population is estimated using 3 persons-per-unit for townhouses and 2 persons-per-unit for apartments, as per the draft guidelines prepared by York Region for MTSA planning ; and
- Non-residential development is based on the 13% of the total new developable area for commercial office, retail and service institutional activities locating in the Weston7 SPA. Overall, the employment outlook assumes a mix of 25% office employment, 60% retail employment and 15% institutional employment to arrive at a blended rate of 44 m² per employee for floor space estimation.

The 13% allocation of non-residential space assumes a reintroduction of the portion of the existing commercial activities in new mixed-use developments, described in further detail in the following section and in the Commercial Use Assessment.

C. DEVELOPMENT OUTLOOK

Using the assumptions and land areas from section B, Table 2 provides a breakdown of the development outlook based on a range of densities, using the *Growth Plan* persons and jobs per ha measure³. The development scenarios start with 160 persons and jobs per gross ha on the low end (to reflect the minimum density target for MTSA planning) and transition to 200 persons and jobs per gross ha (reflecting the density target for VMC and most urban growth centers in the Greater Toronto Area and Hamilton). Densities higher than 200 are provided for illustrative purposes to 400 persons and jobs per gross ha, the density target for the Downtown Toronto Urban Growth Centre (UGC). The following development outlook begins with the minimum thresholds of development required to meet a 160 persons and jobs target at

³ Growth Plan *densities are calculated on a community-wide basis rather than on a site-specific basis, incorporating the actual developable area as well as the land required for local infrastructure.*

the low end by a horizon year of 2041. As the visioning process for the Weston7 SPA proceeds, the outlook will evolve based on the recommended development scenario.

Table 2

Weston7 SPA Population and Jobs Outlook

Development Scenario (persons+jobs/ha)	160	200	250	300	400
Gross Land Area (ha)	104	104	104	104	104
Total persons+jobs	16,600	20,700	25,900	31,100	41,400
Persons+jobs to remain	(1,900)	(1,900)	(1,900)	(1,900)	(1,900)
New Persons and Jobs	14,700	18,800	24,000	29,200	39,500

Note: Numbers may not add due to rounding.

Table 3 shows the breakdown of population into units and Table 4 shows the new jobs by type. Table 5 shows estimates of the total floor space demand for residential and non-residential required on new development sites in the Weston7 SPA to accommodate this growth.

Table 3

Weston7 SPA Population and Residential Unit Demand

Development Scenario (persons+jobs/ha)	160	200	250	300	400
Total Population	12,740	16,340	20,830	25,330	34,320
Persons-per-unit	2.2	2.2	2.2	2.2	2.2
Total Residential Units	5,790	7,430	9,470	11,510	15,600

Note: Numbers may not add due to rounding.

Table 4

Weston7 SPA Employment by Type

Development Scenario (persons+jobs/ha)	160	200	250	300	400
Office Employment	470	610	770	940	1,270
Retail and Institutional Employment	1,460	1,870	2,390	2,900	3,930
Total Employment	1,930	2,480	3,160	3,840	5,200

Note: Numbers may not add due to rounding.

Table 5

Weston7 SPA Floor Space Outlook

Development Scenario (persons+jobs/ha)	160	200	250	300	400
Floor Space per Unit (m ²)	103	103	103	103	103
Floor Space per Employee (m ²)	44	44	44	44	44
Total New Floor Space (m ²)	679,600	871,400	1,111,200	1,351,000	1,830,700
Net Developable Land Area (ha)	63	63	59	59	59

Note: Numbers may not add due to rounding.

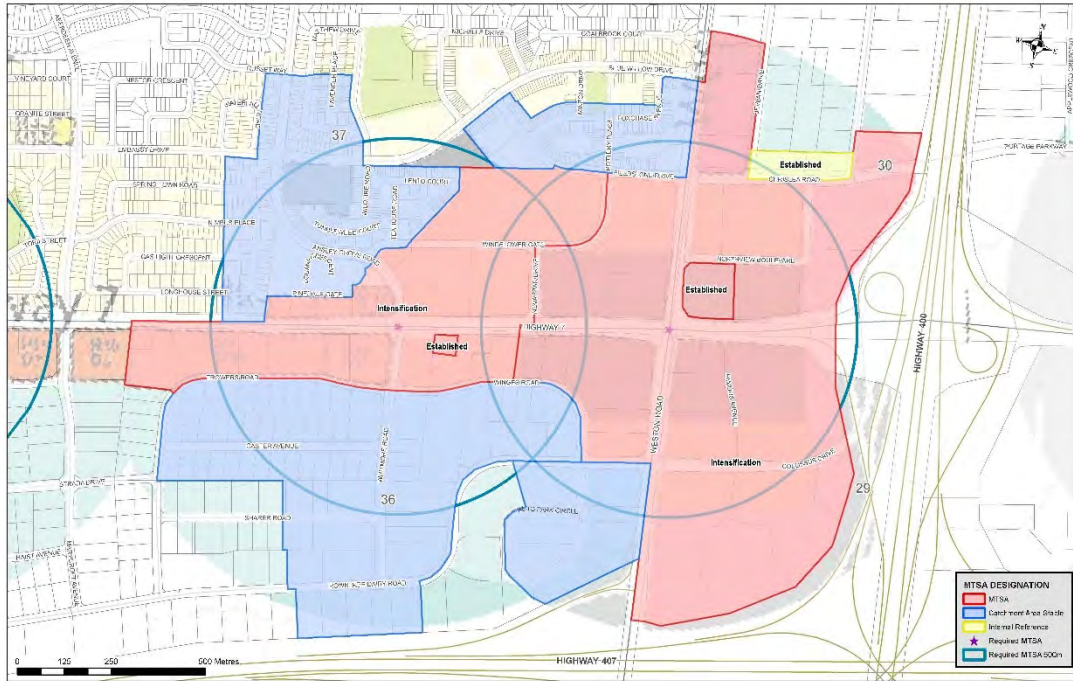
The persons and jobs to remain figure accounts for the 1,700 residents of the new residential development at 7777 Weston Road and includes an estimate of approximately 200 jobs estimated in the office building at 3901 Highway 7 (both listed as “established” sites under the MTSA designation (Figure 3)). The remaining jobs in the study area would be lost through redevelopment of the sites, although some may be reintroduced as part of the employment base in the new developments (for example, the Home Depot site on Northview Blvd could return as part of a new mixed-use development on that site, which means the new jobs would not be net new additions to the existing employment base of the study area, but would still be counted in the total employment in Table 4).

D. OUTLOOK FOR THE MTSAS

For the Ansley Grove MTSA and Weston Road MTSAs (shown in Figure 3), separate development outlooks illustrate the development thresholds required to meet the density targets, starting with 160 persons and jobs per ha as per the *Growth Plan*. The sum of the population and jobs outlook for the MTSAs will differ from that of the Weston7 SPA, as the boundaries of the individual MTSAs, as defined by Vaughan City staff, extend beyond the boundaries of the SPA.

Figure 3

Ansley Grove and Weston Road MTSA Boundaries



Source: City of Vaughan

Table 6 shows the land area estimates to determine the net developable areas for future population, housing and employment outlooks for each of the MTSA.

Table 6
Weston7 SPA Land Area Estimates

Sub-Area	Ansley Grove (ha)	Weston Road (ha)
Total Land Area	36	114
- Highway 400/407 Lands	(0)	(22)
Gross Land Area (for density calculation)	36	92
- Current Local Roads and SWM	(7)	(20)
Developable Area	29	72
Net Developable Area (25% Gross-to-Net)	22	54
Net Developable Area (30% Gross-to-Net)	20	50

Note: Numbers may not add due to rounding.

Table 7 and Table 8 provide the details of new population, housing and employment required to meet these targets.

Table 7

Ansley Grove MTSA Development Outlook

Development Scenario (PJ/ha)	160	200	250	300	400
Gross Land Area (ha)	36	36	36	36	36
Total Persons+Jobs/ha (Gross)	5,900	7,400	9,200	11,100	14,800
Persons+jobs to remain	(200)	(200)	(200)	(200)	(200)
New Persons and Jobs	5,700	7,200	9,000	10,900	14,600
Total Population	4,980	6,270	7,870	9,480	12,690
Total Residential Units	2,270	2,850	3,580	4,310	5,770
Total Employment	760	950	1,190	1,440	1,920
New Floor Space (m ²)	265,800	334,300	420,000	505,600	677,000
Net Developable Land Area (ha)	22	22	20	20	20

Note: Numbers may not add due to rounding.

In Table 8, the persons and jobs to remain figure accounts for the 1,700 residents of the new residential development at 7777 Weston Road. The gross land area figure in Table 8 represents the total land area, minus estimates for the highway rights of way, as per the *Growth Plan*.

Table 8

Weston Road MTSA Development Outlook

Development Scenario (PJ/ha)	160	200	250	300	400
Gross Land Area (ha)	89	89	89	89	89
Total Persons+Jobs/ha (Gross)	14,300	17,800	22,300	26,700	35,700
Persons+jobs to remain	(1,700)	(1,700)	(1,700)	(1,700)	(1,700)
New Persons and Jobs	12,600	16,100	20,600	25,000	34,000
Total Population	10,890	13,990	17,860	21,730	29,470
Total Residential Units	4,950	6,360	8,120	9,880	13,400
Total Employment	1,650	2,120	2,710	3,290	4,470
New Floor Space (m ²)	581,100	746,300	952,700	1,159,100	1,572,000
Net Developable Land Area (ha)	54	54	50	50	50

Note: Numbers may not add due to rounding.

With a smaller developable area, meeting the density targets requires higher density development in the Ansley Grove MTSA. Designed as “Mid-Rise Mixed Use” in Schedule 13 of the current *City of Vaughan Official Plan 2010*, some of the sites that make up the Ansley Grove MTSA are designated with FSI of 2.5-3.0. Treating both of these MTSA's independently would result in a significant concentration of

development on the smaller share of developable land area in the Ansley Grove MTSA. Consequently, overall densities would be lower in the Weston Road MTSA, which has a larger share of developable land area. In planning for these station areas with York Region, the City of Vaughan should take into account section 2.2.4.4(c) of the *Growth Plan* to average the density across all the MTSAs of the vivaNext Highway 7 Corridor.

E. PLANNING TO 2041

The population, housing and employment potential provided in the tables in this memo were prepared on the basis of a long-term ultimate development capacity and not planning to a specific horizon year. Part of the reason for taking this approach is the general age of development within the Weston7 SPA; as discussed under existing conditions in section I, 80% of establishments and 60% of the employment in the area are less than 20 years old. Additionally, with the exception of 7777 Weston Road and one development application for a new office project, evidence of redevelopment commitments from existing landowners only exist in the form of discussions with the team through stakeholder interviews. Whereas the policy guidelines for MTSA and secondary planning for Weston7 would consider the entirety of the study area for future redevelopment, from a market perspective the more recently established businesses on some of the sites may continue to operate through much of the planning timeframe to 2041.

On its own, planning to 2041, in terms of development applications and approvals, does not pose a challenge when taking into account discussions with landowners and the development pressure in the neighbouring VMC. However, based on forecasts for the City of Vaughan in York Region's *2041 Preferred Growth Scenario*, development applications already submitted for the VMC would account for 56% of the total forecast of apartments from 2016-2041 for the entire City of Vaughan. In planning for 160 persons and jobs per ha to 2041, the Weston7 SPA would account for 40% of the remaining potential, a significant figure considering the combined total outlook for apartments in other City of Vaughan area plans. In all, if Weston7 is continued to plan to achieve 160 persons and jobs per ha by 2041 and the applications submitted for the VMC are approved and constructed during the next 20 years, Weston7 and the

VMC will account for more than 70% of the forecast apartments in the City of Vaughan to 2041. This ratio increases for higher density scenarios.

Anticipation for redevelopment of the scale to meet the densities illustrated in this memo would require multiple applications for major redevelopment projects in the short-term, the first one of which would not be fully occupied until the late 2020s or early 2030s. On that basis, it is reasonable for the City of Vaughan to plan to achieve development densities up to 160 persons and jobs per ha by 2041, allowing it to meet the density targets for the Highway 7 MTSA within the time frame of the secondary plan, but achieving densities higher than that would require a longer-term outlook. The final density targets for the two Weston7 MTSA are also dependent on on-going work with York Region to plan for the entirety of the vivaNext Highway 7 Corridor.

In addition to planning to meet the minimum density targets, an additional item to consider is the relationship of the Weston7 SPA to the neighbouring VMC. Part of the planning for the Weston7 SPA is to ensure it meets the guidelines and ideals for secondary planning around Regional Corridors, but it must also function alongside the VMC, a Provincially-designated Urban Growth Centre. It is important that the Weston7 SPA plays a complementary role to the VMC and not compete for similar uses and development. As a result, the secondary plan may consider a limit to the development outlook to 2041 at 200 persons and jobs per ha to ensure the Weston7 SPA meets the guidelines for Regional Corridors, the minimum density target for the vivaNext Highway 7 Corridor and without coopting the VMC's role as an Urban Growth Centre.

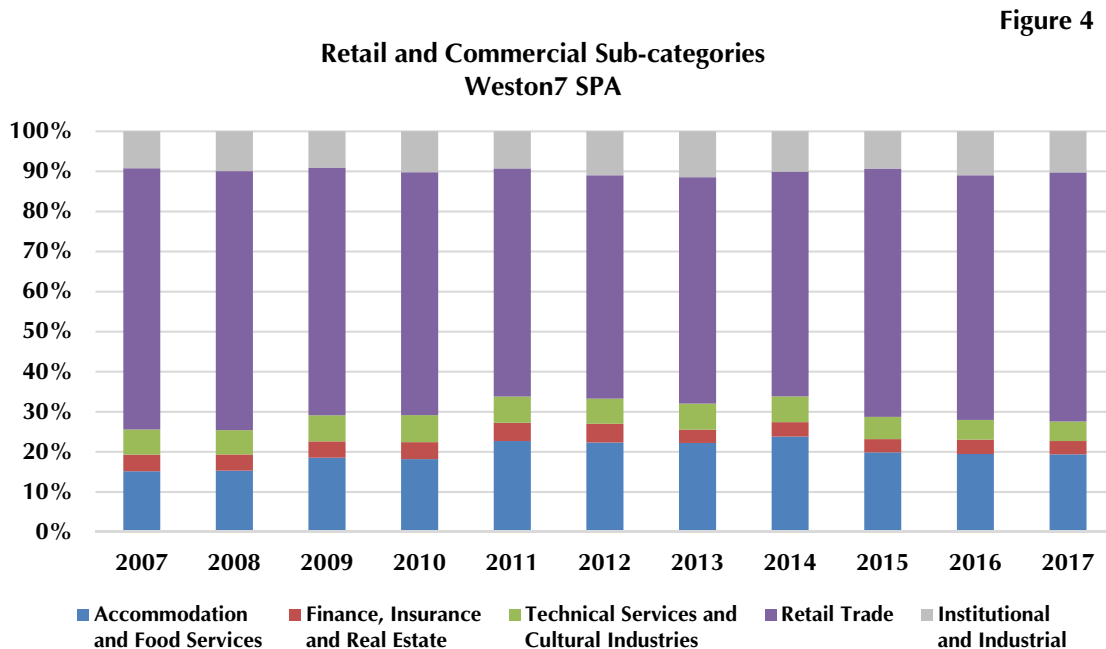
Given the plans currently in place, infrastructure yet to be built and a number of competing locations for new development, the outlook for the development potential for the Weston7 SPA into barely more than a 20-year time period is limited. In planning to 2041, we recommend City staff consider the growth outlook consistent with achieving the 160 persons and jobs per ha density target and plan to achieve higher densities in later phases.

II COMMERCIAL USE ASSESSMENT

The Commercial Use Assessment describes Task 7.7 of Part 2 of Stage 2 of the study. This component of the scope of work builds on the population and employment analysis and presents a high-level assessment of potential commercial uses to determine future requirements and inform land use scenarios.

A. EXISTING COMMERCIAL USES

A breakdown of employment by type in the Weston7 SPA (Figure 1) shows retail and commercial employment makes up 90% of total employment in the study area, a share that has stayed consistent since 2007. Within the retail and commercial employment category, Figure 4 describes the NAICS subcategories and their respective breakdown:



Source: York Region Employment Survey

Throughout the 2007–2017 period, the overall mix of employment by type has remained consistent (notwithstanding some fluctuation in the retail and food services categories from 2011–2014), while total employment has grown. As a whole, the area

plays an important role in providing retail and commercial services to a wide catchment area including residential uses to the northwest of the Weston7 SPA as well as the Highway 400 and Pine Valley employment areas. Moving forward, it is important for the study area to maintain its role as a commercial centre for a broader area than the immediate secondary plan boundaries.

B. OUTLOOK FOR COMMERCIAL USES

The outlook for commercial uses in the Weston7 SPA assumes the area's continued role as a regional commercial hub while also fulfilling demand for local commercial uses for new residents. The commercial use assessment in Weston7 is premised on market pressure to convert some of the existing commercial uses to residential mixed-use developments. In assessing the outlook for employment, consideration was given to the types of employment uses that may potentially stay, those that may relocate elsewhere and those uses that may be able to return or be introduced as part of new developments.

Determining the employment which would remain and what could potentially transition during the secondary plan timeframe involves an analysis of employment uses by age of business. In Weston7, the average age of businesses as of 2017, weighted by the size of the business, is 15 years. By this metric, approximately 2,500 jobs are in businesses in Weston7 that are more than 15 years old, with the opportunity to turn over or transition during the timeframe of the secondary plan. The remaining 2,500 jobs are in businesses that may continue to operate for some time.

Future employment uses are estimated to ensure there is enough service commercial and institutional employment in the Weston7 SPA to support the incoming residential uses, as well as the portion of the residential area to the northwest of the SPA that falls within the MTSA catchment area. Hemson's employment forecasting procedures used to determine employment growth for municipalities across the GTA estimate population-related employment as a function of population growth and results in a ratio of 1 job per 6 residents. By this metric and applying the appropriate employment densities for each of the employment types, the future retail and institutional employment demand (or population-related employment uses) makes up

approximately 11% of the total estimated developable floor space, with an additional 2% allocated to smaller-scale commercial office uses.

Per the policies in 5.4 Regional Centres and Corridors of the *York Region Official Plan* and 2.2.5 Intensification Areas in the *City of Vaughan Official Plan*, regional corridors and intensification areas must be planned to include a mix of uses including residential, commercial and institutional. As an existing commercial area with a regional catchment area, the employment outlook also accounts for a share of the employment as office use. Based on these criteria, the Weston7 SPA employment outlook is composed of approximately 25% office employment, ranging from 470 jobs at 160 persons and jobs per ha to 1,270 for 400 persons and jobs per ha. The overall demand for employment space by type, calculated from the employment estimates in Table 4, is shown in Table 9.

Table 9

**Weston7 SPA Employment Space by Type
New Development**

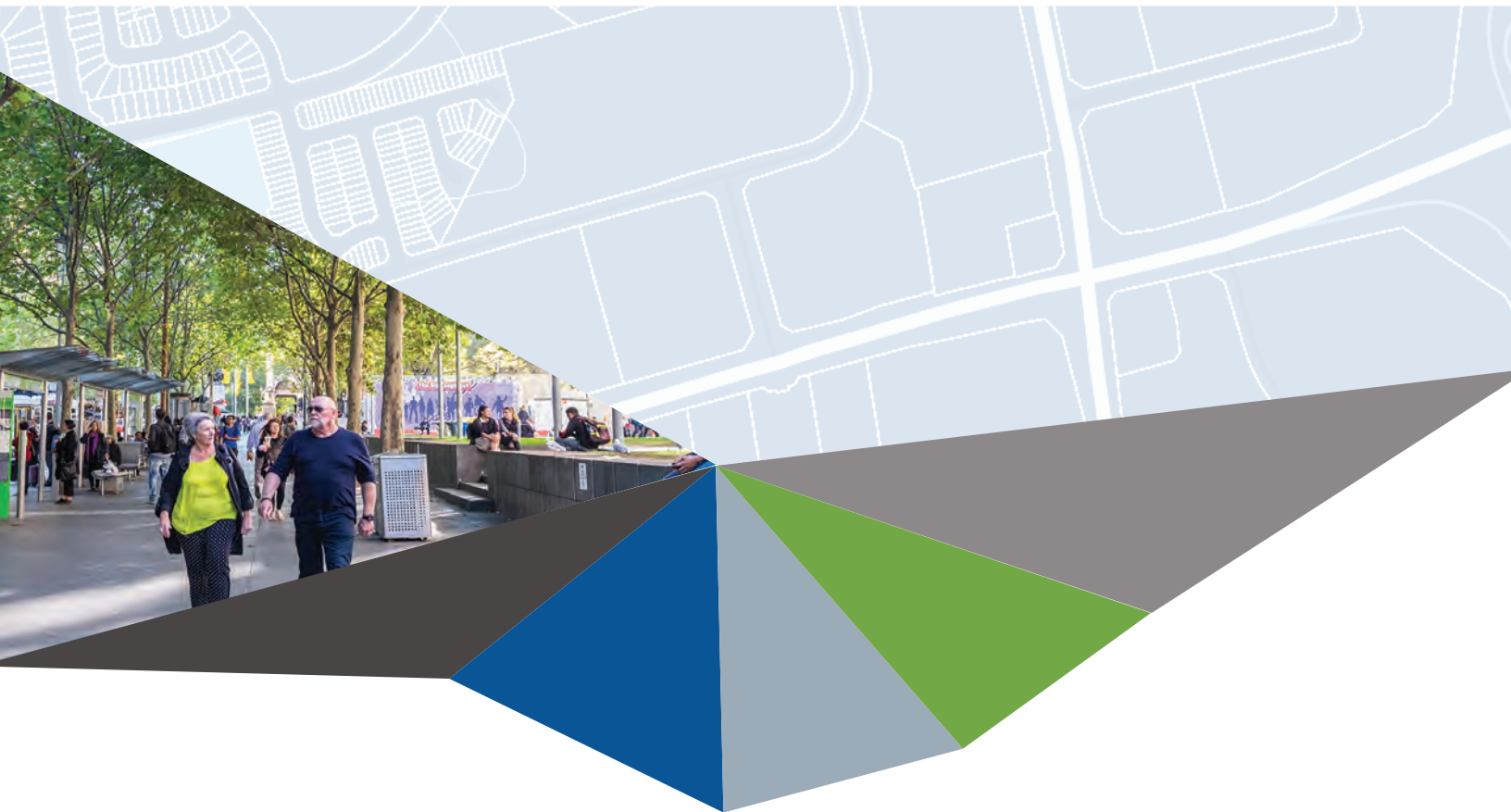
Development Scenario (PJ/ha)	160	200	250	300	400
Office Employment	470	610	770	940	1,270
Retail Employment	1130	1450	1850	2250	3050
Institutional Employment	330	420	530	650	880
Total Employment	1,930	2,480	3,150	3,840	5,200
Office Space (m ²)	12,700	16,500	20,800	25,400	34,300
Retail Space (m ²)	50,900	65,300	83,300	101,300	137,300
Institutional Space (m ²)	21,500	27,300	34,500	42,300	57,200
Total Non-Residential Space (m²)	85,100	109,100	138,600	169,000	228,800

The overall outlook for commercial and institutional space combined makes up approximately 13% of the demand for all new developable space. This is a preliminary estimate based on the employment needed to accommodate new incoming residents in a more local-focused development scenario. As the City of Vaughan proceeds with the planning for the Weston7 SPA, the relationship between residential and non-residential outlooks may change as the plan for the area develops and consideration is given to a broader role for non-residential development in the area.

SUSTAINABILITY ANALYSIS

APPENDIX 3

October 29, 2018



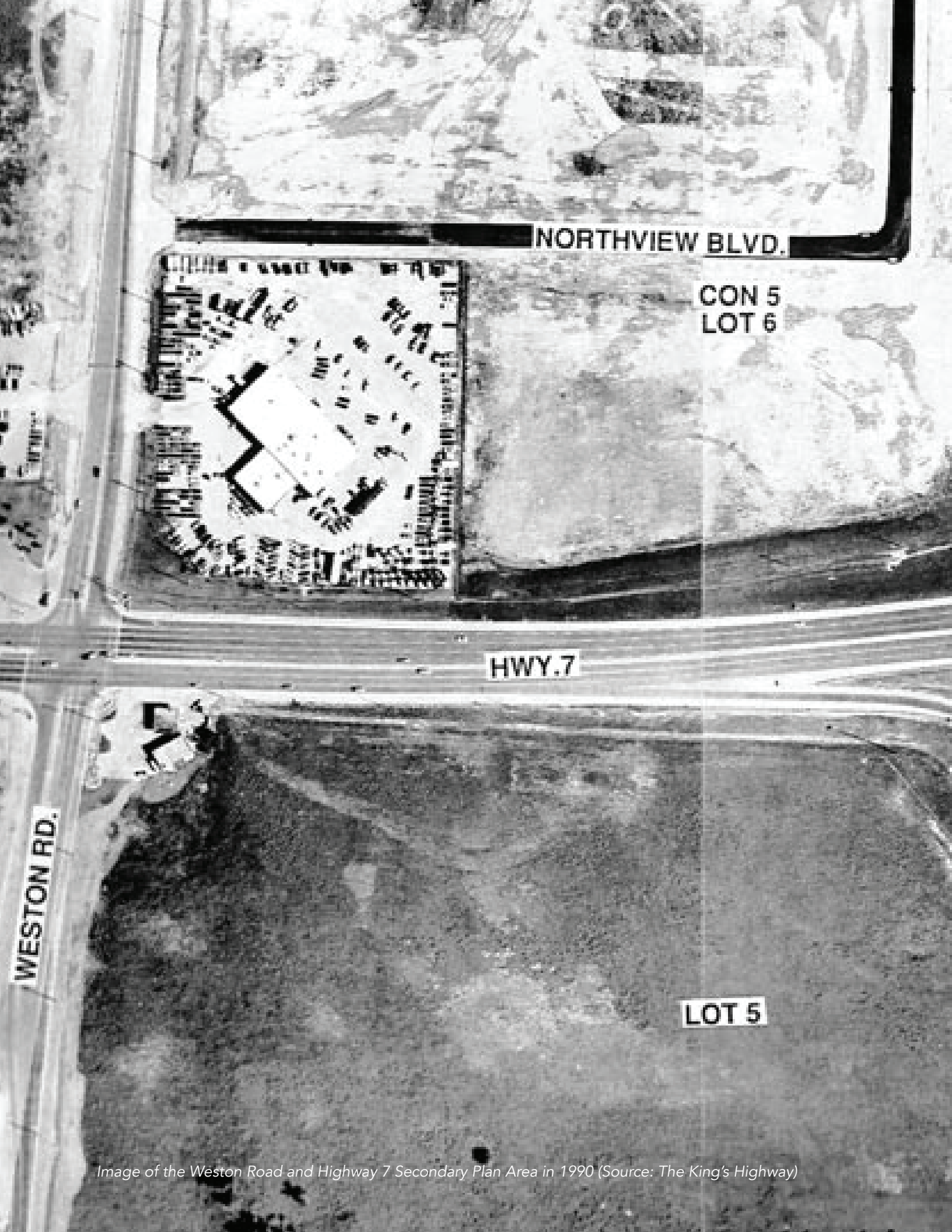


**WESTON ROAD AND HIGHWAY 7
SUSTAINABILITY ANALYSIS**

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)

TABLE OF CONTENTS



DEFINING SUSTAINABILITY

1

- 1.1 Why Plan for Sustainability in the Weston Road and Highway 7 Secondary Plan Area? 1
- 1.2 What is Sustainable Development? 2
- 1.3 About this Sustainability Analysis Memo 2
- 1.4 The Plan Area 2



POLICY CONTEXT

3

- 2.1 Provincial Context 3
- 2.2 Regional Context 7
- 2.3 Municipal Context 9



SUSTAINABILITY VISION, GUIDING PRINCIPLES, AND STRATEGIES

15

- 3.1 Sustainability Vision 15
- 3.2 Guiding Principles and Strategies 15



POLICIES AND TOOLS

23

- 4.1 Green Infrastructure 24
- 4.2 Green Buildings 25
- 4.3 Climate Change Adaptation 26



SUSTAINABLE TECHNOLOGIES AND MEASURES

27

- 5.1 Green Infrastructure Technologies 29
- 5.2 Green Infrastructure Precedents 30
- 5.3 Green Building Technologies 31
- 5.4 Green Building Precedents 32
- 5.5 Climate Change Adaptation Technologies 33
- 5.6 Climate Change Adaptation Precedents 34



CONCLUSIONS AND NEXT STEPS

35

- 6.1 Next Steps 35



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.

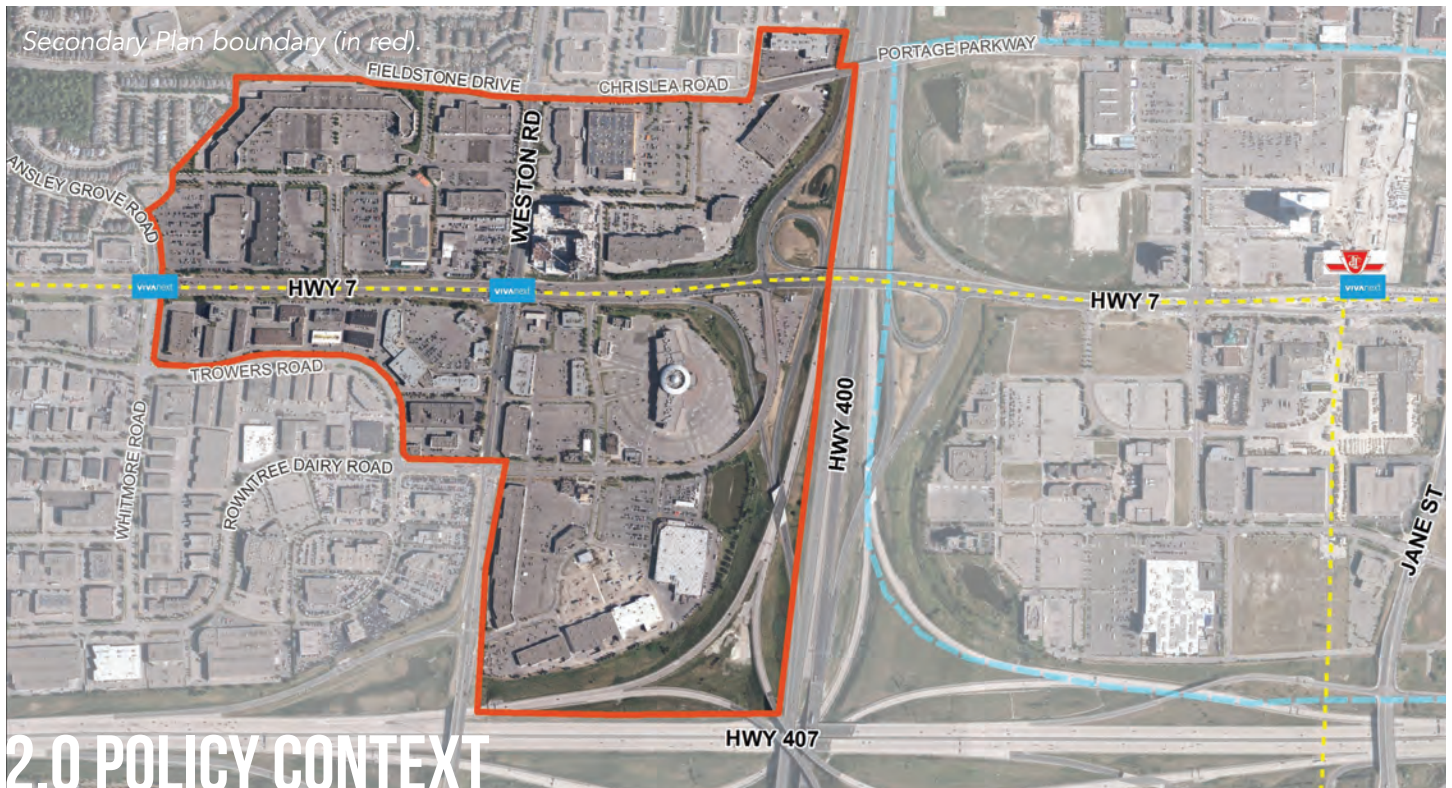
1.3 About this Sustainability Analysis Memo

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



4.0 POLICIES AND TOOLS

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.

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.



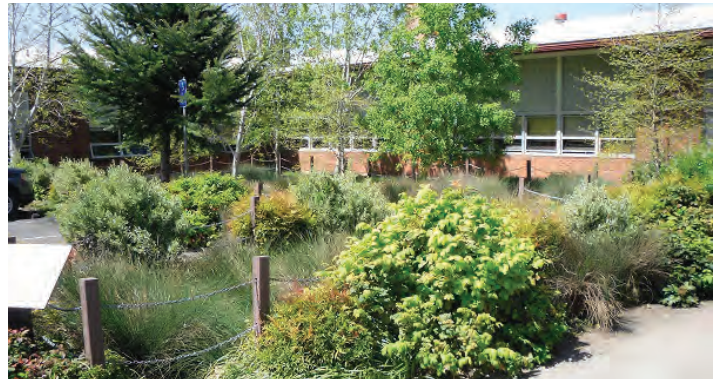
Rainwater Harvesting

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



Dockside 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. Dockside 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.



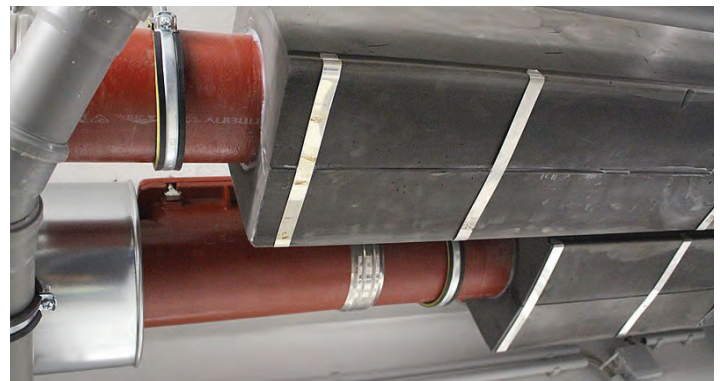
Community Energy Systems

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

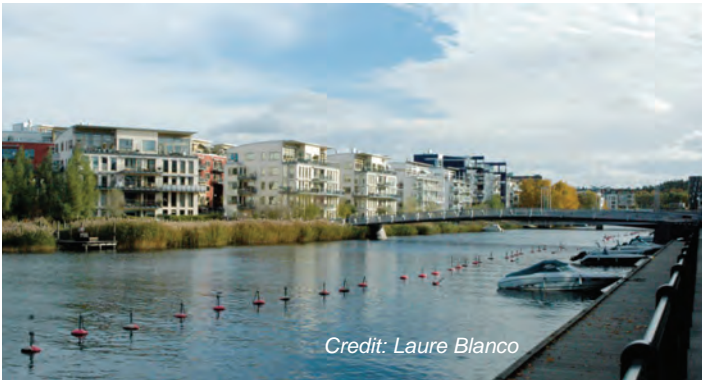
While more common at a utility scale, wind turbines can be situated in an urban setting to generate renewable electricity locally. Size requirements may limit applicability.



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.

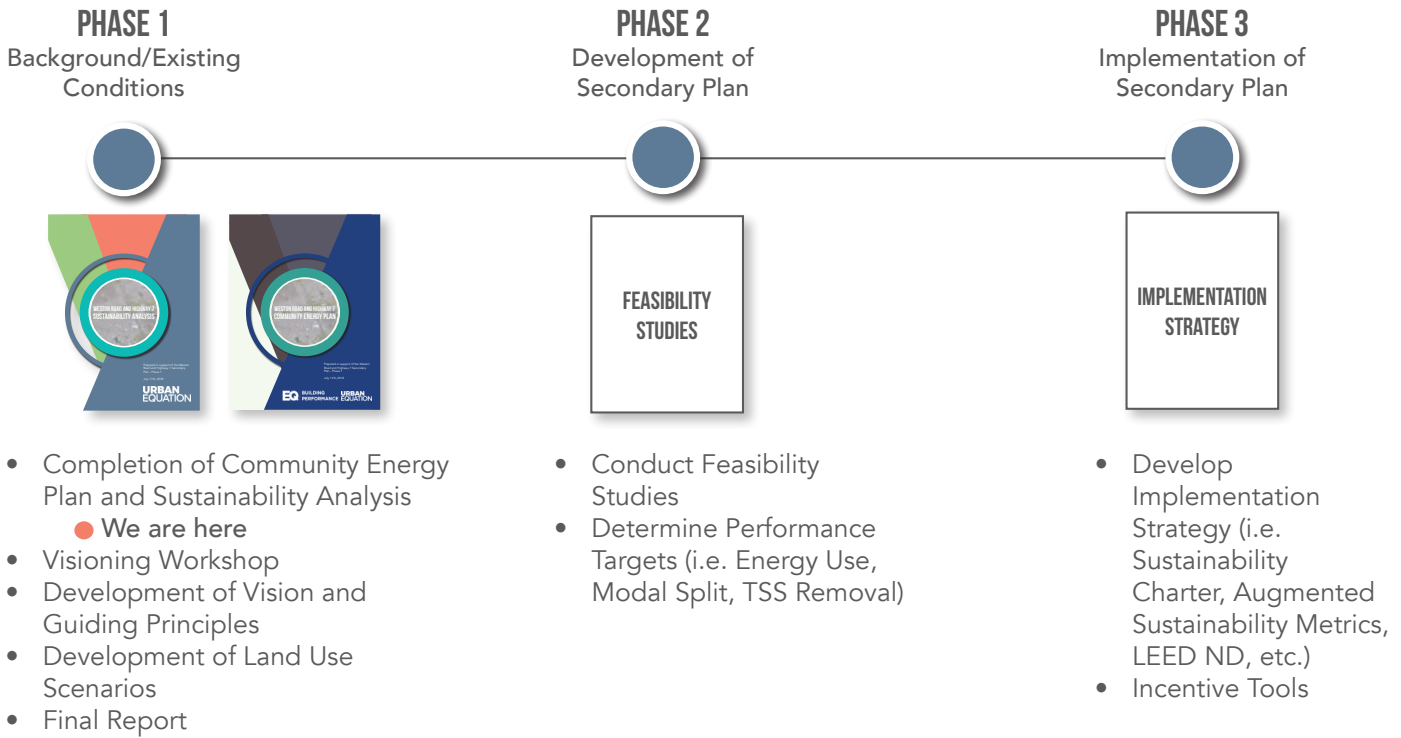
WESTON ROAD AND HIGHWAY 7 SECONDARY PLAN: SUSTAINABILITY ANALYSIS

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.

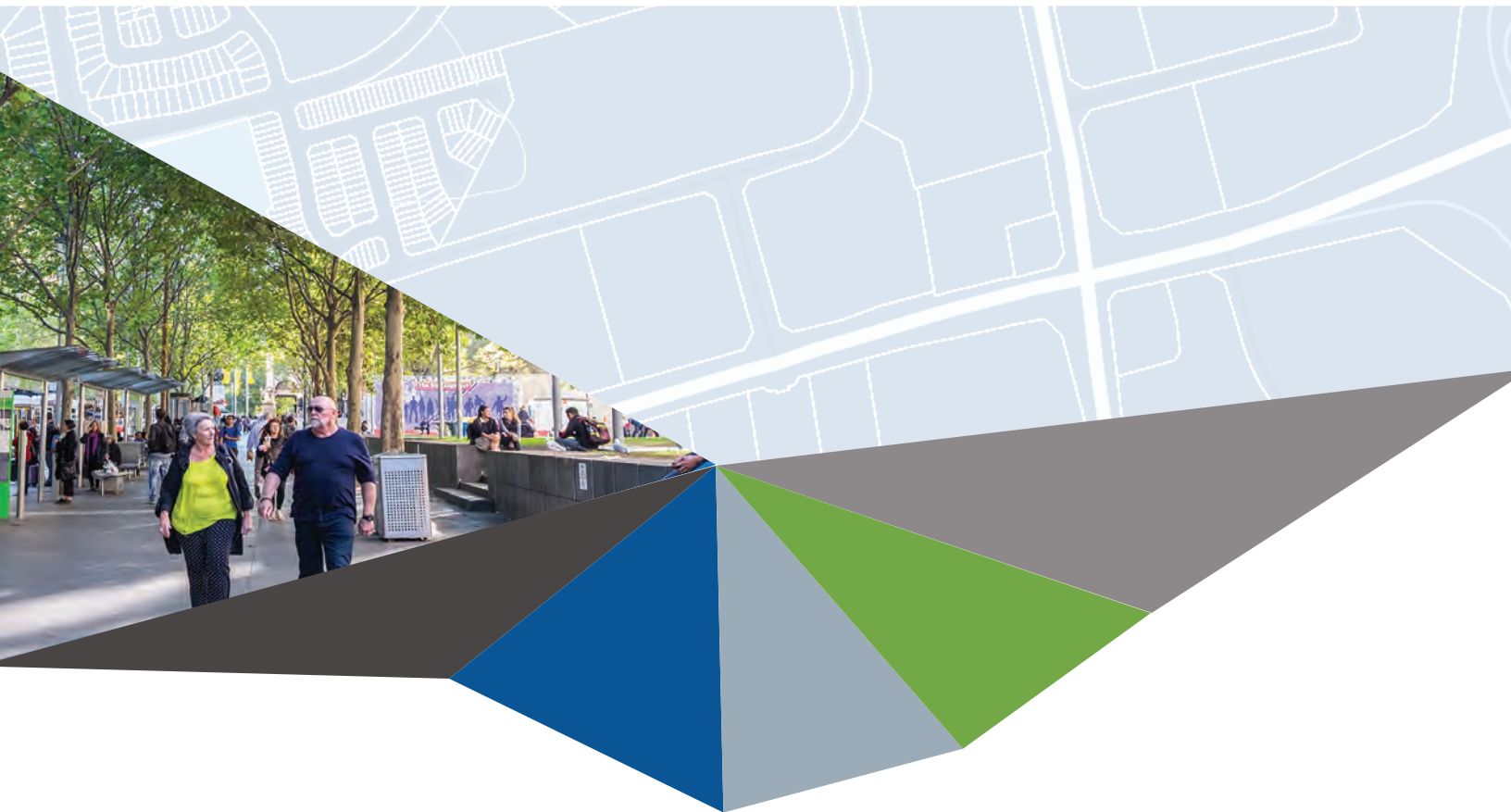
The sustainability project charter could be supported by a number of tools to incentivize developers to meet the targets set out in Phase 2, including Section 37 benefits, community improvement plan incentives, and street network improvements. Determining which incentive tools to use will be a matter 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.



COMMUNITY ENERGY PLAN

APPENDIX 4

October 29, 2018





**WESTON ROAD AND HIGHWAY 7
COMMUNITY ENERGY PLAN**

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

October 12, 2018



**BUILDING
PERFORMANCE**

**URBAN
EQUATION**

Aerial view of the Plan Area.

EXECUTIVE SUMMARY

This Community Energy Plan (CEP) seeks to inform the anticipated energy use of the Weston Road and Highway 7 Secondary Plan area, informing long term energy planning for development. Focused on the importance of climate change to Vaughan, as advanced in the York Region Official Plan, Vaughan Official Plan, Green Directions Vaughan and the Municipal Energy Plan, the Community Energy Plan seeks to provide the high-level background knowledge required to eventually plan for an energy efficient, low-carbon community in Vaughan.

Energy Demand and Efficiency

The anticipated energy demand of the buildings planned in the development are established in section 3.0. Importantly, this demand has been calculated according to a density target of 160 people and jobs per hectare. Aligned with Vaughan's long term goal to become a net zero carbon city, a carbon emissions metric is adopted to evaluate performance. In this section, three building energy performance scenarios are presented: baseline compliance with the Ontario Building Code (OBC), incremental improvement beyond the OBC, and towards net zero carbon. These scenarios are predicated on the directions advanced in regional and municipal policies and plans, including Green Directions Vaughan and the Vaughan Sustainability Performance Metrics. In terms of the three energy and carbon performance scenarios analyzed, Scenario 2 and 3 represent a 11% and 59% reduction in energy use, and a 12% and 84% reduction in GHG emissions over the baseline scenario 1, respectively (see table on subsequent page and additional information in Section 3).

Incremental and significant reductions in carbon emissions are determined possible with advancements in building technology, focusing primarily on reducing heating and domestic hot water loads. Designs approaching net zero

Percentage change in energy use profiles for scenarios 2 and 3 relative to scenario 1.

Scenario	1: OBC Compliance	2: Incremental Improvements	3: Towards Net Zero
Overall Energy Intensity (ekWh/m ²)	172	152.7 (-11%)	70.1 (-59%)
² Natural Gas Use (ekWh)	68,769,880	59,647,937(-13%)	129,200 (-99%)
Natural Gas Intensity (ekWh/m ²)	101.2	87.8 (-13%)	0.2 (-99%)
Electricity Use (kWh)	48,145,380	44,133,794 (-8%)	47,504,513 (-1%)
Electricity Intensity (ekWh/m ²)	70.8	64.9 (-8%)	69.9 (-1%)
Total GHGs (tonnes CO ₂ e)	14,840	12,990 (-12%)	2,399 (-84%)
GHG Intensity (tonnes CO ₂ e/capita*)	1.36	1.19 (-13%)	0.22 (-84%)

* Per capita assumes 160 people and jobs per hectare.

carbon involve fuel switching from natural gas to electricity, relying on the relatively lower carbon impact of the electricity grid.

Carbon emissions resulting from transportation needs and other infrastructure associated with the development are discussed, and it is recommended these be explored further through engaging the broader consulting team.

Resilience

Energy resilience is an important factor in adapting to climate change. Both technological and people driven, organizational solutions are explored in this CEP. Voluntary guidelines for increased backup power capacity, particularly for multi-unit residential buildings, are reviewed. This includes strategies for expanding the use of emergency generators, particularly in high rise residential buildings, to provide power for longer and to additional services.

Energy Technologies

Several technologies, focused on renewable, efficient and low carbon options, are identified which can serve community energy demands. Technologies explored in detail include the feasibility of geothermal systems for heating and cooling and the use of Combined Heat

and Power (CHP) technology to provide both electricity and thermal energy. Technologies may also improve resilience by virtue of providing power independent of the electricity grid during power outages, for example by using CHP to provide emergency backup power.

Community Energy Systems

Community scale / district energy systems allow the community to provide local generation and demand response, improving resilience and creating more opportunities for integration of renewable and low carbon strategies. High and low temperature district thermal options, as well as micro-grid electricity storage and delivery, are explored. Community energy systems identified open up possibilities related to fuel flexibility, future-proofing energy supply options and allowing for adaptability over time.

Key Recommendations

High performance building design is a key aspect of any Sustainability strategy, and is a focus of provincial and municipal climate change action plans. A 12% and 84% carbon emissions reduction is determined to be achievable with incremental and more significant improvements in building design over Code, reflecting a 11% and 59% energy improvement.



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)

TABLE OF CONTENTS

1.0	INTRODUCTION	1	
	1.1 Why Plan for Energy at the Community Scale	1	
	1.2 About this Community Energy Plan	2	
2.0	CONTEXT	3	
	2.1 Site Overview	3	
	2.2 Policy Drivers	5	
	2.3 Carbon Emission Trends	9	
3.0	ENERGY DEMAND AND EFFICIENCY	11	
	3.1 Establishing a Metric	11	
	3.2 Establishing Energy Demands	12	
	3.3 Building Level Energy Efficiency	13	
	3.4 Building Energy Use Projections	14	
	3.5 Other Energy Uses	17	
4.0	RESILIENCY	19	
	4.1 Generators in MURBS	20	
	4.2 Community Resilience Strategies	21	
5.0	COMMUNITY ENERGY TECHNOLOGIES	23	
	5.1 Combined Heat and Power	24	
	5.2 Ground Source Heat Pumps	25	
	5.3 Other Technologies	26	
6.0	COMMUNITY ENERGY SYSTEMS	27	
	6.1 High Temperature District Thermal	29	
	6.2 Low Temperature District Thermal	29	
	6.3 Micro-Grids	30	
7.0	CONCLUSIONS AND NEXT STEPS	31	
	7.1 Conclusion	31	
	7.2 Next Steps	33	

Plaza parking lot in Plan Area.



1.0 INTRODUCTION

A Community Energy Plan (CEP) is a wide reaching approach to planning for the energy needs of a development site. Typically this is applied at a subdivision or district level, and accounts for the expected energy use of all planned buildings. A CEP is therefore specific to the development site for which it is created.

1.1 Why Plan for Energy at the Community Scale?

Beyond energy planning, a CEP is an opportunity to consider energy efficient, renewable, and low carbon strategies at an early stage. By conducting this analysis beyond the scope of individual buildings, innovative and unique solutions for the community often present themselves. A CEP can be used to help define energy goals and targets for the community, and can assist municipalities or other local jurisdictions in meeting their energy and carbon targets. In addition to reducing energy use and carbon emissions, a CEP can provide cost savings by way of renewable energy sources and providing security against volatile utility prices; increase system resiliency against increasing extreme weather events; and contribute towards sustainability certification, including Leadership in Energy and Environmental Design (LEED), One Planet Living, and the Living Building Challenge.



1.2 About this CEP

The scope of this CEP aligns with Phase 1: Background/Existing Conditions of the larger Weston Road and Highway 7 Secondary Plan. The intent of the CEP is to address energy conservation and on-site energy generation at both the community and building scale, ensuring conformity with provincial plans and strategies, the Regional Official Plan 2010, the Vaughan Official Plan, the Municipal Energy Plan, and the Vaughan Sustainability Performance Metrics. By offering a high-level community energy analysis, it will provide the groundwork for future energy and carbon feasibility studies once the final master plan option has been chosen.

In this report, a focus on low carbon, energy efficient and resilient development will be addressed in four primary categories:

1. Energy and Carbon Efficiency: How much energy do we expect the community to use? What is the impact of this energy use? What levels of performance are achievable?
2. Resilience: What strategies are available for resilience in the face of climate change? How can the community work together to improve resilience overall?
3. Energy Supply Technologies: What options are available for on-site generation of energy, including renewables? How can these lower environmental impact?
4. Community Energy Distribution Systems: How can energy be delivered locally through district scale systems? How can energy technologies and resiliency strategies be incorporated into these systems? What are the options for funding and administering these systems?



2.0 CONTEXT

Chapter 2.0 provides an overview of the Weston Road and Highway 7 Secondary Plan area (“study area”), and the relevant regional and municipal policies and directions advanced in a suite of plan and strategy documents.

2.1 Site Overview

The study 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.

While a number of density targets and associated development footprints are being explored, this CEP is predicated on a density figure of 160 people and jobs per hectare, with the following land-use footprints representing new space:

- Retail space: 51,000 m²
- Commercial/Institutional: 34,000 m²
- High-density Residential: 400,900 m²
- Low-density Residential: 193,700 m²



Figure 1: The Weston Road and Highway 7 Secondary Plan area.

2.2 Policy Drivers

York Region Official Plan (2010)

The York Region Official Plan is predicated on sustainability, noting in section 1.2 that sustainability is the lens through which the Region formulates, enhances, and implements policy. The Plan 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 clean air initiatives, and identifying links between climate change, community planning, and public health. Specific to energy, the Plan 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 Regional Official Plan 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.
- b. Mid- and high-rise residential (4 storeys and greater) and non-residential buildings be designed to achieve 40 per cent greater efficiency than the Model National Energy Code for Buildings, 1997.
- c. Industrial buildings (not including industrial processes) be designed to achieve 25 per cent 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.

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.

Resource and energy conservation is a critical piece 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 utilities and services. It also requires the City to support and encourage measures to conserve energy resources. The Official Plan includes policies which encourage community energy plans with identified energy targets, in addition to clarification about Vaughan's energy consumption, identification of 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).

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). These standards have since been developed as the Sustainability Performance Metrics.

MEMBERSHIPS

Partners for Climate Protection Program

The City of Vaughan is a member of the Federation of Canadian Municipalities' (FCM) Partners for Climate Protection (PCP) Program. The PCP is a 5-milestone program to take action on climate change that involves creating GHG inventories, setting GHG reduction targets, developing action plans, implementing actions to reduce emissions, and monitoring and reporting on results. To date, Vaughan has achieved Milestone 3.

ClimateWise Business Network

The City of Vaughan is a founding member of the ClimateWise Business Network along with York Region, Lake Simcoe Region Conservation Authority, and Alectra. ClimateWise is a network of leading businesses and institutions operating in and around York Region Ontario who are setting and achieving sustainability goals. Members of ClimateWise have the opportunity to use its Reduction Framework to set targets and report on carbon emission reductions.

Green Directions Vaughan (2009)

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 the Community Sustainability and Environmental Master Plan 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.

GDV 2009 includes a number of objectives pertinent to this CEP, including:

- Objective 1.1: To reduce greenhouse gas emissions and move towards carbon neutrality for the City of Vaughan's facilities and infrastructure; and
- Objective 1.2: To promote reduction of greenhouse gas emissions in the City of Vaughan

Municipal Energy Plan

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, 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.

Ontario Building Code

The Ontario Building Code (OBC) defines the level of performance buildings are required to meet through the Supplementary Standard SB-10, with the goal of increasing efficiency over time. For context, in 2012 the SB-10 became 15% more efficient than the 2006 version, and in 2017 became 13% more efficient than 2012. By comparison, in Toronto, the Toronto Green Standard (TGS) mandatory Tier 1 compliance typically requires 15% better than the current SB-10, while voluntary Tier 2 requires 25% better. These levels of efficiency are intended to increase every four years.

The changes to the current Code, which will come into effect January 1st, 2019, have been devised to make new houses and large buildings ready to be net-zero in the future. In practical terms, three of the most significant changes include adding a loading requirement to roof designs for all new large buildings to future-proof for solar technologies; a requirement for a conduit on all new houses and large buildings to allow for the installation of solar photovoltaics or a solar hot water system; and a requirement for all apartment buildings and condominiums to incorporate a heat or energy recovering unit as part of their ventilation systems.

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, the Community Sustainability and Environmental Master Plan, 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 Sustainability Performance Metrics as a tool to achieve healthy, complete, sustainable communities. The Metrics contain a number of mandatory requirements related to a number of topics, including infrastructure and buildings. Notably, the Metrics recognize that the OBC is the mandatory standard, such that an additional sustainability score is not provided to meet the OBC energy efficiency requirements. Additional points are available if single-family homes are built to meet an EnerGuide of 83 and buildings are designed with energy savings relative to a Model National Energy Code of Canada for Buildings (per York Region Official Plan policy 5.2.21); and where deemed viable, a district energy feasibility study has been conducted.

2.3 Carbon Emission Trends

Carbon Intensity of Energy Sources in Ontario

Focusing on carbon in addition to energy efficiency will shape what 'high performance' means for the Weston Road and Highway 7 Secondary Plan area. In recent years the government of Ontario has significantly reduced the greenhouse gas emissions associated with electricity production by shuttering coal plants and investing in conservation and demand response, in line with the Province's Long-Term Energy Plan (2010) and the Climate Change Action Plan (2016-2020). Conversely, the carbon impact of natural gas, typically used for heating and domestic hot water in new buildings, remains relatively flat.

This highlights the fact that very significant reductions in GHG emissions will at some point involve a degree of fuel switching from natural gas to electric based space and water heating. This is, however, not typical practice in Ontario. While a unit of electricity emits on average 30% of the GHG emissions when compared to an equivalent unit of natural gas, it currently costs approximately 5.8 times as much to generate that electricity (assuming a market rate of \$0.14/kWh and 0.25/m³ of natural gas) before equipment efficiencies are accounted for.

Ontario's Electricity Sector GHG Emissions Outlook

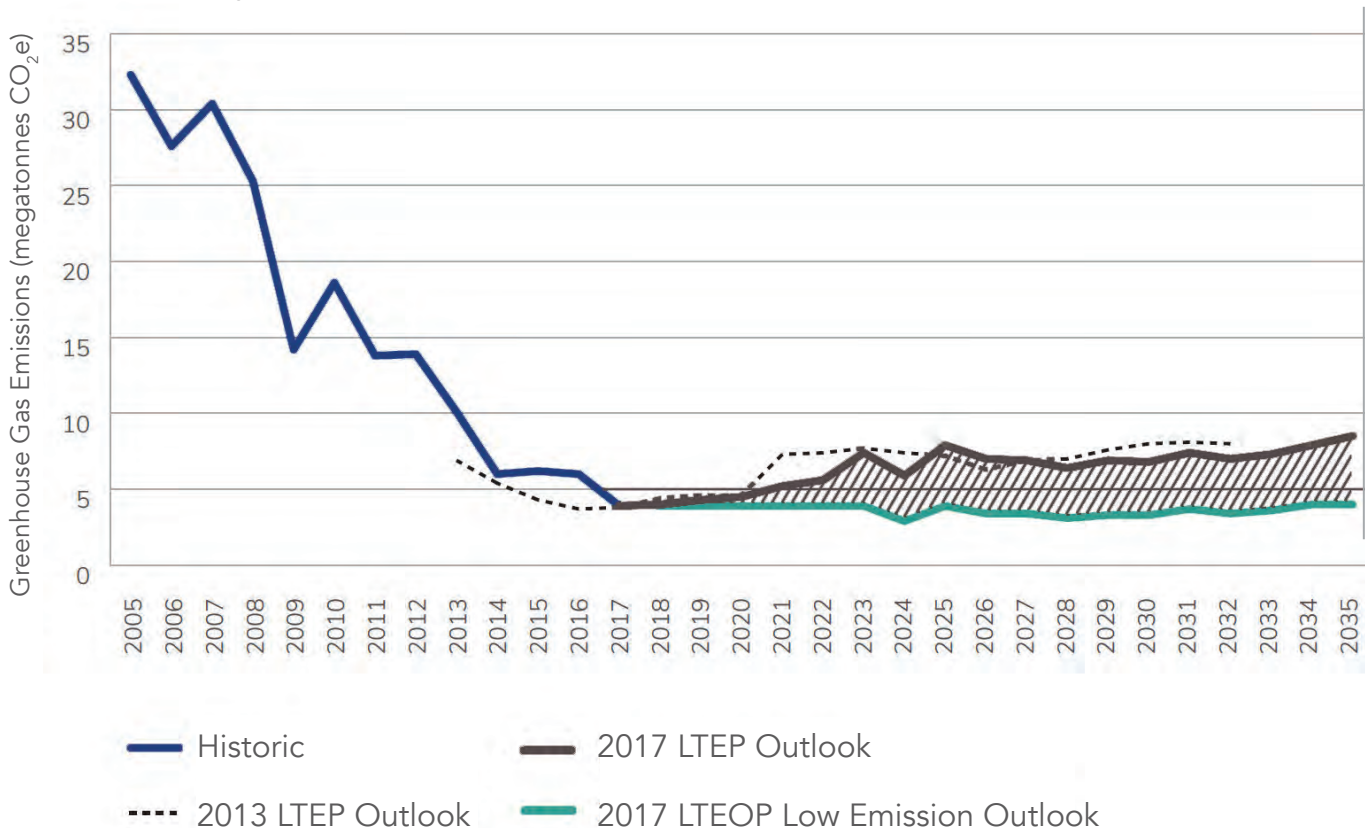


Figure 2: Historical and projected emissions from Ontario's electricity sector (Adapted from LTEP, 2017).

The City of Vaughan has ambitions to minimize its carbon emissions and energy use, with a long-term goal of maximizing energy efficiency and reducing greenhouse gas emissions. Given the carbon intensity associated with natural gas, it will be important for the City to consider fuel switching to cleaner sources within the study area to achieve deeper reductions in carbon emissions, particularly if carbon neutrality is a desired long-term outcome.





3.0 ENERGY DEMAND AND EFFICIENCY

This section first establishes the projected energy demand of the Weston Road and Highway 7 Secondary Plan area, then outlines options to meet these demands. Aligned with the goals of York Region the City of Vaughan and the Province of Ontario, an underlying focus on reducing carbon emissions and improving resiliency have informed the entirety of this report.

3.1 Establishing a Metric

In alignment with the goals of the policy drivers noted above, a focus on both carbon emissions in addition to energy use reduction is reflected in this report.

Referencing the Ontario Building Code (OBC) Supplementary Standard SB-10, Division 3 Table 1.1.2.2¹, the following weighting factors have been applied:

Table 1: Weighting factors for grid electricity and natural gas.

	Grid Electricity	Natural Gas
kg CO ₂ e/ekWh	0.050	0.1808

¹ Emissions factors are as per Division 3, Chapter 1, Table 1.1.2.2 of the Supplementary Standard SB-10 to the Ontario Building Code. These are 0.050 kgCO₂e/kWh of electricity and 1.899 kgCO₂e/m³ of natural gas (converted to 0.1808 kgCO₂e/ekWh using a conversion factor of 0.0952 m³/kWh). The 2016 National GHG Inventory Report notes an emissions factor for Ontario grid electricity of 43 g CO₂e/kWh.

3.2 Establishing Energy Demands

An important step in determining both the energy savings potential and impact of energy generation and storage is to establish an energy demand profile for the community. In the context of this report, this primarily refers to the projected building operational energy.

Energy demands reflect the occupancy types of a buildings in the development, how they are constructed and the types of activities that will take place in them. Energy consumption and annual emissions subsequently reflect the established energy demand as well as how that demand is met in terms of both fuel source and equipment efficiency.

This report first establishes the annual energy demands of the development built to a baseline scenario designed to meet the Ontario Building Code. The report then subsequently explores

several options for meeting these demands reflecting two additional levels of performance. In general, demands can be met by a combination of conventional systems, relying on grid supplied electricity and standalone thermal systems, efficient, renewable and low carbon technologies or district based systems which encourage low carbon sources of energy as well as energy sharing within the community.

Through our extensive project experience combined with publicly accessible data found in the City of Toronto Zero Emissions Building Framework², expected energy demands have been established for each building type. Based on the GFA outlined in section 2.1, and following a site density of 160 people and jobs/hectare, the following energy demands, as demonstrated in table 2, were determined for the development.

Table 2: Annual energy demands for the Weston Road and Highway 7 Secondary Plan area.

Annual Energy Demands	ekWh	ekWh/m ²
Cooling Demand	16,311,146	24.0
Heating Demand	44,962,753	66.2
Base Thermal (DHW) Demand	19,540,959	28.8
Base Electrical Demand	41,402,921	60.9

² See Appendix C – Parametric Modelling Results of the Zero Emissions Building Framework, which provides projected energy use intensity by end use for each archetype and each Tier of the TGS.

3.3 Building Level Energy Efficiency

Typically the energy demands of a building are met through conventional energy delivery, consisting of an electrical grid connection and standalone thermal systems (e.g. in building gas fired boiler and electric chiller).

The OBC defines the level of performance buildings are required to meet through the Supplementary Standard SB-10, with the goal of increasing efficiency over time. For context, in 2012 the SB-10 became 15% more efficient than the 2006 version, and in 2017 became 13% more efficient than 2012. By comparison, the Toronto Green Standard (TGS), a local example of a high performance building energy efficiency policy, mandatory Tier 1 compliance typically requires 15% better than the current SB-10, while voluntary Tier 2 requires 25% better. These levels of efficiency are intended to increase every four years.

For the purpose of goal setting, three separate building energy profiles are proposed. Projected annual energy use, energy use intensity and carbon emissions can be established for the development for each scenario, starting with the energy demands established in Section 3.2. The following three energy profile scenarios have been developed:

- Scenario 1: Baseline Compliance with Ontario Building Code (OBC);
- Scenario 2: Incremental improvement beyond OBC; and
- Scenario 3: Towards Net Zero Carbon.

Scenario 1 is the baseline scenario, reflecting the minimum energy performance as outlined in the current OBC SB-10 and the mandatory requirements of the Vaughan Sustainability Performance Metrics.

Scenario 2 represents an incremental increase in energy efficiency which can be achieved with improvements in currently available technology. An improvement in the range of 10-15% over OBC requirements is determined to be feasible, depending on the building type. For comparison this is roughly equivalent to the TGS version 3 Tier 1, which is the minimum performance currently required for new development within the City of Toronto.

Scenario 3 represents an energy profile with the goal of approaching net zero carbon. This scenario reflects a best case, aspirational performance option, and aligns with the long-term direction from the York Region Official Plan, Vaughan Official Plan, and Green Directions Vaughan. The key drivers towards meeting this scenario include dramatically reducing building loads, and providing space and domestic hot water heating requirements exclusively using low-carbon electricity rather than fossil fuel, to achieve a lower overall carbon impact.

TORONTO GREEN STANDARD

TGS is a tiered approach similar to the BC Step Code. Tier 1 is the current mandatory performance level. Tiers 2 through 4 are voluntary, incentivized with a development charge refund. Mandatory performance will increase every 4 years (In 2022, Tier 2 performance levels will become mandatory) with the goal of approaching net zero energy and carbon use by 2030 with Tier 4 mandatory performance.

3.4 Building Energy Use Projections

Energy use profiles, identifying projected gas and electricity use, as well as resulting carbon emissions, are outlined in table 3. The calculations shown in figure 4 were completed by multiplying gas or electricity use in kWh by the appropriate carbon intensity (kgCO₂e/kWh or ekWh) in Table 1.

The energy use profiles in table 3 were calculated using a six-step process:

1. Define development type data source, development area, and occupants. Energy data sources include low-rise modeling experience (low-rise residential), and the City of Toronto Zero Emissions Building Framework (high-rise residential, office, and retail).
2. Determine energy use by end use for each development type and for each scenario.
3. Determine the energy use by end use for the subject development type based on the proportion of each development type.
4. Determine the GHG impact based on GHG intensity factors for electricity and natural gas (see table 1).
5. Use heating and cooling efficiency factors to determine the heating and cooling load requirements based on energy use.
6. Divide by relevant efficiency to determine the loads (see table 2).

Table 3: Energy use profiles for each of the three building level energy efficiency scenarios.

Scenario	1: OBC Compliance	2: Incremental Improvements	3: Towards Net Zero
Overall Energy Intensity (ekWh/m ²)	172	152.7 (-11%)	70.1 (-59%)
² Natural Gas Use (ekWh)	68,769,880	59,647,937(-13%)	129,200 (-99%)
Natural Gas Intensity (ekWh/m ²)	101.2	87.8 (-13%)	0.2 (-99%)
Electricity Use (kWh)	48,145,380	44,133,794 (-8%)	47,504,513 (-1%)
Electricity Intensity (ekWh/m ²)	70.8	64.9 (-8%)	69.9 (-1%)
Total GHGs (tonnes CO ₂ e)	14,840	12,990 (-12%)	2,399 (-84%)
GHG Intensity (tonnes CO ₂ e/capita*)	1.36	1.19 (-13%)	0.22 (-84%)

* Per capita assumes 160 people and jobs per hectare.

Figure 3: Total gas and electricity use (eMWh/year) per scenario.

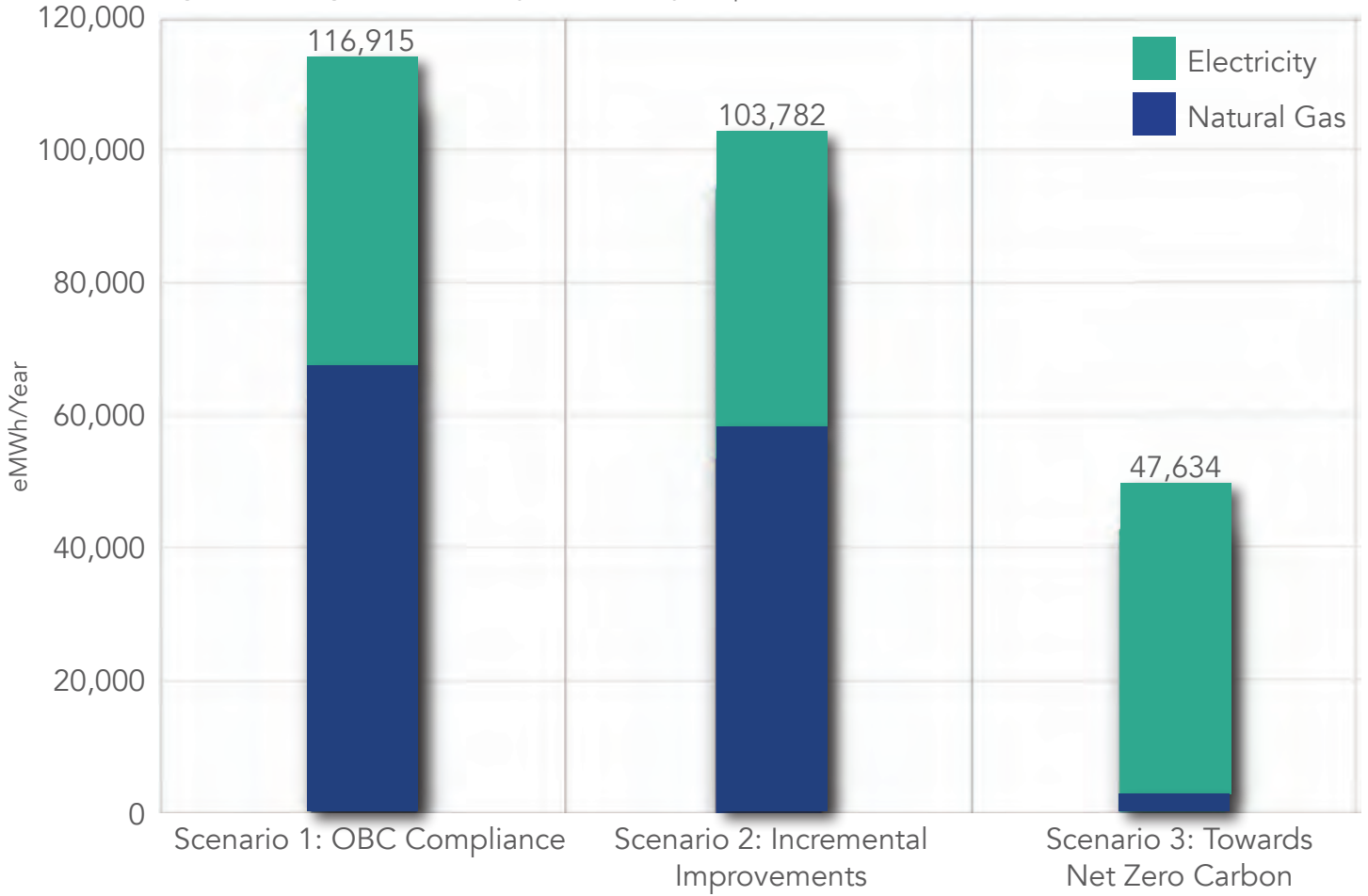
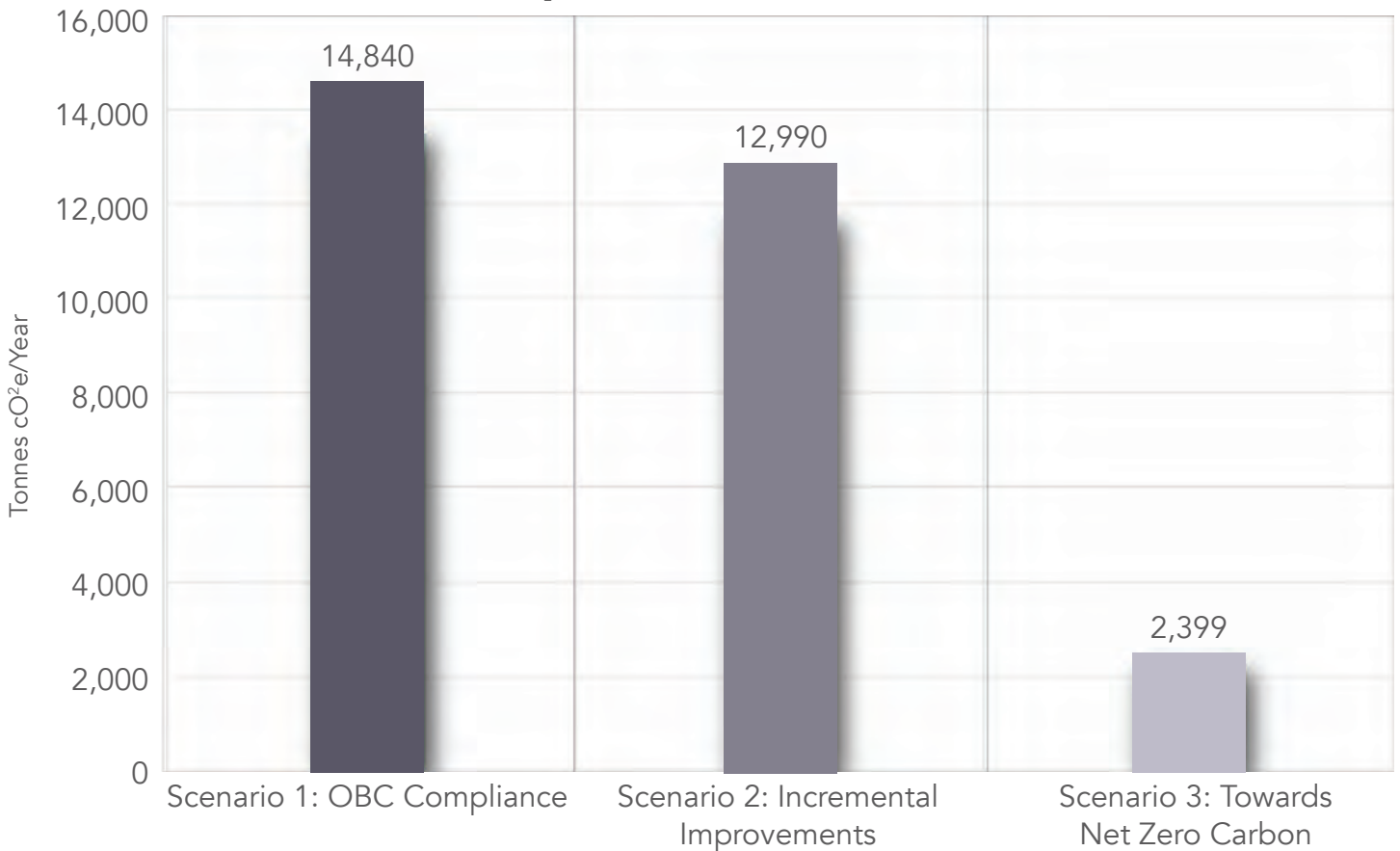


Figure 4: Total GHGs (tonnes CO₂e) per scenario.



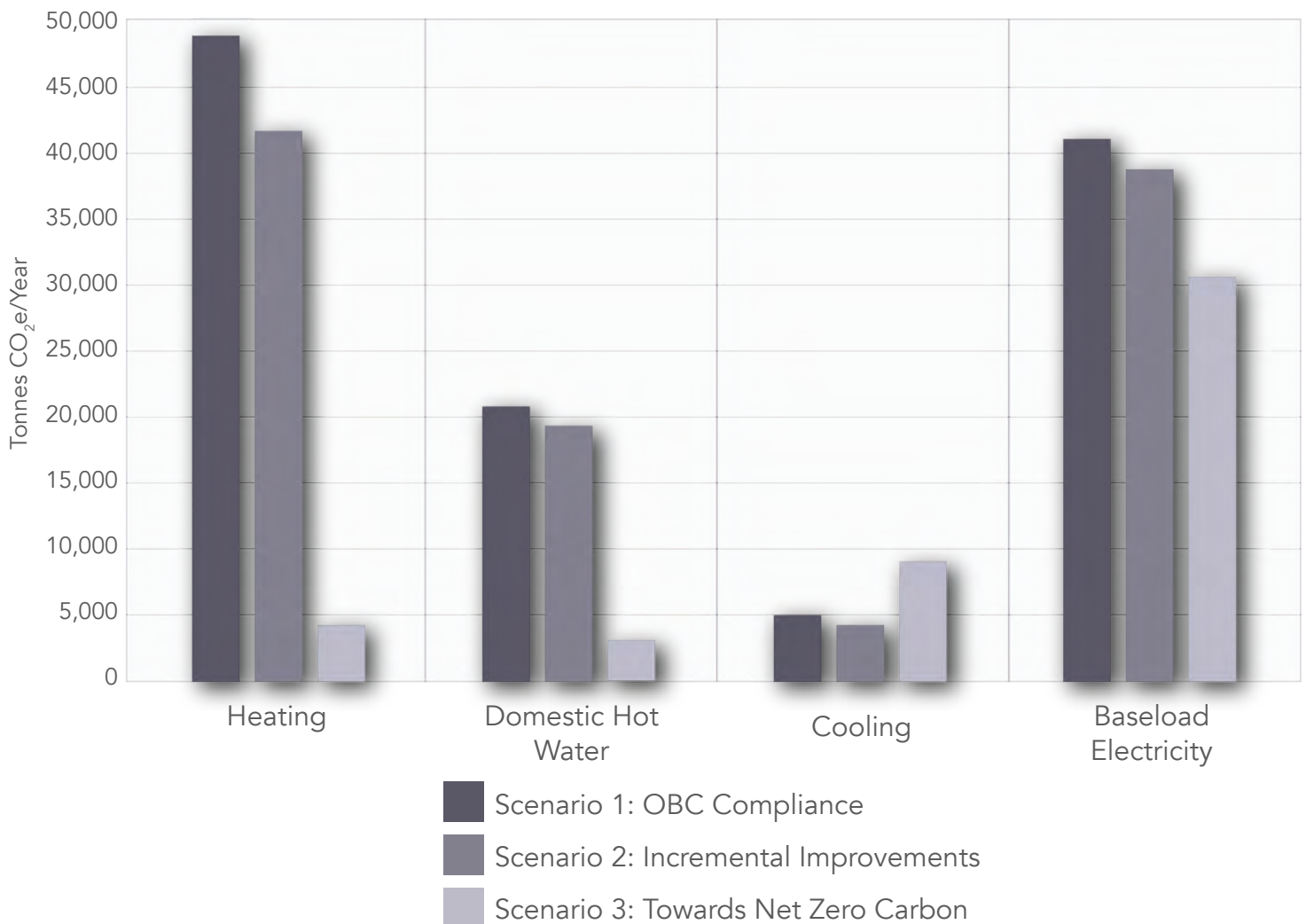
Scenario 2 and 3 represent a 11% and 59% reduction in energy use, and a 12% and 84% reduction in GHG emissions over the baseline scenario 1, respectively. Significant GHG reductions in Scenario 3 are a result of fuel switching away from natural gas, as well as a general a focus on load reductions for space and water heating savings throughout all scenarios.

focus on carbon efficiency is evident by the sharp decline in space heating and thermal base loads (domestic hot water), which traditionally rely on natural gas fired equipment. This decline is achieved through a focus on load reduction strategies such as improved building air tightness, enhanced thermal envelope, and improved heat recovery efficiencies.

Figure 5 displays how each scenario impacts the major energy end uses (heating, domestic hot water, cooling and base load electricity including HVAC, lighting and plug loads). A

Space cooling and electrical baseloads remain comparatively flat throughout the scenarios, again a function of the carbon metric and a primary focus on natural gas reduction.

Figure 5: Impact of scenarios on heating, domestic hot water, cooling, and baseload electricity.



3.5 Other Energy Uses

As a complete community, energy implications beyond the context of buildings within the development should also be considered. Detailed quantification of these impacts should engage a broader consulting team, including stormwater/waste water and traffic planning.

Street-lighting will add to the electricity use of the community overall, and should be considered when evaluating community energy systems and distribution strategies. Lighting loads depend heavily on the spacing, lighting requirements and lighting efficacy, with LEDs providing a significant load reduction over traditional lighting technologies.

Transportation implications occur as a result of the design and location of the community. The number of Single Occupant Vehicle (SOV) trips which are likely to be taken, versus use of public transit, carpooling, and other modes of transportation will have a direct impact on GHG emissions. Design decisions can influence this impact, and could be considered in a transportation specific carbon strategy for the development.

Wastewater treatment requires energy to process wastewater, typically dominated by electrical energy. Requirements vary depending on the plant type and size, however a range of 0.1 to 0.5 kWh/m³ of wastewater treated may serve as a realistic starting point.

The energy demand and efficiency analysis provided in this section should be considered high-level at this juncture in the study area's planning process. However, it provides the necessary information to begin setting relative goals for building level performance, as described in the three scenarios: OBC compliant, incremental improvements over OBC, and towards net zero. It also demonstrates the significant impact fuel switching from natural gas to low-carbon energy sources could have within the study area.

In order to better define targets for the study area, a subsequent energy and carbon feasibility study is recommended. The purpose of the feasibility study is to determine energy and carbon performance targets considering both building level performance and community energy systems (as described in the Sections 5 and 6).



Example of LED streetlight.



4.0 RESILIENCY

Energy resilience is an important factor in adapting to climate change, as codified in the York Region Official Plan (policy 3.1.7). As a member of the Partners for Climate Protection and ClimateWise, Vaughan is committed to enhancing its resilience by working directly on climate change impacts, adaptation, and resilience by way of sharing information, resources, and best practices with other members.

Recent best practice documents from cities in the GTA provide guidance on planning for increasingly extreme weather. The City of Toronto, in particular, offers two documents that inform the subsequent strategies outlined in this section. First, the Zero Emissions Building Framework provides suggested practices for modeling building resilience in terms of an ability to maintain comfortable indoor temperature during power outages, as well as guidelines for designing for flood protection and heat waves. Second, the Minimum Backup Power Guidelines outlines best practices for backup power, particularly for multi-unit residential buildings (MURBs). It should be noted that many of the energy technologies and delivery options identified in Section 5 and 6 can offer improved resilience as well. These systems can be operated independent of the electricity grid and thus maintain power during power outages for the community. Energy resilience can play a large factor is assessing their feasibility.

4.1 Generators in MURBS

Emergency power is typically provided to meet minimum life safety requirements, just long enough to allow occupants time to evacuate a building. Back up power, however, is designed to provide power to non-life safety requirements over a period of at least 72 hours.

Approximately 86% of customer's power was restored following the 2013 Ice Storm during this 72 hour timeframe³, which aligns with general emergency preparedness guidelines advocated by the Government of Canada. As extreme weather events are projected to increase in the GTA, there is good reason to provide for residents of high rise buildings throughout this 72 hour period. In addition to emergency power requirements, this could involve providing power to the following:

- Elevators: In addition to a firefighter designated elevator, provide power to at least one elevator for resident use;
- Domestic cold water booster pumps: Provides water for drinking, washing and toilet use during power outage;
- Sump pumps: Power should be provided to ensure protection from flooding of below grade areas; and
- Heating: In some cases may only involve providing power to central boiler and circulation pumps, however in a new construction project more likely involved powering in suite fancoils or heat pumps, which may add significant cost.

Diesel vs. Natural Gas Generators

A large majority of existing generators are diesel powered, however there is growing support of natural gas generators for a variety of reasons. A natural gas generator is supplied with a consistent supply of fuel, removing any refueling concerns and allowing for uninterrupted operation beyond a 72 hour timeframe. While typically 15-20% more expensive than diesel generators⁴, it has been reported these costs may even out in taller buildings due to an increase in diesel fuel handling system requirements. To meet the code required response time of 15 seconds of maximum power interruption, natural gas generators typically require a load management system, While this adds cost, it also allows for load selection and possible reduction in the overall generator size, considering all loads are unlikely to peak at the same time.

Natural gas generators present the opportunity to provide Combined Heat and Power (CHP) solutions, outlined further in Section 5.1. This has potential to significantly shift the economics of this decision. It should be noted however that a CHP system is generally a continuously operated machine, and thus stricter emissions requirements will apply compared to an emergency generator which typically run for no more than a few hours a month.

³ Per Toronto Hydro, 2014 .

⁴ Minimum Backup Power Guideline for MURBs, City of Toronto, 2016

Demand Response

Natural gas backup generators open up the possibility of an on site demand response strategy, either for individual buildings or linked on a community level. In this scenario generators would operate not only during power outages but during peak times as well to alleviate stress on the electricity grid. This strategy also has the potential to reduce the size of electrical infrastructure required.

Demand response remains a facet of the Government of Ontario's latest Long Term Energy Plan (LTEP) in meeting the electrical needs of the future while avoiding building or refurbishing expensive power plants for peak capacity.

In Ontario, peak power is often provided by engaging natural gas power plants in response to demand, which contributes the majority of GHG emissions from the otherwise clean electricity grid. On site natural gas generators are typically more efficient than natural gas power plants, and also avoid transmission and distribution losses. As a result an added benefit of demand response is a net decrease in GHG emissions from electricity generation for the community.

4.2 Community Resilience Strategies

With increasing global temperatures, extreme weather events require designs to carefully evaluate back-up power solutions. Typical design intent is to include back-up power via a generator that will supply all emergency (life safety) requirements. Passive design measures such as a relatively low window-wall ratio, high thermal mass elements within the building, and high R-values for the building insulation would assist in maintaining building temperature in the event of heating/cooling system failure.

Areas of Refuge in MURBS

Another resilience strategy advocated particularly for MURBs is to provide an area of refuge within the building. Typically a common indoor amenity space serves this function. This strategy would involve designating a space as a refuge area and providing for minimum levels of heating, cooling, lighting and power during power outages. This allows residents of the building to keep warm or cool, as well as store medicine, charge communication devices and share updates. Designating an area of refuge provides significant economies of scale when compared with providing nominal space heating to each individual unit.

Community Reception Centres

At the community level, a Community Reception Centre may provide added support to residents displaced from their homes in power outages or extreme weather events. A Community Reception Centre is typically operated by a community organization. Permanently designating a building as a Community Reception Centre may involve upgrading the power supply and backup generation capacity to allow for longer operation in power outage or emergency situations.

Given the upcoming changes to Green Directions Vaughan - in particular a greater emphasis on climate change adaptation and resilience - the City should consider the resilience strategies outlined in this section when developing policy language in the Secondary Plan for the study area.



Figure 6: Emergency backup generator.



5.0 COMMUNITY ENERGY TECHNOLOGIES

Community energy technologies refer to the local production of energy, either electrical or thermal, as alternative methods to meet the building energy demands outlined in Section 3. Numerous technologies exist to achieve this end.

This section will elaborate on a few more well-known and viable options, while listing others of reference and further assessment as warranted. Aligned with the sustainability goals of the community, strategies focus on renewable or highly efficiency energy technologies as well as resiliency.

Ownership of these technologies could involve condominium boards or building management, or could involve engaging a micro-utility interested in owning and operating them as part of a community wide system, discussed further in Section 6.

5.1 Combined Heat and Power

Combined Heat and Power (CHP), or cogeneration, combines the on-site generation of electricity by a natural gas powered engine with the recovery of waste heat for space heating, domestic hot water or other thermal energy uses.

Like a simple natural gas fired generator, increases in efficiency compared to a centralized natural gas fired power plant are realized through elimination of distribution losses and size efficiency. Coupled with waste heat recovery, overall efficiency of CHP systems typically reach 80-85%⁵, compared to a 55-60%⁶ when considering a gas power plant and gas boiler for thermal energy. An absorption chiller may be added to the system, using waste heat in the summer to produce cooling, referred to as tri-generation. CHP systems typically provide economies of scale with quicker payback periods for larger systems. As system size increases financial benefit may also improve as capital costs such as engineering and connection work remain relatively fixed.

Compact sites are favored to limit costly distribution piping as well as distribution losses. As a result CHP systems are more common in larger developments with higher density of floor space. While attractive cost savings can be achieved using CHP, this technology works by replacing grid electricity with natural gas fired local electricity production. This results in a net increase in GHG emissions based on the emission factors presented in Table 1. To counteract this, CHP operation may be limited to peak times when the electricity grid relies more heavily on natural gas power plants, more closely representing the efficiency improvements in Figure 7. Analysis may be required to determine the economic impact of this decision.

CHP systems would increase resilience of a building by providing some level of heat and power independent of grid connections. Indeed a CHP system may double as or replace the need for an emergency generator in some cases.

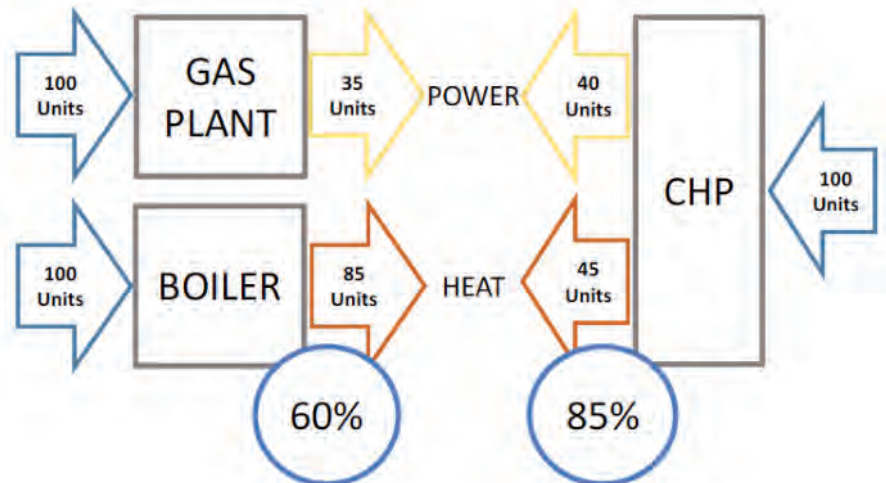


Figure 7: Efficiency of CHP compared to a gas power plant and boiler.

⁵ European Environment Agency, accessed 2018

⁶ Environmental Protection Agency, accessed 2018

5.2 Ground Source Heat Pumps

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. In essence the ground acts as a supplier and seasonal storage of thermal energy, which can be considered 'free' compared to natural gas for heating. In contrast, a conventional water loop heat pump (WLHP) system relies on a boiler and heat rejection device to add and remove heat, requiring the consumption of natural gas and electricity. An air source heat pump (ASHP) similarly rejects and accepts heat directly with the outdoor air, however in cold climates such as Toronto peak heating performance can be limited.

By using the ground as a source of both heating and cooling, it is important that a GSHP system balance the heating and cooling loads. Otherwise performance may depreciate over time as localized ground temperature gradually change.

A GSHP thermal loop facilitates the sharing of thermal energy as it allows heating and cooling to be moved around when certain areas in a building, or buildings in a community, require heating while others require cooling. In this way a GSHP loop is amenable to implementation at a community level, with strategies discussed further in Sections 6.1 and 6.2. Loop temperatures in a GSHP system are moderate, requiring electric heat pumps in the conditioned space to increase or decrease the temperature for the heating and cooling loads. Distribution losses are therefore minimized when compared to a high or low temperature thermal distribution system.

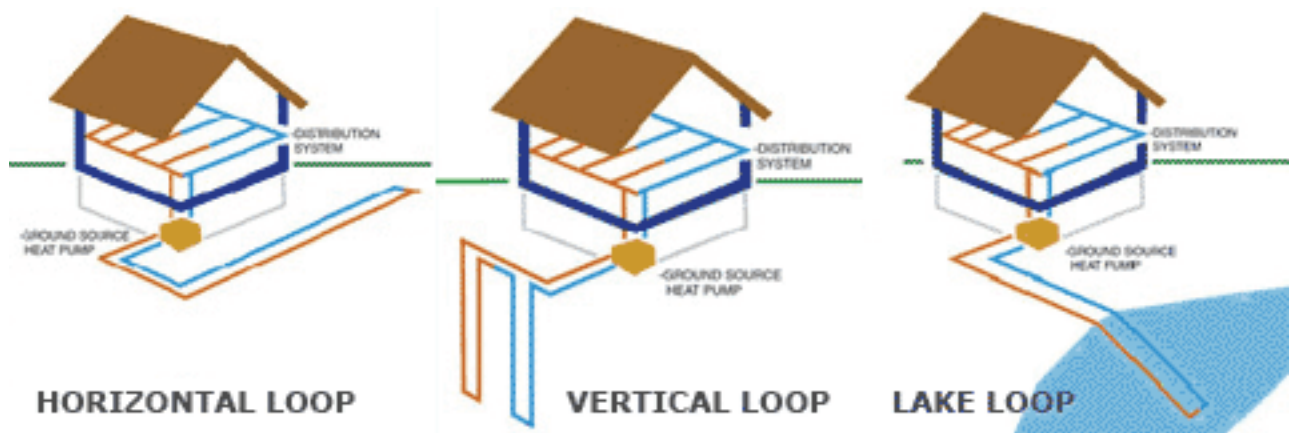


Figure 8: Ground source heat pump schematic (source: Ontario Geothermal Association).

5.3 Other Technologies

Many other innovative, low carbon or renewable technologies exist and may be appropriate for the development. Several examples are listed below for further consideration, representing technologies applied at both the building and community level. Additional energy technologies should be evaluated on their merits as they emerge.

Solar Thermal: Rooftop mounted solar collector for thermal energy. Typically used to offset heating of domestic hot water loads in residential buildings.

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.

Solar Air Heater: Work by drawing incoming air through a transpired solar collector for pre-heating, reducing ventilation heating load.

Earth Tubes: Work by drawing incoming air through tubing in the ground for pre-heating and cooling, reducing ventilation loads.

Wastewater Heat Recovery: A specialized heat exchanger which draws heat from waste water pipes from a building to offset heating loads.

Spectrally Selective Glazing: Glazing which tints in response to solar radiation, sun position, or weather conditions, reducing glare and solar gain within the building. Maximizes quality views while reducing cooling loads.

Ice Thermal Storage: Storage of thermal energy, using electricity to create ice during low demand overnight periods to offset cooling demand during peak periods.

Anaerobic Digestion Biogas: Community wide collection of organic waste for production of biogas, a renewable alternative to natural gas.

Biomass Cogen or Tri-generation: A biomass fueled cogeneration or CHP system to provide backup power and heat, biomass being a renewable source alternative to natural gas. In addition, an absorption chiller can be added to provide cooling (tri-generation).

Off-site Renewable Energy Procurement: Aside from on-site renewable technologies, any development may procure off-site renewable energy generation credits to offset their carbon footprint.

Given the high-level scope of this CEP, it should be noted that decision-making around which community energy technology to pursue for the study area will require additional feasibility studies. Undertaking an energy and carbon feasibility study will help the City better understand the greenhouse gas and energy use intensities associated with each technology, and how these line up with the chosen energy and carbon targets for the community. The feasibility study should also consider the impacts of combining energy technologies, for instance ground source heat pumps and solar PV systems.

Energy storage.



6.0 COMMUNITY ENERGY SYSTEMS

Community energy systems refer to innovative ways to approach the storage and distribution of energy within the community, often referred to as district energy systems. Examples of options to provide both thermal and electrical energy are provided in this section.

It is important to note that the community energy systems highlighted work in conjunction with the technologies noted in Section 5, the resiliency strategies noted in Section 4 and can serve the design profiles noted in Section 3. In fact, incorporating community energy systems may indeed improve the effectiveness of individual technologies and strategies.

While often a significant undertaking, funding and partnership opportunities may present themselves. Private or public Local Distribution Companies (LDCs) may be interested in engaging in partnerships to fund and operate district energy systems as they often serve their interests as well. Additionally, green municipal funds such as those offered by the Federation of Canadian Municipalities (FCM) may be explored to unlock funding and project feasibility.

COMPONENTS OF COMMUNITY ENERGY SYSTEMS



- Chillers/boilers
- Deep lake water cooling
- Biomass
- Geothermal
- Heat pumps
- Waste heat recovery
- CHP
- Bio fuels
- Solar/wind



- Ice on coil
- Chilled water storage
- Heat storage
- Battery
 - Electrode coil
 - Flow type
- Compressed air
- Pumped hydro storage



- Distribution pipe
- Microgrid
- Utility Transmission

6.1 High Temperature District Thermal

District thermal energy provides a means to remove the generation of heating, cooling, domestic hot water (thermal base loads), or a combination thereof, from individual buildings and into the community level. In its place, thermal energy is provided by a centralized plant serving multiple buildings. This can be provided by various technologies, including conventional boilers and chillers, steam, chilled water, or CHP systems. A district system typically involves the construction of an Energy Centre building within the community to house the required equipment.

District thermal energy is not a new concept and examples of this approach can be found in the local context. Enwave serves the cooling needs of numerous downtown Toronto office buildings with its Deep Lake Water Cooling (DLWC) system, and operates district steam plants for heating. Markham District Energy serves the heating, cooling and domestic hot water loads of Markham and Cornell Centre with centralized boilers and chillers, supplemented by CHP.

Several benefits may arise through pursuing a high temperature district thermal system, including:

- Reduced space requirements for mechanical rooms, increasing saleable floor area
- Economies of scale compared to standalone systems
- Opportunity to explore high efficiency options
- Opportunity to incorporate low carbon / renewable technologies
- Distribution piping can be installed during servicing for other utilities, minimizing costs and timeline impact.

6.2 Low Temperature District Thermal

A traditional district energy plant provides heating and/or cooling to the temperature required to meet the load, and involves using heat exchangers or fancoils within the building for distribution of heating and cooling. In comparison, a low temperature district thermal system takes its design philosophy from a water-loop heat pump (WLHP) HVAC system in a high rise residential building. The low temperature system relies on heat pumps or variable refrigerant flow (VRF) units located in the home or building. These systems connect to a low temperature (typically 12 to 30°C) distribution loop through which the heat pumps can reject heat to or take heat from. This approach is amenable to incorporating boreholes for ground source heat pump technology or low grade solar thermal.

A low temperature system provides many of the same benefits of a high temperature system, compared in the adjoining text box.

In both high and low temperature systems, a third party company or a condominium type of structure may have to be engaged to own, operate, and maintain the district system. This third party would operate in a utility business structure, potentially charging fixed and variable costs to the end users. The current market situation for third party operators/owners, for example local LDCs, is something that should be explored further.

6.3 Micro-Grids

A micro-grid is a similar concept to a district thermal energy system, however in this case focusing on the local collection, storage and distribution of electrical energy. This approach can involve the use of battery banks, local renewable electricity generation, or both. Distribution of electricity to the end user can then be optimized to reduce carbon footprint, reduce per unit costs (avoiding reliance on the grid during peak rates), or improving resiliency by providing back up power during power outages.

A micro grid typically works in conjunction with the central electricity grid, and can provide benefits to the local distribution company by reducing strain on the grid and deferring upgrades to infrastructure. Benefits include enhanced resilience and independence, reduced electricity costs, and reduced carbon emissions through grid demand response and integration of renewables.

A micro-grid may take several forms, including:

- Behind-the-meter optimization: Storage of grid supplied electricity overnight to deploy during peak periods throughout the day – avoiding electricity cost and carbon impact of the grid peak;
- Storage of excess solar PV production to be used overnight or during periods with less sunlight – increasing local usefulness of renewable energy; and
- Integration of plug-in Electric Vehicle (EV) batteries as a storage device for on peak use of stored electricity.

Battery storage may be centralized in the community, or could simply involve the use of in-house powerpacks and EVs to regulate electricity at the individual home level.

Behind-the-meter optimization may prove to be economically attractive considering on and off peak electricity rates, and warrants further investigation. Furthermore, storage of grid supplied electricity during off peak times for use during peak periods results in a net decrease of carbon emissions as peak electricity generation is often provided by natural gas power plants, the primary source of carbon emissions for the Ontario electricity grid.

Additional considerations of micro grids include the cost and efficiency losses associated with battery storage, as well as regulatory approvals and end user education. In this way utility partnerships may be beneficial.

Community energy systems provide a means to achieve higher energy performance and mechanical cost and carbon emission savings. Moreover, they can lead to capital and operating cost savings for vertical developers and utilities, respectively. In order to understand these potential savings, additional studies are required, including an energy and carbon feasibility study. Understanding the economics of community energy systems, especially when complemented by high performance buildings, energy technologies, and carbon offsets, will be critical to generating buy-in from future developers within the study area, who might otherwise pursue a business as usual approach.

Aerial view of the Plan Area.



7.0 CONCLUSIONS AND NEXT STEPS

This Community Energy Plan provides the groundwork for a future energy and carbon feasibility study. In addition to providing a high-level review of York Region's and the City of Vaughan's energy and carbon goals, it delineates estimated annual operating energy use intensity under three scenarios aligned with the mandatory and aspirational goals of Green Directions Vaughan and the Vaughan Sustainability Performance Metrics.

7.1 Conclusion

The CEP first establishes the projected energy demand of the Weston Road and Highway 7 Secondary Plan area, then outlines options to meet these demands. Aligned with the goals of York Region, the City of Vaughan and the Province of Ontario, an underlying focus on reducing carbon emissions and improving resiliency have informed the entirety of this report.

In terms of the three energy and carbon performance scenarios analyzed, Scenarios 2 and 3 represent a 11% and 59% reduction in energy use, and a 12% and 84% reduction in GHG emissions over the baseline scenario 1, respectively.

Table 4: Percentage change in energy use profiles for scenarios 2 and 3 relative to scenario 1.

Scenario	1: OBC Compliance	2: Incremental Improvements	3: Towards Net Zero
Overall Energy Intensity (ekWh/m ²)	172	152.7 (-11%)	70.1 (-59%)
² Natural Gas Use (ekWh)	68,769,880	59,647,937(-13%)	129,200 (-99%)
Natural Gas Intensity (ekWh/m ²)	101.2	87.8 (-13%)	0.2 (-99%)
Electricity Use (kWh)	48,145,380	44,133,794 (-8%)	47,504,513 (-1%)
Electricity Intensity (ekWh/m ²)	70.8	64.9 (-8%)	69.9 (-1%)
Total GHGs (tonnes CO ₂ e)	14,840	12,990 (-12%)	2,399 (-84%)
GHG Intensity (tonnes CO ₂ e/capita*)	1.36	1.19 (-13%)	0.22 (-84%)

* Per capita assumes 160 people and jobs per hectare.

Significant GHG reductions in Scenario 3 are a result of fuel switching away from natural gas, as well as a general focus on load reductions for space and water heating savings throughout all scenarios. It is clear that scenario 3 represents a paradigm shift in terms of how buildings are built and designed, however also offers the most advantageous design for incorporation of renewable energy technology to create a true net zero community. High performance district energy systems may also work well in this scenario as heating and cooling loads are more balanced.

In addition to providing an overview of district energy systems, the CEP also outlines a number of possible resiliency strategies and infrastructure, and sustainable technologies. When combined with the possible reduction in GHG emissions and energy use at the building and community scales, these strategies and

technologies, if implemented, can contribute to achieving the long-term vision for a site which is both carbon neutral and resilient, thus contributing to the energy and carbon emission targets of the Vaughan Official Plan, Municipal Energy Plan, and Green Directions Vaughan.

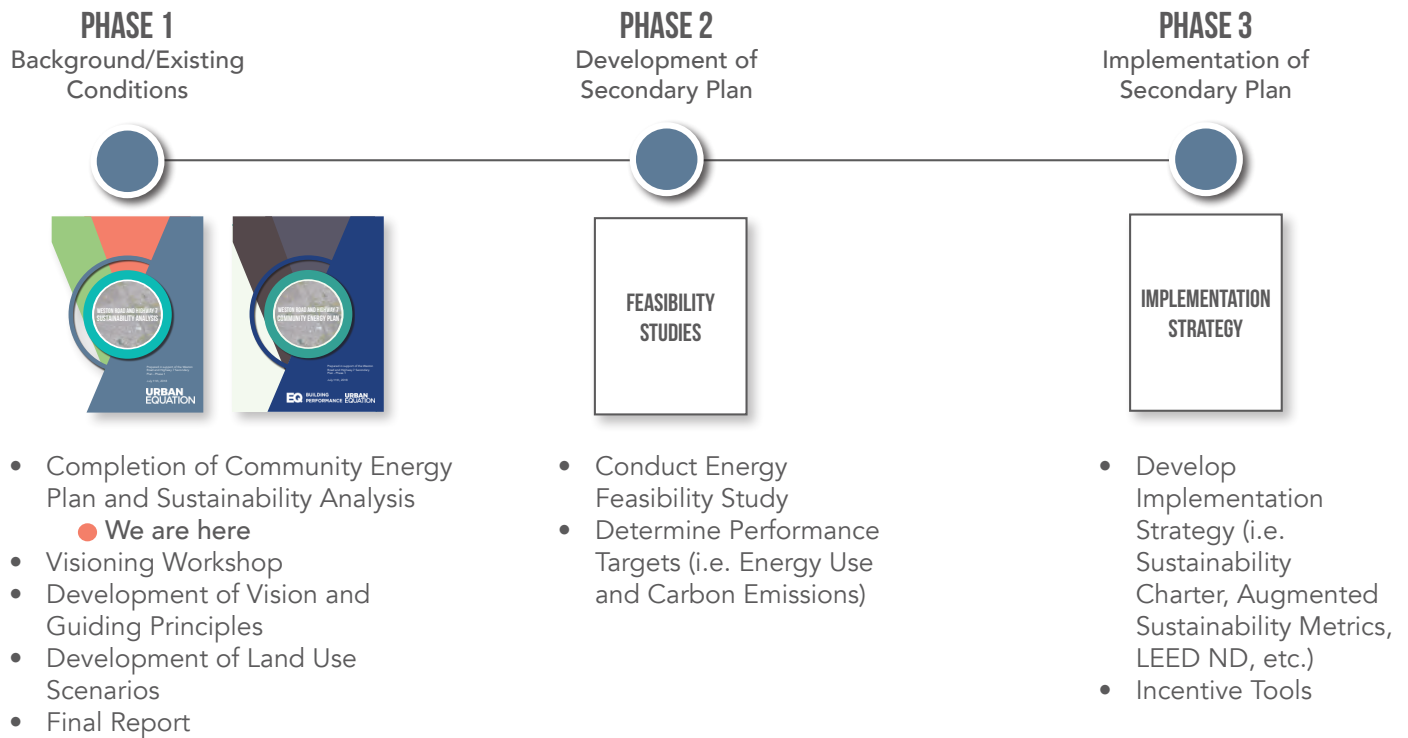


Figure 9. Implementation diagram

7.2 Next Steps

Figure 9 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 as it relates to energy and emissions. 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 a deeper energy and emissions feasibility study be conducted to derive evidence-based strategies for carbon emission and energy reduction, both at the scale of the building and the study area. The terms of reference for the feasibility study should include not only a cost-benefit evaluation of the most relevant technologies given the physical context and proposed development (i.e. higher density), but also the exploration of fiscal tools, including section 37 benefits and community improvement plan incentives. 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 energy and emissions 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. Importantly, Vaughan's Official Plan allows the City to request a community energy plan in support of a complete application for Official Plan Amendments, Zoning By-law Amendments, Draft Plans of Condominium, and Site Plan Approval (policy 10.1.3.3.d.xii). However, the City does not have the municipal tools to mandate developers to achieve particular energy targets. In other jurisdictions, Section 37 has been used to incentivize developers to achieve higher energy and carbon performance. In the context of Vaughan, the Sustainability Performance Metrics could also prove useful to reach this end. 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 green building technologies and measures that are chosen in Phase 2.

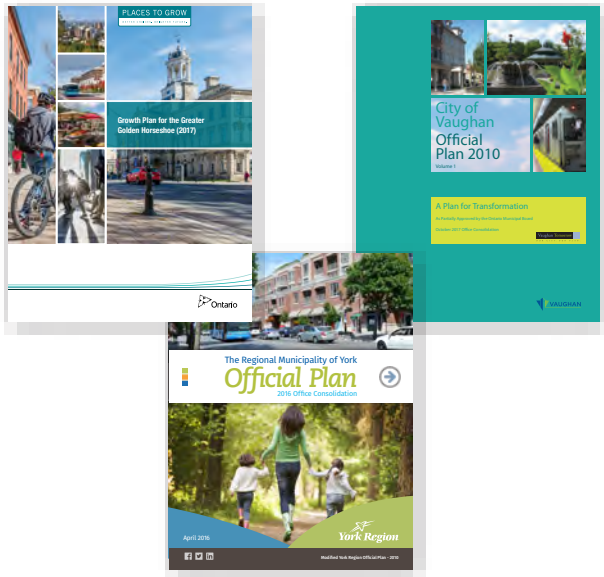


PLANNING POLICY ANALYSIS

APPENDIX 5

October 29, 2018





1. Planning Context

1.1. Introduction

The development of the Weston 7 Secondary Plan Area (SPA) is guided by a number of policies and plans including the Provincial Policy Statement (2014), the Growth Plan for the Greater Golden Horseshoe, the York Region Official Plan, the City of Vaughan Official Plan (VOP 2010), and other relevant guidelines and plans. This policy framework has clearly identified Weston 7 as a place for intensification in the form of compact, mixed-use development that is of transit-supportive density.

The following Planning Policy Analysis describes the policy framework established by the Province, Region and City related to how Weston 7 is expected to grow. In addition, other relevant guidelines and plans are analyzed and summarized to provide a coherent image of the planning framework surrounding the Weston 7 SPA.

1.2. Provincial Policy Context

1.2.1. Provincial Policy Statement

The Provincial Policy Statement (PPS), enacted in April 2014, provides policy direction on matters of provincial interest related to land use planning and development. Provincial planning policy is at the top of the land use planning policy hierarchy and municipalities are obligated to create plans that are consistent with the Provincial Policy Statement. The following section describes the key policy directions in the PPS that the Secondary Plan for Weston 7 must reinforce.

The PPS supports efficient use of land, resources and infrastructure. It encourages development patterns that support strong, liveable and healthy communities by endorsing intensification as a means to accommodate growth and increase urban vitality. The PPS supports growth within settlement areas and away from significant or sensitive resources and areas which may pose a risk to public health and safety. It encourages intensification and redevelopment to accommodate an appropriate range and mix of employment opportunities, housing and other land uses (Policy 1.1.2).

In addition to broad policy direction, the PPS also provides specific land use planning direction through general land use categories. The Weston 7 Plan Area is within a designated Urban Area under the York Region Official Plan, and is thus subject to Settlement Area policies of Section 1.1.3 of the PPS. The PPS directs settlement areas to be the focus of growth and development, and promotes their vitality and regeneration (Section 1.1.3.1).

Land use patterns within settlement areas are to be based on densities and a mix of land uses which efficiently use land and resources and

are transit-supportive, where transit is planned, exists or may be developed (Section 1.1.3.2a). Section 1.6.7 addresses transportation systems and sub-policy 1.6.7.4 encourages densities and land use patterns that minimize the length and number of vehicle trips and supports the use of public transit and active transportation. Weston 7 is designated by VOP 2010 as a Primary Centre, for intensification and mixed-use development. PPS Section 1.1.3.4 states appropriate development standards should be promoted which facilitate intensification, redevelopment and compact form, while avoiding or mitigating risks to public health and safety. Section 1.8.1 directs planning authorities to support energy conservation and efficiency through land use and development patterns which promote compact form and a structure of nodes and corridors, and the use of active transportation and transit in and between residential, and employment (including commercial and industrial) areas. The PPS provides a general direction for land use planning that supports intensification in mixed-use compact formats in areas well-served by transit. The identification of intensification areas such as Weston 7 by lower tier municipalities is consistent with the direction of the PPS.

1.2.2. Growth Plan for the Greater Golden Horseshoe

The Growth Plan for the Golden Horseshoe ("Growth Plan"), which took effect in July 2017, is a Provincial plan that directs how regional growth in the Greater Golden Horseshoe should be managed until 2041. The Growth Plan provides specific guidance for growth in the Greater Golden Horseshoe by identifying strategic areas for growth that are connected to public transit infrastructure and directing residential and employment growth in existing-



built-up areas. The Growth Plan provides people and jobs growth targets for municipalities to meet, as well as policy direction for what qualities growth areas should meet. The Growth Plan includes policies addressing transportation, infrastructure, land use planning, urban form, housing and natural heritage protection on a regional scale. One of the main objectives of the Growth Plan is to prioritize intensification of strategic growth areas to make efficient use of land and infrastructure and support transit viability. It intends to direct new residential and employment growth in existing built-up areas and strategic growth areas, defined by the 2017 Growth Plan as lands “that have been identified by municipalities or the Province to be the focus for accommodating intensification and higher-density mixed uses in a more compact built form.” Strategic Growth Areas include Urban Growth Centres and Major Transit Station Areas (MTSAs), as well as lands along higher order transit corridors. As a strategic growth area, the Growth Plan in Section 2.2.1 directs new growth to built-up areas, and strategic growth areas in particular.

The Growth Plan includes specific direction as to how MTSAs and Priority Transit Corridors (PTCs), are to be planned, calling on these areas to be transit supportive, and incorporate a diverse mix of uses including affordable housing, achieve multi-modal transportation options to access transit stations, and provide connections to nearby major trip generators (Section 2.2.4).

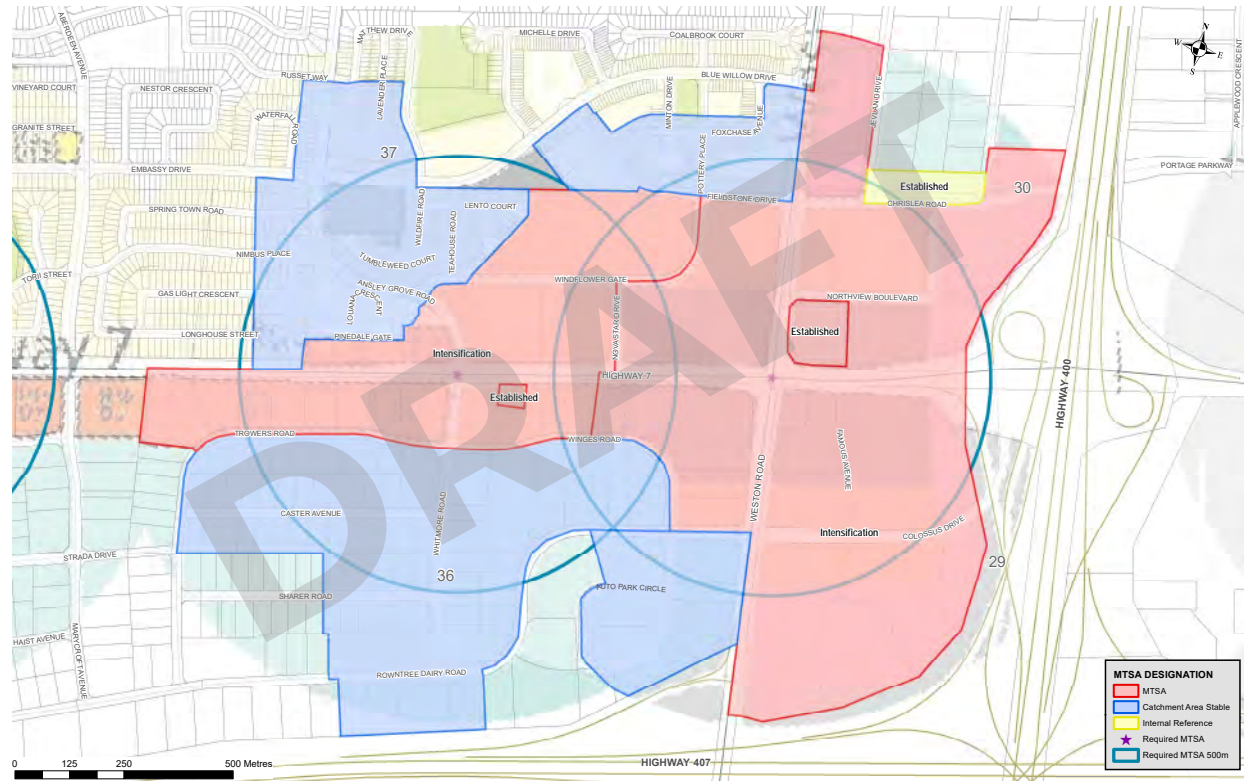
Major transit station areas (MTSAs) are defined by upper- or single-tier municipalities in consultation with lower-tier municipalities in such a way that the size of the area and number of potential transit users within walking distance (approximately 500m) is maximized. Priority

Transit corridors (PTCs) are corridors with existing or planned higher order transit, as defined in Schedule 5 of the Growth Plan. Higher order transit can include subways, light rail transit and bus rapid transit in dedicated rights-of-way. The VIVAnext BRT rapidway along Highway 7 will operate in its own dedicated right-of-way, and the areas surrounding the planned centre-lane stations at Highway 7 and Weston and Highway 7 and Ansley Grove will meet the MTSA definition. Higher order transit corridors are also considered intensification corridors, with the potential to provide a focus for higher density mixed-use development consistent with planned transit service levels.

Section 2.2.4 of the Growth Plan provides policies for transit corridors and station areas, calling on MTSA served by bus rapid transit to meet a minimum density of 160 residents and jobs combined per hectare.

The Growth Plan directs municipalities to support development in MTSA by a number of means, including:

- “planning for a diverse mix of uses, including second units and affordable housing, to support existing and planned transit service levels;
- fostering collaboration between public and private sectors, such as joint development projects;
- providing alternative development standards, such as reduced parking standards; and
- prohibiting land uses and built form that would adversely affect the achievement of



transit-supportive densities.” (2.2.4.9).

The City of Vaughan includes approximately 17 MTSA within its boundaries, along with other higher-order transit stations throughout York Region at existing GO transit and VIVA transit stops. Each of these areas requires a planning process to understand the site specific development capacity and what, if any, modifications in the growth target (contemplated in policy 2.2.4.4) may be required to maintain consistency with the Growth plan. The density accommodated in the MTSA in the Weston 7 area may be modified to achieve the appropriate balance of intensification across the Highway 7 corridor that results in appropriate

and desirable built form and community amenities. The Weston 7 consultant team is working closely with City of Vaughan Planning staff responsible for the city-wide study of the MTSA to ensure that density scenarios tested in the land use alternatives phase are reflective of current strategies for how to plan appropriately for MTSA in the city more broadly.

Ultimately, the land use alternatives determined through Phase 1 of the Weston 7 Secondary Plan process will need to be consistent with the Growth Plan and demonstrate how the MTSA that can realize a diverse mix of uses as envisioned in Growth Plan policy.

1.3. Municipal Policy Context

1.3.1. York Region Official Plan

The 2010 York Region Official Plan (YROP) is the overall planning tool to guide growth and development in York Region, and sets the stage for detailed planning by local municipalities. The YROP identifies that the Region's future development will be in the form of infill and redevelopment, and will need to fit in, respect and improve the character of the surrounding area. Policies aim to strengthen the connections between the natural and built environment, job opportunities, human services, transportation, public health and fiscal capacity. The ultimate Secondary Plan for Weston 7 must be consistent with the policy direction set out by York Region in their official plan. The following section explores the key policy directions to consider in the Secondary Plan process.

In 2014, York Region began a review of its Official Plan (2010) as a component of a broader Municipal Comprehensive Review (MCR). However, following the release of a number of draft Provincial Plans in 2016 (the Growth plan for the Greater Golden Horseshoe, Greenbelt Plan, and Oak Ridges Moraine Conservation Plan), work was halted and restarted in early 2017. This review process will deliver several products: revised population and employment forecasts as per Growth Plan direction; a land budget, including a regional land supply/demand analysis and a review of the existing regional policies. A range of reports and studies were completed as part of the Official Plan Review, including the York Region Preferred Growth Scenario (2015). The current MCR Consultation is being conducted in five phases, over a three-year time period (May 2017 to Spring 2020). Phase Two (2018) is ongoing, with a draft updated Regional Official Plan anticipated in fall 2019.

An overarching goal of the YROP is to enhance the Region's urban structure through city building, intensification, and the development of compact and complete communities. The Plan allocates population targets for each local municipality and requires local municipalities to prepare intensification strategies that identify the role of Regional Centres and Corridors and Local Centers and Corridors in helping to achieve assigned intensification targets. The York Region Residential Intensification Targets by Local Municipality, 2016-2041 found in Attachment 3 of the Region's 2041 Preferred Growth Scenario Report identify 26,250 new intensification units for the City of Vaughan and a population growth of 61,400 people.

Map 1 "Regional Structure" of the YROP 2016 identifies Regional Centres and Corridors. The section of Highway 7 that runs through Weston 7 is designated as a corridor, seen in Figure 18. Regional Centres and Corridors form part of a larger regional system of urban growth centres and intensification corridors, which are vital to the long term prosperity and identity of communities within the Greater Toronto and Hamilton area (Section 5.4.3). The YROP 2016 instructs lower-tier municipalities to direct the most intensive and widest range of uses within the Regional Corridors to specific intensification areas, identified as Key Development Areas (Section 5.4.31).

Key Development Areas are focused on existing and planned transit and have the highest densities and mix of uses in the Regional Corridor. Section 5.4.31 of the YROP directs Key Development Areas to include the following segments of the Regional Corridor:

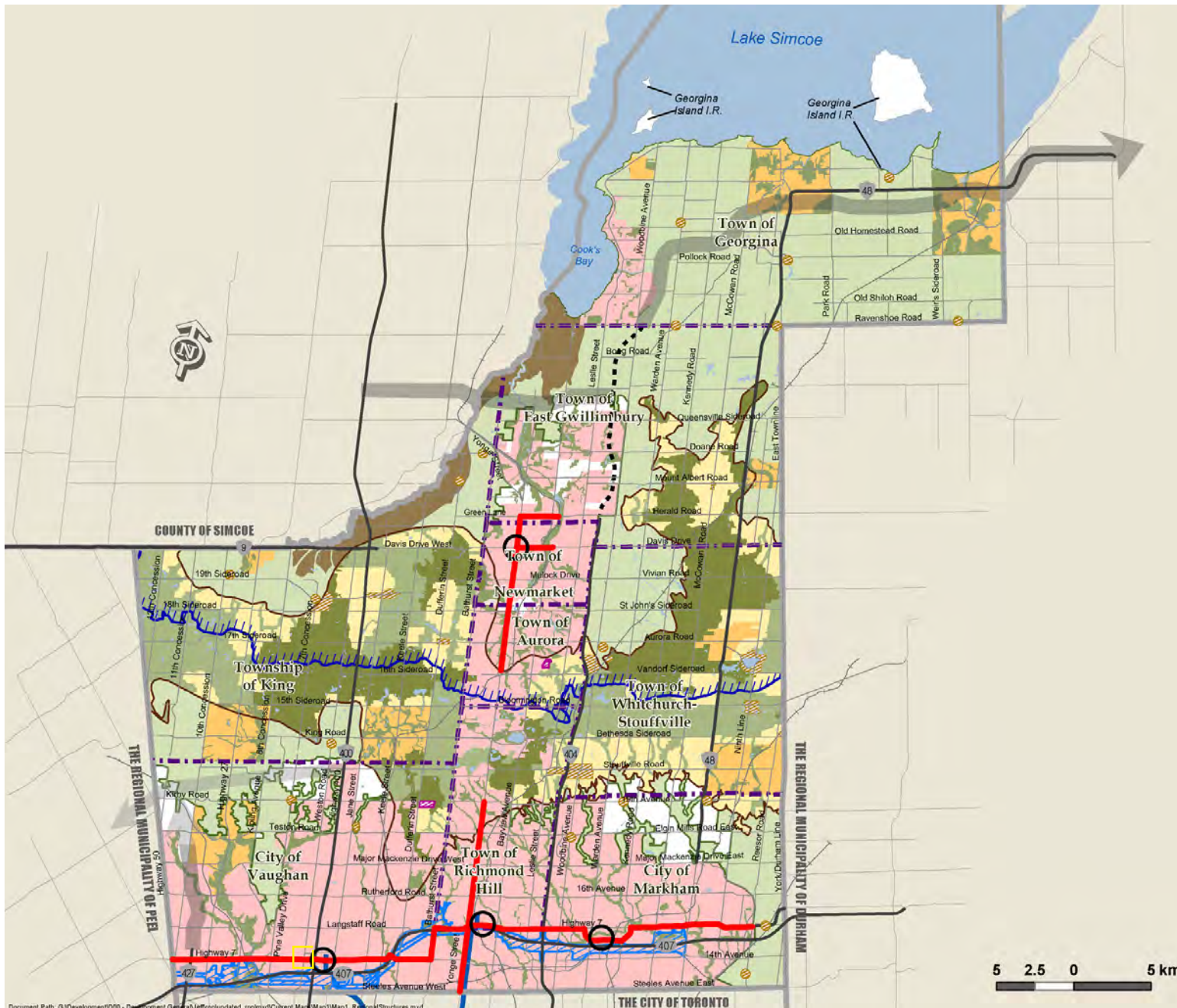
- Lands within a reasonable and direct walking distance from all planned subway stations, and

select rapid transit stations as identified by local municipalities

- Major transit station areas immediately adjacent to transit stations and terminals, including GO transit
- Large and/or contiguous properties that are under-utilized and are appropriate and desirable locations for redevelopment or intensification

The policies outlined in Section 5.4.6 instruct local municipalities to prepare comprehensive secondary plans for Regional Centres and Key Development Areas. The City of Vaughan, through this study, has begun to undertake this process for the Weston 7 area. These plans shall include minimum density requirements and targets, and will also establish a fine-grained street grid, a pedestrian-oriented built form and will seek to concentrate development close to rapid transit stations. As per Section 5.4.34, Key Development Areas will support an overall long term density target of 2.5 floor space index for developable areas. Because Key Development Areas are directed to accommodate growth, policies ensure such growth is equitable and provides housing options for all households. Section 3.5.7 directs a minimum 35 per cent of new housing units in Regional Centres and Key Development Areas to be affordable, offering a range of affordability for low and moderate income households.

The land use alternatives created in Phase 1 of the Weston 7 Secondary Plan process will be consistent with the direction for KDAs in the York Region Official Plan. The YROP will also inform the development of the Weston 7 Secondary Plan in later stages of work.



MAP 1 REGIONAL STRUCTURE

- Regional Centre
- Regional Corridor
- Subway Extension
- Urban Area
- Towns and Villages
- Regional Greenlands System (Schematic, See Map 2 for details)
- Oak Ridges Moraine Conservation Plan**
- Oak Ridges Moraine Boundary
- Natural Core Area Designation
- Natural Linkage Area Designation
- Countryside Area Designation/Hamlet
- Greenbelt Plan**
- Greenbelt Plan Area Boundary
- Greenbelt Protected Countryside/Hamlet
- Holland Marsh Specialty Crop Area
- Area Subject to the Lake Simcoe Protection Plan
- Parkway Belt West Plan
- Minister's Decision on ORMCP Designation Deferred
- Provincial Highways**
- Existing
- Controlled Access Highway**
- Under Construction
- Planned Corridors - Transportation**
- Proposed - EA approved
- Conceptual - Alignment Not Defined
- Municipal Boundary
- Regional Boundary

Note: For detailed land use designations outside of the Urban Area, Towns & Villages and Natural Core and Natural Linkage Areas of the Oak Ridges Moraine Conservation Plan see Map 9 - Agricultural and Rural Area and policy 5.1.12

York Region **yorkmaps**
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Weston 7 Area

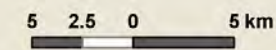


FIGURE 1. Regional Structure, York Region Official Plan

1.3.2. City of Vaughan Official Plan

Adopted in 2010, the City of Vaughan's Official Plan (VOP 2010) forms a part of the City's overall Growth Management Strategy, which, in addition to the OP, includes *Vision 2020*, the City's strategic plan, and *Green Directions*, the City's Sustainability Master Plan. The Official Plan is the primary planning tool used to guide development in Vaughan to 2031.

The City of Vaughan OP acknowledges population and employment growth pressures that exist within the City, supported by a number of factors, including strong road and rail transportation links, and its central location within the Greater Golden Horseshoe (GGH). Through to 2031, Vaughan is expected to accommodate 29% of population growth in the York Region (approximately 167,000 new residents) and 33% of York Region employment growth (103,900 jobs). Vaughan's OP aims to direct this growth in a sustainable way, establishing a land use planning framework "that will foster the continued transformation of Vaughan into a vibrant and sustainable city..." (2.1.2.1).

Vaughan's *Vision for Transformation* is articulated through 8 goals, most of which will have direct bearing on the Weston 7 Secondary plan. Relevant OP Goals are:

- **Strong and Diverse Communities:** "maintain the stability of existing residential communities, direct well designed, context-sensitive growth to strictly defined areas, and provide for a wide range of housing choices and a full range of community services within each community."
- **A Diverse Economy:** "[attract] a wider range of employment including major office

uses, research, and health and education employment. These uses can be located in mixed-use centres, thereby also supporting transit, and preserving designated employment lands for other forms of economic activities..."

- **Moving Around Without a Car:** "the Official Plan will focus on implementing planning and design policies that make walking, cycling and transit use realistic options for moving around."
- **Design Excellence and Memorable Places:** "... the City as a whole has the opportunity to develop the various attributes that make wonderful built landscapes. Cities take time to develop a sense of place and the next phase of Vaughan's evolution, guided by this Official Plan, will focus not only on accommodating growth, but doing so in a manner that contributes to the overall beauty of the City."
- **A Green and Sustainable city:** "The main principles of sustainable land-use planning relate to the protection of the natural environment, protection of agricultural lands, and the ability for people to live in communities that minimize energy use, water consumption and solid waste generation, encouraging the adaptive reuse of older and/or historical buildings in support of sustainable development and allow for alternative transportation choices."
- **Directing Growth to Appropriate Locations:** "a shift in emphasis from the development of new communities in greenfield areas to the promotion of intensification in areas of the City with the infrastructure capacity and existing or planned transit service to accommodate growth."

Overarching policies to implement the City of Vaughan's new direction include a range of policies directly relevant to the Weston 7 Secondary Plan. These include:

- 2.1.3.2 (b): directing a minimum of 29,300 residential units through intensification within the built boundary;
- 2.1.3.2 (c): identifying *Intensification Areas*, consistent with the intensification objectives of this Plan and the Regional Official Plan, as the primary locations for accommodating *intensification*;
- 2.1.3.2 (h): identifying a hierarchy of mixed-use centres to be developed in a compact form and at appropriate densities to support transit service and promote walking and cycling;
- 2.1.3.2 (i): promoting public transit use by encouraging transit-supportive densities and an appropriate mix of uses along transit routes, and particularly at Viva stations, GO stations and future rapid transit stations;
- 2.1.3.2 (j): providing for a diversity of housing opportunities in terms of tenure, affordability, size and form;
- 2.1.3.2 (k): establishing a culture of design excellence with an emphasis on providing for a high quality public realm, appropriate built form and beautiful architecture through all new development;
- 2.1.3.2 (l): ensuring environmental sustainability through the protection of natural features and ecological functions and through the establishment of green development standards to be achieved by all new development;
- 2.1.3.2 (m): developing a linked system of active and passive parks, greenways and Natural Areas throughout the City;



Weston 7 Area

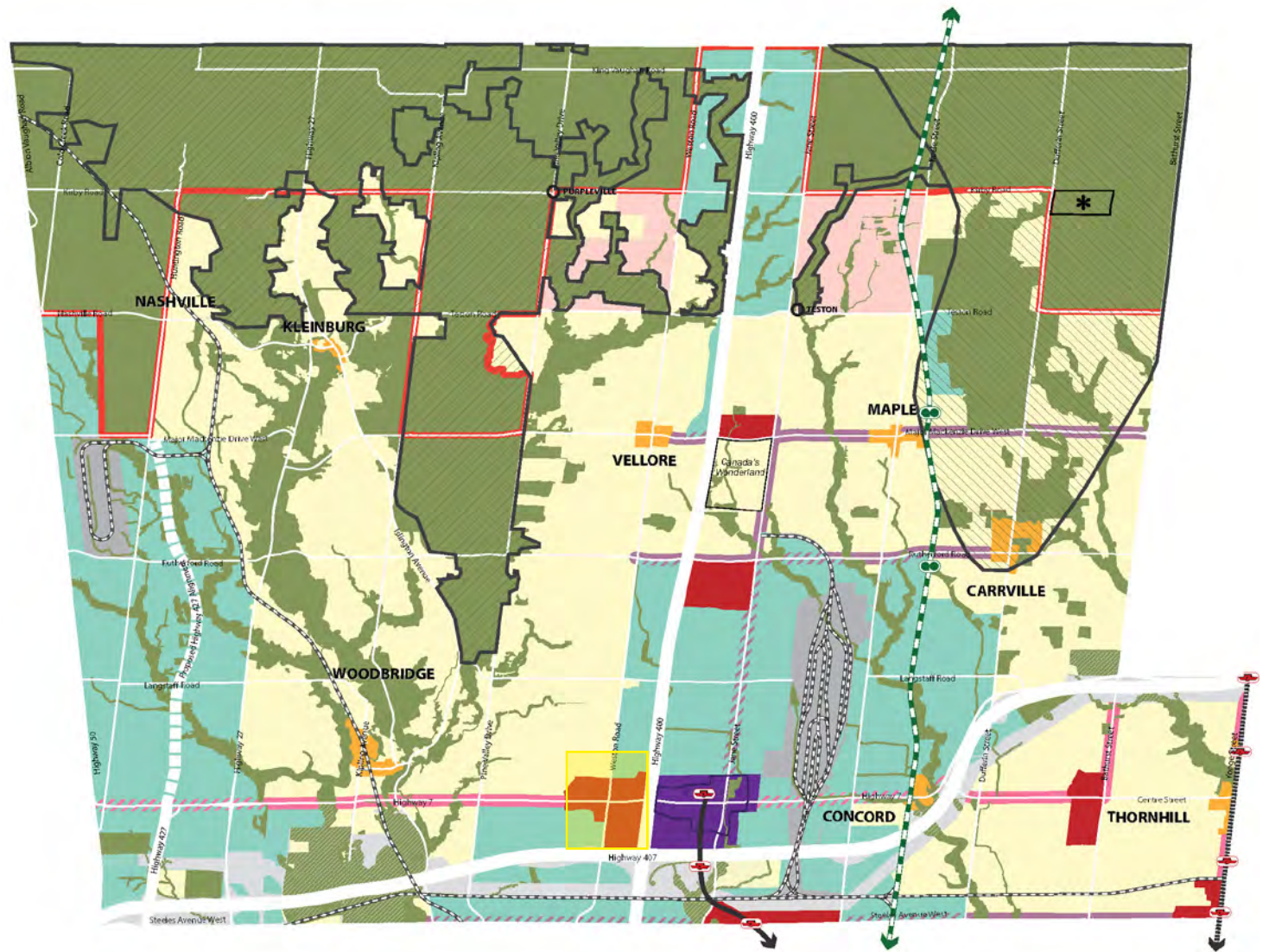


FIGURE 2. Urban Structure, City of Vaughan

- 2.1.3.2 (o): ensuring development is phased in an appropriate manner to allow for the creation of complete communities and that such phasing is coordinated with infrastructure investments made by the City and York Region; and
- 2.1.3.2 (p): planning and designing communities in a manner that facilitates inclusivity and accessibility for residents, workers and visitors.

Vaughan's OP policies and objectives are translated into a number of Urban Structure elements, each with distinct objectives and policies. These elements include *Stable Areas*-Natural Areas and Countryside, Community Areas, Employment Areas, New Community areas, Rail Facilities as well as *Intensification Areas*, which include the Vaughan Metropolitan Centre (VMC), Primary Centres, Local Centres, and Regional and Primary Intensification Corridors. The direction of the OP is that *Intensification Areas* will be the primary locations for the accommodation of Vaughan's 45% intensification target.

The Weston 7 area is a *Primary Centre* within the OP. Highway 7, which transects the area from east to west, is a *Regional Intensification Corridor*. OP policy direction for *Primary Centres* (2.2.5.6) includes a focus on mixed-use development, including a mix of non-residential uses such as retail, office, institutional and community facilities that serve both the local and City-wide population. It also directs that the area "develop with a mix of housing types and tenures, including housing suitable for seniors and families with children and affordable housing." The area should be planned with densities that are supportive of public transit. The transportation network should

include a fine-grained street network that is suitable to pedestrians and cyclists, with active uses at grade for a more pedestrian-friendly environment. The area should include well designed public open spaces appropriate to the local context, and should "be designed and developed to implement appropriate transition of intensity and use to surrounding Community Areas, and/or separation from adjacent Employment Areas."

The VMC neighbours Weston 7 to the West, and the relationship between the two areas will be an important consideration of the Weston 7 Secondary Plan. The VMC is intended to become Vaughan's downtown, an area of regional importance centred around the TTC subway station located at Highway 7 and Millway Avenue. Vaughan's greatest densities of people and jobs most significant mix of uses will be located here. Weston 7 will need to be planned to complement the VMC, rather than compete for densities. The mix of uses and densities ought to be lower in Weston 7 than in the VMC, based on the urban structure in VOP 2010. Weston 7 will need to be planned to complement the VMC, rather than compete for densities. Mix of uses and densities will be lower in Weston 7 than in the VMC.

Vaughan's OP includes a number of Environmental policy directions relevant to the Weston 7 Secondary plan, including:

- "supporting the ability of Vaughan's residents to live in a manner that has a low impact on the natural environment" (3.1.1.2);
- "To require new stormwater management facilities to be designed as local amenities" adjacent to open spaces and parks, as publically accessible open space, and are

designed "as naturalized or formal landscapes that are complementary to adjacent features" (3.6.6.6);

- "That low-impact development techniques, as described in the Toronto and Region Conservation Authority's Low Impact Development Stormwater Management Planning and Design Guide (2010), will be established, where appropriate, for all new Block Plans, or Site Plans for large development sites, in order to protect groundwater resources and aquatic habitat, and overall groundwater flow patterns." (3.6.2.2); and
- Reduction in air emissions and impacts from air emissions through a number of strategies, including "increasing opportunities for natural carbon sequestration by establishing annual targets to grow the urban forest through tree planting programs" and "supporting alternatives to single occupant vehicle use and automobile travel" (3.7.1.2);

The VOP's direction for the transportation recognizes the foundational linkage between land use and transportation, and that a compact pattern of urban growth is required to support pedestrian, cyclist and transit use. Relevant transportation policies include:

- "To recognize the integrated nature of land use, urban design, and transportation in land use planning decisions that support a full range of transportation options, and specifically prioritize opportunities to enhance walking, cycling and transit options." (4.1.1.3);
- "That Intensification Areas are priorities for transit investments. Land-use planning decisions within Intensification Areas should maximize the use of existing and planned transit infrastructure in accordance with

the policies of this plan, taking into account the existing and planned level of transit service and potential impacts on nearby neighbourhoods.” (4.1.1.4);

- “To develop a connected and continuous, grid-like street network that supports convenient and efficient travel by all modes of transportation and to discourage the development of street types that disrupt the grid network...”(4.2.1.5);
- “To encourage and support the early implementation of transit in a dedicated transitway within the Highway 407 and 427 corridors...” (4.2.1.12) and;
- “To encourage and support grade separated crossings of Provincial highways as needed at arterial and collector streets that would accommodate all modes of travel, and to encourage and support pedestrian and bicycle crossings of Provincial highways in areas of high demand or strategic need. The City will seek to secure land for such purposes, where warranted, through the development approval process” (4.2.1.13).

In addition to the broad policies outlined above, the VOP provides direction for specific land use areas. High-rise Residential, Mid-Rise Mixed Use, and Community Commercial Mixed-use apply to the Weston 7 area.

Mid-rise Mixed Use areas are located within intensification areas in Vaughan’s OP, and are planned to provide for a mix of residential, retail, community and institutional uses. Permitted building types are mid-rise buildings (generally between 5 and 12 storeys in height) and public and private institutional buildings. In addition, Townhouses, Stacked Townhouses and Low-Rise Buildings are permitted within 70 metres of

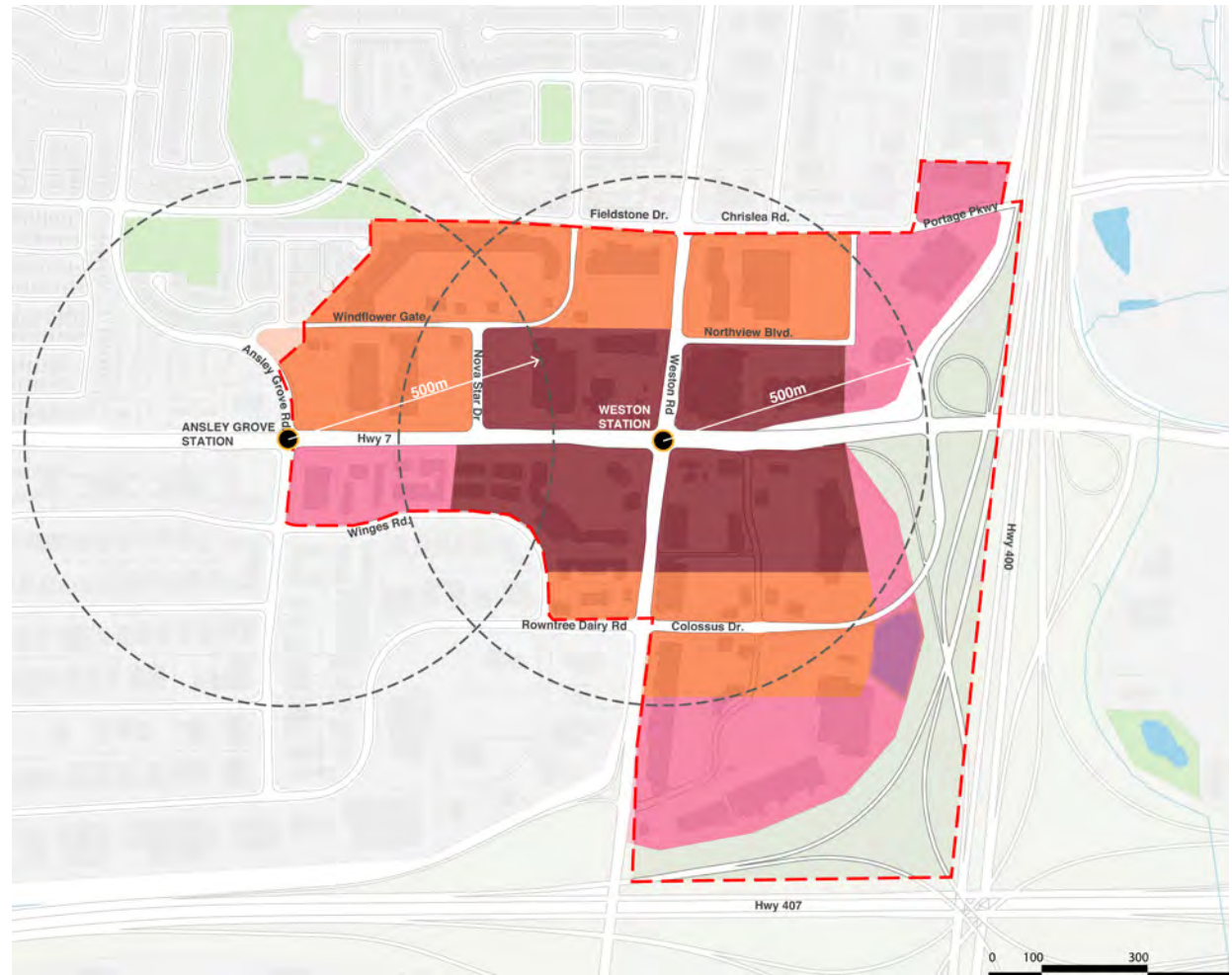


FIGURE 3. Land Use Designations



areas designated as Low-Rise Residential, such as areas to the north of the area.

High-rise Mixed Use areas are located within intensification areas within Vaughan's OP, and are planned for a mix of residential, retail, community and institutional uses. Permitted uses in these areas include Residential Units, Home Occupations, Community Facilities, Cultural Uses, Retail Uses, Office Uses, Parking Garages, Hotels, and Gas Stations. Frontages facing arterial and collector streets are to predominantly consist of retail uses and other active uses. Building types permitted in these areas include High-rise Buildings (over 12 storeys), Mid-rise Buildings (5 to 12 storeys), public and private institutional buildings, and gas stations (9.2.2.6). As with the Mid-Rise Residential areas, Townhouses, Stacked Townhouses and Low-Rise Buildings are permitted within 70 metres of areas designated as Low-Rise Residential.

Community Commercial Mixed Use areas are primarily located along intensification corridors, and are planned for predominantly commercial uses and non-residential intensification. Uses permitted in these areas, within an intensification area are office uses, hotel, cultural and entertainment uses, retail uses, and gas stations. Permitted building types are low-rise buildings, mid-rise buildings, public and private institutional buildings, and gas stations.

The VOP provides clear direction for developing a denser, more transit supportive urban form in the Weston 7 secondary plan area, with a finer grained street network that supports

active transportation, a range of housing types, tenures and affordability and development that supports the City's sustainability goals. The Weston 7 Secondary Plan will also need to recognize the relationship of this Primary Centre with the neighbouring VMC, and ensure that development is complementary to the role of the VMC as Vaughan's urban core. The Weston 7 Secondary plan will form a part of the Vaughan Official Plan, and policies within should be developed to reflect the directions of the VOP.

1.3.3. City of Vaughan Zoning By-law

The Weston 7 SPA is governed by the City of Vaughan Comprehensive Zoning By-Law 1-88, as amended. The bylaw was passed by the council of the then Town of Vaughan in 1988. The Zoning By-law identifies the as-of-right land use, density and height permissions as well as a variety of required built form standards for new development.

The current zoning in place for properties located in the Weston 7 SPA is not reflective of the intent of the current policy environment as identified in the City of Vaughan's OP, direction in the ROP, or the Growth Plan. Existing zoning allows for primarily low-intensity commercial, in addition to some employment and open space parcels. For C1, C2, C5, C6 and C7 parcels, heights are limited to a maximum of 11m, and lot coverage is limited to 30%-50%. Some parcels zoned as C9 and C10 allow for greater heights, up to 25m.

Areas surrounding the SPA include EM1 (Prestige Employment) to the south, commercial (C1 and C2) to the west, and a variety of residential districts to the north, including single family detached and semi-detached (R5), street townhouses (RM1), and apartments (RA1). This medium intensity residential located at the interface between established communities to the north and the Weston 7 SPA could

contribute to the transition between the two areas.

1.3.4. City of Vaughan Zoning By-law Review

At the time of this report, the City of Vaughan is undertaking a City-wide comprehensive review of its Zoning By-law. This review is intended to help ensure the Zoning By-law implements the Official Plan and accurately reflects the intent of policy direction under one consolidated, streamlined Zoning By-law. At this time, it is anticipated to be passed in Winter 2019.

1.4. Guidelines and Plans

A number of non-statutory documents are also relevant to review and understand in relationship of planning for Weston 7. The following section reviews City, Regional and Provincial guidelines that will impact the development of the Weston 7 Secondary plan.

1.4.1. York Region Best Practices for Planning Centres and Corridors

An important goal for York Region and its local municipalities is to concentrate planned growth within the centres of those municipalities, including Vaughan and the Highway 7 corridor. The York Region Best Practices for Planning Centres and Corridors document does not provide policy direction or guidelines, but is intended as a resource to assist with planning and developing centres and corridors, through an overview of the context, key challenges and approaches to address these challenges, and case study examples.

The wide range challenges identified in the Centres and Corridors Best Practices document are directly relevant to the development of the Weston 7 Secondary plan. These include: planning infrastructure at all scales, phasing

and coordination of infrastructure, responding to roads that were initially designed for a suburban context and resistance to creating more fine-grained street networks, oversupply of parking and high parking ratios, challenges with parkland acquisition, land requirements for storm water management, attracting employment, ensuring affordable housing provision, and achieving design excellence. Beyond this wide range of challenges, the Centres and Corridors Best Practices document also provides a wide range of approaches to addressing these challenges, many of which Vaughan is currently undergoing. These approaches include: integrated planning (ongoing communication and cooperation among infrastructure providers and developers), Infrastructure working groups, front-ending significant public investment, providing development incentives (such as development charge credits and cost sharing agreements), developing complete street standards and guidelines, grid patterns, transportation demand management, reduced parking standards, stratified parking, modifying parkland dedication requirements, optimizing access to existing parks networks. The approaches and strategies from the Centres and Corridors Best Practices document will should be considered in the ongoing development of the Weston 7 Secondary plan.

1.4.2 Active Together Master Plan

The City of Vaughan’s 2018 Active Together Master Plan (ATMP) is used to guide City departments in the provision of parks and open space areas, recreation programs and facilities, libraries, and other community services and facilities. In addition to documenting the existing inventory of community assets, the ATMP also

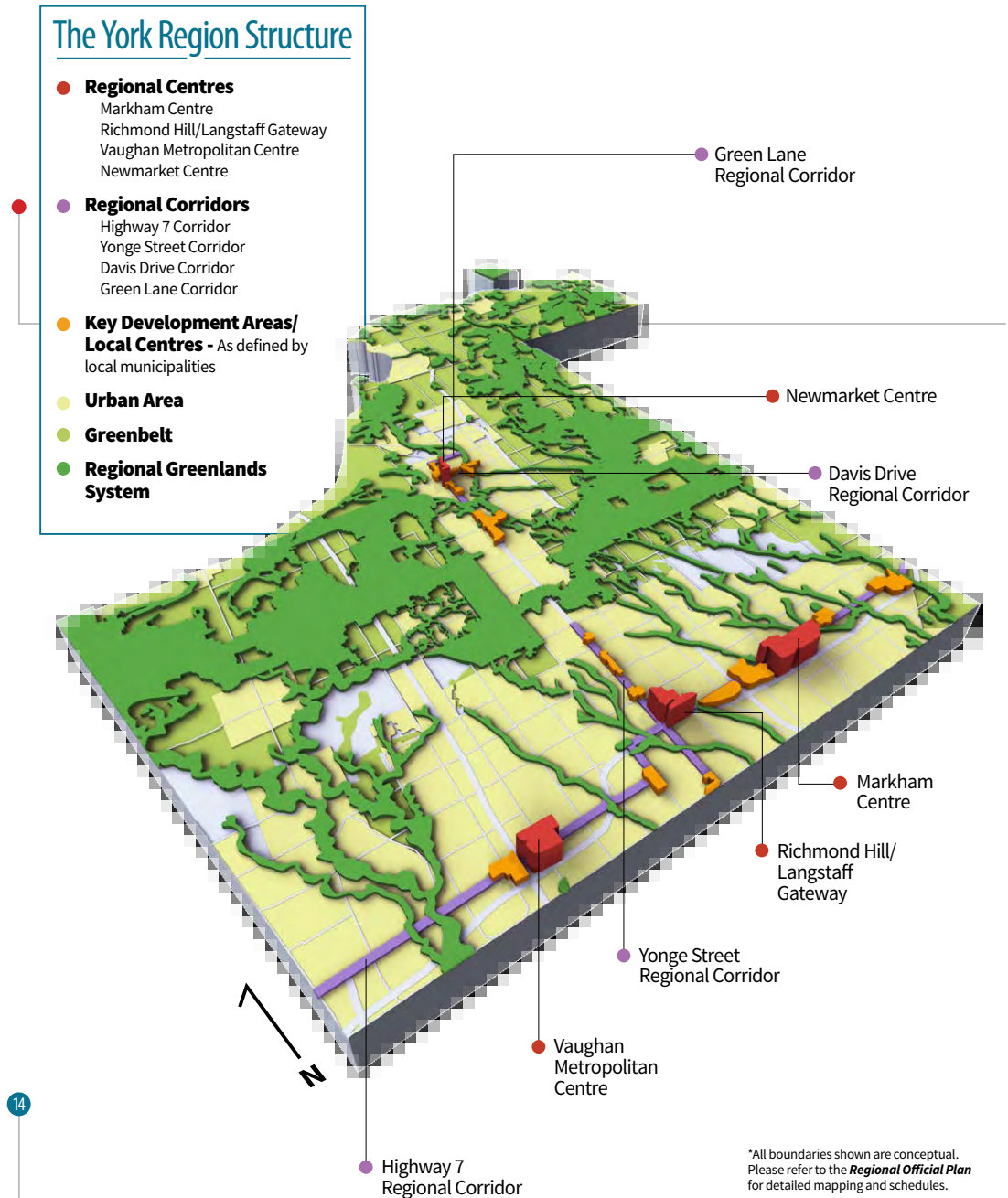


FIGURE 4. The York Region Structure, Best Practices for Planning Centres and Corridors

establishes provision targets to maintain the high quality of life in the City of Vaughan as the City continues to grow.

The City uses a parkland per capita measure as a tool to monitor how the City is achieving the active parkland goals relative to past measurement and future projections. While parkland provision varies across the City, the current city-wide level of provision is 1.86 hectares per 1,000 residents. Based on anticipated population growth in Vaughan of more than 100,000 residents by 2031, the ATMP establishes a target provision rate of 2.0 hectares per 1,000 residents, applied to future growth.

The ATMP also establishes current levels of provision for a range of outdoor recreation facilities including soccer fields, ball diamonds, basketball courts, pools, off-leash dog parks and playgrounds, among others. The plan establishes targeted levels of provision based on future population growth, trends in sports and leisure, and feedback from public consultation. The planning process for Weston 7 will need to consider the targets outlined in the ATMP and devise a strategy for accommodating the appropriate amount of parkland, indoor and outdoor recreation facilities. Further exploration of the direction in the Active Together Master Plan as related to the projected population and employment projections for Weston 7 is found in the Community Facilities Impact Study in Appendix 6.

1.4.3. Parks Redevelopment Strategy

The City of Vaughan Parks Redevelopment Strategy (Parks Strategy) provides a decision-making framework to establish priorities for park redevelopment in the City in order to ensure resources are targeted where they are needed most. The Parks Strategy recognizes that parks are a shared resource, and are an

important element in creating healthy, complete communities. The goals of the Parks Strategy are:

- “To ensure that the City’s parks and open space facilities continue to be responsive to the current and future needs of Vaughan communities in a responsible and cost effective manner.”; and
- “To provide a comprehensive strategy for making investments into the renewal of parks and open space facilities that support an appropriate level of service provision and the City’s commitment to Service Excellence.”

While the focus of this strategy is the redevelopment of existing parks in order to optimize the current parks system, recommendations within could have implications for redevelopment of parks in neighbouring communities that could serve future residents of Weston 7. Population growth in Vaughan is putting pressure on parks that were not initially designed for higher population densities. This pressure is greatest in areas with high density and growth.

The Parks Strategy states that parks “that are adjacent or within close proximity to sizeable residential infill and intensification projects are primary candidates for redevelopment consideration” (7.1). The Parks Strategy identifies parks without major amenities serving major intensification areas as a redevelopment priority, however no such parks are identified near the Weston 7 area. The Weston 7 area contains no public park spaces today. Blue Willow Square and Giovanni Caboto, located to the north of Weston 7, were not identified as candidate sites for redevelopment in the current Parks Strategy, although redevelopment prioritization of these parks may be a future consideration in light of planned population growth in the area. Further

exploration of the parks redevelopment strategy as related to the projected population and employment projections for Weston 7 is found in the Community Facilities Impact Study in Appendix 6.

1.4.4. Ontario’s Transit-Supportive Guidelines

The Transit-Supportive Guidelines produced by the Ontario Ministry of Transportation (2012) are not a statement of provincial policy, but identify tools to meet the objective of building transit-supportive communities, a key goal outlined in the Provincial Policy Statement and Growth Plan. The Transit Supportive Guidelines contain strategies, case studies and resources to promote development patterns that make transit less expensive, less circuitous and more convenient, with an overarching goal to enhance service and make transit more appealing to potential users. Weston 7 is situated in the urban area and is identified as a key development area.

Section 1.1.7 articulates how to coordinate land uses alongside existing and proposed transit investments to ensure that appropriate densities and a mix of uses are provided in proximity to transit service. According to the Transit Supportive Guidelines, such as The Highway 7 rapidway centre-lane BRT stations have a suggested minimum density of 72 units per hectare and 160 residents and jobs combined. Because these are suggested minimum densities, they are not intended to be applied as standards, yet such numbers demonstrate the intent to increase density at transit nodes, within a 5-10 minute walk of the station.

Section 2.4.3 explains that the planning for station areas should take into consideration the potential for intensification over time. This can allow station facilities and infrastructure to be designed and located so that they do not

hinder the long-term development potential of the station area. The Highway 7 rapidway has the potential to attract new riders, and poses an opportunity to redevelop underutilized lands used for surface parking.

Transit Supportive Guidelines, along with the York Region Transit Oriented Development Guidelines, will inform the policy recommendations anticipated as part of the final recommendations of this study.

1.4.5. York Region Transit Oriented Development Guidelines

The purpose of the Regional Transit-Oriented Development Guidelines (2006) is to advance the implementation of York Region's planned urban structure of Regional Centres, linked by Regional Corridors, served by public transit. These guidelines reflect the vision articulated in the Regional Official Plan to develop in a way that is compact, well-designed, mixed-use, pedestrian-friendly and transit-supportive.

Transit-Oriented Development (TOD) is an approach to planning that recognizes the fundamental relationship between growth and transit access, and aims to shape development in a way that reflects the needs of transit users, and the transit service. Several key elements to TOD include:

- Development is concentrated around transit stations
- Buildings are in a compact form and well-designed
- A mix of land uses are provided along transit routes, including a mix of commercial and residential in one building
- Activity-generating uses, like schools and shopping, are located along transit routes

- Buildings and the spaces in between are connected by sidewalks that lead to transit stations

The guidelines seek to increase transit ridership by concentrating people-serving uses around transit stops, and clustering higher density mixed-use development. The Weston 7 SPA is defined by auto-oriented development and large blocks, and TOD guidelines emphasize that such sites represent opportunities for compact redevelopment. Guidelines that link buildings and the spaces between them to transit are important to consider because the Weston 7 SPA will contain 2 major transit stations along Highway 7, at Weston Road and Ansley Grove. Ultimately, transit stations are encouraged to integrate into the surrounding neighbourhood by making connections as direct as possible and barrier free. The York Region TOD Guidelines will inform the creation of land use and development options for the SPA and will be an input into the Secondary Plan process.

With regard to the Weston 7 SPA, mixed-use development is envisioned to support pedestrian activity and TOD guidelines re-inforce these principles, by encouraging activity-generating uses at street level, and adjusting the quantity of parking to reflect the level of transit service available in the area.

1.4.6. Community Improvement Plan

The City of Vaughan Council enacted the Community Improvement Plan (CIP) bylaw 177-2015 in November 2015. The bylaw was developed in response to the fact that primary centres and intensification corridors are "fundamental building blocks of the city's growth management strategy, and essential to the long-term economic vibrancy of the City as

an office employment centre". The CIP aims to incentivize office development in the VMC and Weston 7 areas. At the time of the development of this CIP, development applications in the two areas were more heavily skewed towards high-rise residential development. These two centres are planned as mixed use areas in the VOP, and this bylaw is intended to support a mix of uses. While recent investments in new transit infrastructure in these two areas is supporting intensification, "transit investment alone is not enough to overcome market disadvantages in Vaughan."

The CIP aims to encourage additional office development through three categories of tools: Development Charge (DC) grants or reductions, Tax Increment Equivalent Grants, and Cash-in-lieu of parkland reductions. Office developments that are located within the designated areas are eligible, provided they include a minimum of 7,000 square metres of new office space. The by-law will expire once 139,355 square metres of office space has qualified under the by-law, or five years from enactment, whichever occurs first.

1.4.7. Vaughan City Wide Urban Design Guidelines

The City of Vaughan's City Wide Urban Design Guidelines (UDG) were adopted by Vaughan Council in January 2018. The UDG provide performance-based directions for building and site design. The UDG provide for a level of design excellence and consistency across the City- they apply to all building types except for low density residential development (such as single family, semi-detached, duplex and triplex housing). The focus of the UDG are primarily on intensification areas such as Weston 7. The performance

standards outlined in the UDG are intended to be applied throughout the development process, and are identified in pre-consultation meetings and carried through the process.

As stated by the UDG, development in Vaughan is guided by the following principles:

1. Reflect Vaughan's unique context by promoting a green City development approach and contextual analysis that responds to sense of place
2. Promote Mid-Rise development as the 'missing middle' to connect nodes including historic settlement areas and employment areas
3. Encourage creativity and variety through context specific guidelines that respond to adjacent land uses, built form conditions and natural and cultural heritage
4. Frame and activate the public realm
5. Create a balance between built form and open space
6. Address interim development and changing conditions
7. Promote active transportation and healthy environments.

The UDG aims to realize these principles through a range of performance standards pertaining to site context, site and building design, landscape typologies, and building uses. While the majority of the performance standards in the UDG will apply to sites in Weston 7 at various stages of development, some sample standards include:

- Streets and Blocks (4.3.1) - new blocks should be a maximum of 250 metres in length to encourage walkable blocks, with mid-block connections.

- Development adjacent to employment and/or highways (4.3.9) should not impact the long term feasibility of employment lands, and should include setbacks, sound buffering and screening.
- Building location and orientation (5.2.1) - buildings should be positioned to frame adjacent streets, while minimizing the visual impact of parking, servicing and loading areas.
- Surface parking (5.2.3) - should be designed to reduce overall appearance through proper location and landscaping. Parking should not be located between a public road and the front or side yard of an institutional, low-rise, mid-rise or high-rise building.
- Buildings on Intensification Corridors (5.3.1) - will promote the Vaughan Green Approach by creating a consistent landscaped area at grade level.
- The Green Approach (6.1.1)- "create a network of green spaces, edges and buffers that collectively reconnect and enhance the City's existing natural systems while increasing the tree canopy."
- Mixed Use Buildings (7.2.1) - outlines specific standards for the design of mixed use buildings.

The principles and performance standards of the City of Vaughan UDG are well aligned with the general direction for intensification in the Weston 7 area, supporting excellence in design, appropriate transitions to surrounding sensitive land uses, an active public realm, and pedestrian and active transportation supportive environments. These performance standards will inform the development of the Weston 7

secondary plan, and should be used to support high-quality development in the area in future phases.

1.4.8. Vaughan City Wide Streetscape Implementation Manual

The Vaughan City Wide Streetscape Implementation Manual (Streetscape Manual) is an integrated design and financial framework intended to manage the design and costing of streetscapes in intensification areas. The Streetscape Manual does not address roadways or street cross-sections, but rather the public realm component- from the curb to building frontage. The intent of these streetscape improvements is to support active transportation, provide consistent quality of design, and design streets that are appropriate to their context.

The Streetscape Manual includes a context-sensitive design framework to guide streetscape improvement decision-making. The three factors considered are the road classification, streetscape type, and level of service. Road classifications refer to the classification within Vaughan's Transportation Master Plan. Streetscape types refer to the surrounding land uses or road functions, and include four categories- mixed use commercial, transit intensification corridor, technology/office, and neighbourhood. Finally, level of service refers to a consolidation of a number of factors, and falls into one of three categories- standard urban, enhanced, and premium.

The mixed-use, higher intensity quality of future development in the Weston 7 area will mean that a greater importance needs to be given to developing a quality pedestrian realm. The streetscape design guidelines provided in

the Streetscape Manual will be considered in preparing the land use concepts that will set the policy directions of the Weston 7 Secondary Plan. Further, the Streetscape Manual will be an important resource and guide in the Weston 7 Secondary Plan's implementation.

1.4.9. Green Directions Vaughan

Green Directions Vaughan was first issued in 2009 and as of 2018 is undergoing an update. Green Directions is Vaughan's city-wide sustainability plan, intended to help shape future development in Vaughan in a way that achieves a healthy natural environment, vibrant communities and a strong economy. Six goals structure the Green Directions document including:

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

A detailed description of Green Directions Vaughan is found in Urban Equation's Sustainability Analysis report, found in Appendix 3. The policy recommendations developed for the future growth of the Weston 7 area will need

to consider the Green Directions document as well as the update and reflect site-specific ways to reinforce these environmental directions on a local community level. The work of Urban Equation found in their Sustainability Analysis document takes the first step in applying this kind of thinking to Weston 7, including site-specific recommendations to consider in the future policy development for the area.

1.5. Conclusions

The policy framework for the Weston 7 area is one that is supportive of growth and intensification. From the provincial to the local level, the Weston 7 area is clearly identified as a strategic location where a portion of Vaughan's expected population and employment growth is to be accommodated. Phase 1 of the Weston 7 Secondary Plan development process will culminate in a final report that include draft policy directions for Weston 7. The recommendations developed as part of this work will be consistent with the policies described above and provide a framework for future stages of work leading up to the draft Secondary Plan.

COMMUNITY SERVICES AND FACILITIES IMPACT STUDY

APPENDIX 6

October 29, 2018



Introduction

This Community Services and Facilities Impact Study (CSFIS) has been prepared as part of the background report for the Highway 7 and Weston Road Secondary Plan Study Phase 1. A CSFIS is typically required in support of site-specific secondary plans, and is intended to provide the City of Vaughan an assessment of the basic community services needs for the development of sustainable communities that offer a high quality of life. The CSFIS is a tool the City can employ to address service gaps, identify potential impacts future growth may have, and set planning priorities.

This study includes three sections. First, a demographic profile of the study area is presented, based on 2016 Census data related to age, household composition, labour force statistics, socio-economic status, immigration, and other considerations. This is followed by an inventory of existing community services and facilities that serve the study area, based on data provided by the City of Vaughan. This section considers the current level of provision of various services in relation to the targeted provision rates outlined in the 2018 Active Together Master Plan (ATMP). This section also assesses how provision levels may change over the long-term planning horizon, based on the development scenarios prepared by Hemson Consulting Ltd. for the Secondary Plan.

The final section is a summary of service gaps and the potential impacts of future growth in the Weston 7 Secondary Plan Area. Greater emphasis is placed on more substantial community services and facilities such as parks, libraries, schools, and community centres. The various components that constitute these larger

facilities (e.g. playgrounds, basketball courts, gymnasiums) may be the result of more detailed planning work and community consultation.

This CSFIS assesses future provision of community services and facilities for each of the five development scenarios prepared by Hemson Consulting Ltd., with the 160 p+j/ha being the current density target as per the 2010 Official Plan. As the City continues to explore the future of the planning area in regards to density targets, this document should be consulted to understand the implications from a community services and facilities perspective.

Study Area

Two study areas have been delineated for the purposes of this CSFIS. For the purposes of compiling an inventory of community services and facilities, a two-kilometre walkshed has been created, extending from the boundary of the planning area. This represents a reasonable travel time and distance to access community services and facilities, while taking into consideration significant physical barriers such as Highway 400 and Highway 407. The walkshed is primarily for qualitative and visual purposes, as the ATMP assigns service areas for most facilities and services. Where the ATMP has not assigned a service area, the walkshed is used to determine whether a specific facility should be included in the inventory.

A demographic study area has been delineated to prepare a demographic profile. This study area comprises Statistics Canada dissemination areas which overlap with the walkshed described above. In most instances, the overlapping dissemination areas roughly align with the walkshed boundary. However, in areas with relatively low population density, such as the

employment lands east of Highway 400 and south of Highway 407, dissemination areas are much larger and extend beyond the walkshed.

A portion of the study area is located within the boundaries of the City of Toronto. As residents of Vaughan may access services in Toronto and vice versa, this area has not been excluded in either the inventory of services and facilities or the demographic analysis.

Demographic Profile

Methodology and Overview

This section presents a demographic analysis of the study area. The demographic analysis is based on data from the 2016 Census of Population by Statistics Canada, and includes findings on population, household and family composition, housing, immigration, labour force activity, education, and socio-economic characteristics, as required by the City of Vaughan's terms of reference for Community Services and Facilities Impact Studies. As described above, the demographic study area comprises the 29 dissemination areas which overlap with the walkshed boundary. For comparative purposes, data for the City of Vaughan is shown alongside.

	Study Area	Vaughan
2016 population	24,590	306,233
2011 population	25,681	288,301
Population change	-4.25	6.22

Table 1: Population

Overall Population

The 2016 Census shows a total population of 24,590 in the demographic study area¹. This represents a decline of 4.3% or 1,091 residents over 2011. This is substantially lower than the growth rate of the City of Vaughan, which grew by 6.2% during the same period, making it the 17th fastest-growing city among the country's 100 largest municipalities.

In absolute terms, the 20-24 age cohort experienced the greatest decline since 2011, followed by the 40-44 and 45-49 age cohorts. All age cohorts 29 years of age experienced absolute decline. Meanwhile, the 65-69, 75-79 and 85+ age cohorts experienced the greatest absolute gain. In terms of the proportion of the overall population of the demographic study area, the senior population (65+) grew from 19% to 23% between 2011 and 2016 (the proportion of the 85+ cohort grew by 35%). Meanwhile, the proportion of the City of Vaughan population made up of seniors declined from 16% to 14% during the same period.

The cohorts that experienced the greatest decline in their proportion of the overall population were the 0-4, 10-14 and 20-24 age cohorts. While the City of Vaughan also experienced a proportional decline in the 0-4 age cohort, the greatest proportional decline was among those aged 35-39.

Analysis of the population of the demographic study area suggests that the senior population is growing both in absolute and relative terms, while younger cohorts are declining, again both in absolute and relative terms. While

¹ Of the total population of the demographic study area, 7% (1,857 people) live within the City of Toronto.

these general trends are in line with the City of Vaughan as well as national trends of population aging and declining fertility rates, they are somewhat more intense within the demographic study area. For example, the median age of the study area increased by 8% between 2011 and 2016 (from 45.4 to 48.9 years), compared to an increase of only 6% for the City as a whole (from 37.9 to 40.2 years). Changes in the distribution of population across age cohorts has implications for the nature of recreation opportunities that a population desires, as well as the services that they require. These will be considered in detail in the Community and Social Impact section of this report.

Family Composition

Household size

The composition of households is changing within the demographic study area. In 2011, 37% of households had one or two people, while 63% had three or more. By 2016, the proportion of one- to two-person households grew to 45%, and households with three or more people decreased to 56%. Accordingly, the average household size decreased from 3.2 to 3.0 people.

Couples with children

The 2016 Census shows that 41% of census families in the study area do not have children, compared to 31% of census families in the City of Vaughan. Of the census families with children, 41% have one child, 43% have two children, and 17% of three children or more.

Lone parent families

Within the demographic study area, 15% of census families are headed by a single parent, comparable to the broader City of Vaughan. In both cases, 80% of single-parent families are headed by a female parent, and more than 85% have one or two children.

Housing Type & Tenure

Similar to the wider City of Vaughan, the majority of dwellings (63%) consist of single-detached houses, followed by semi-detached houses (12%) and row houses (10%). Fourteen per cent of the dwellings are apartment type, including duplexes, walkups, and buildings taller than five storeys. Comparable to the City of Vaughan, 88% of households of owned and 11% are rented. Of the existing housing stock, 83% was constructed between 1961 and 2000, with almost half (49%) built between 1981 and 1990. Comparatively, only 22% of the housing stock of Vaughan was built during the 1980s, and 69% was built after 1990.

Immigration

A slightly greater proportion of the demographic study area immigrated to Canada (50% versus 46%). The majority of immigrants in the demographic study area (55%) have been in Canada since before 1981, while a greater proportion of immigrants in the broader City of Vaughan arrived to Canada since 2000 (31% versus 18%).

More than 46% of immigrants living in the demographic study area were born in Italy, compared to 18% of immigrants² in Vaughan. The second most significant source of immigration is India, comprising 8% of the immigrant population. India is the top place of origin of recent immigrants living in the demographic study area, making up 18% of all recent immigrants.

² Recent immigrants include people who obtained landed immigrant or permanent residency status between 2011 and 2016.

Education

The demographic study area has a lower level of educational attainment than the broader City of Vaughan. In the 2016 Census, 70% of the population of Vaughan had a post-secondary certificate, diploma or degree, compared to only 61% of the demographic study area. Similarly, a larger proportion of the demographic study area has a high school diploma (27% versus 21%) or no high school diploma (12% versus 8%).

Of the segment of the demographic study area population with a post-secondary education, a relatively greater number have received a trade or apprenticeship certificate (21% versus 15%) or a college diploma (36% versus 30%), while relatively fewer have received a university degree or diploma (48% versus 58%).

Labour force

The type of occupations that residents of the demographic study area are employed in are comparable to the broader city, though slightly fewer people are employed in management, natural and applied sciences, and health occupations. A greater proportion of the demographic study area is employed in trades, transport and equipment operations (16% versus 11%), which reflects the nature of educational background discussed in the previous section.

The demographic study area has a relatively smaller labour force: 62% of the population 15 years and older as compared to 69%. As previously discussed, the demographic study area is aging at a faster rate than the broader City, and between 2011 and 2016, the work force population (those aged 15 to 64) decreased from 73% to 63% of the overall population. Meanwhile, the work force population of the broader City of Vaughan decreased from 69% to 67%. In 2016, the demographic study area had a slightly lower rate of unemployment than the broader city (5.3% versus 5.8%).

Socio-economic status

Approximately 7% of the population of the demographic study area is considered to be low income, compared to 9% of the population of Vaughan. Within the demographic study area, the senior population (65+) constitutes a greater proportion of the low-income population (22% versus 14%). However, a slightly smaller proportion of the senior population of the demographic study area is low-income (7% versus 9%).

Mean income of households is lower within the demographic study area than the City as a whole: \$95,815 versus \$105,391. By income brackets, a small proportion of the population of the demographic study area has an income of \$70,000 or more (18% versus 24%). Within the demographic study area, a smaller proportion of income is spent on shelter costs. Compared to the City of Vaughan, only 21% of the households spend 30% or more of income on shelter costs (mortgage or rent).

Future population growth

The CSFIS study area is anticipated to experience substantial population growth over the long-term planning horizon. Hemson has prepared five development scenarios for a more urban and mixed use community at Weston 7. The first scenario - 160 p+j/ha - is the current density target as per the 2010 Official Plan. The remaining development scenarios are intended as a tool to explore future possibilities, considering new policy directions for density targets around Major Transit Station Areas, and to understand the implications of additional density from a community services and facilities perspective. In addition to these development outlooks for the Secondary Plan area, the VMC has experienced substantial growth since the implementation of the Vaughan Metropolitan Centre Secondary Plan. An update on development activity within VMC at the April 10, 2013 VMC Steering Committee Meeting indicated that more than 9,700 residential units were approved or proposed, representing a potential population of 19,224. Details on specific development applications within the study area can be found in the appendix.

Considering the growth in VMC and the

Development Scenario	Population
Current	24,590
160 p+j/ha	54,842
200 p+j/ha	58,442
250 p+j/ha	62,932
300 p+j/ha	67,432
400 p+j/ha	76,422

Table 2: Population Projections

development outlook of the Weston 7 Secondary Plan area, the table below outlines the potential population of the study area. These figures are used to assess the level of provision of community services and facilities in subsequent sections of this report.

Community Services & Facilities Inventory & Impact Assessment

This CSFIS is largely based on the 2018 Active Together Master Plan (ATMP). The ATMP is a long-range planning study for parks, recreation and library facilities in Vaughan, undertaken every five years by the City of Vaughan and Vaughan Public Libraries. The ATMP is more than an inventory of existing facilities and services; it considers current provision rates, and also anticipates future needs based on forecasted population growth and targeted provision rates. Therefore, it is a valuable planning tool the City employs to meet its commitment to “providing safe, accessible, and community responsive parks and facilities that appeal to a wide range of interests and abilities”.

The methodology of the ATMP is rooted in provision targets, which are typically population- or user-based. Provision targets take into consideration demographic trends, trends in parks and recreation, benchmarking against other municipalities, and input from public consultation.

In some cases, geographic distribution is taken into account. All residential areas, for example, should be within 500 metres of a neighbourhood park and playground; this corresponds roughly to a 10-minute walk. Other recreation facilities, such as hockey arenas or outdoor swimming pools, are delivered at a regional level.

Despite the ATMP’s foundation in analysis, the provision targets of the ATMP are meant to be applied flexibly, and may be modified in order to be responsive to specific local needs or changing needs. For example, the ATMP recognizes the added challenges of providing facilities in intensification areas, where land assembly and acquisition are more difficult. To this end, the ATMP includes recommendations for delivering services and facilities in intensification areas, such as the front-end acquisition of parkland or the retrofitting of existing facilities to appeal to a broader user group and maximize assets. In other instances, the provision of facilities is driven more by specific opportunities, such as securing a community hub or other facility through a development project.

The City of Vaughan is a leader in the co-location design trend, opting to consolidate major facilities – rinks, pools, libraries – as part of community centres. This centralization allows services to be streamlined, and creates a more convenient experience for facility users. To that end, the ATMP encourages co-location of municipal assets, partnerships with schools and

private developments, and the creation of multi-purpose and flexible facilities.

This CSFIS uses the ATMP to assess the provision level of various facilities and services. Using the development scenarios described in the previous section, this CSFIS also assesses how provision levels may change over the long term.

Parkland

The City of Vaughan currently manages 201 parks which offer a wide array of features and amenities, including sport fields, playgrounds, skate parks, tennis courts, and splash pads, among others. As the functions and usage levels vary from park to park depending on their size, the City uses a parkland classification system to ensure the full range of recreation needs are met. The parkland classification is summarized in Table 3.

The majority of City of Vaughan parks – both in number and land area - are neighbourhood parks. Neighbourhood parks are intended to provide the surrounding community with convenient access to active and passive recreation opportunities.

The City uses a parkland per capita measure as a tool to monitor how the City is achieving

the active parkland goals relative to past measurement and future projections. While parkland provision varies across the City, the current city-wide level of provision is 1.86 hectares per 1,000 residents. Based on anticipated population growth of more than 100,000 residents by 2031, the ATMP establishes a target provision rate of 2.0 hectares per 1,000 residents, applied to future growth.

CURRENT PARKLAND PROVISION IN THE PLANNING AREA

There are no existing parks within the Weston 7 planning area, which reflects the predominance of commercial and employment uses. There are two district parks and one neighbourhood park whose service areas includes all or a portion of the planning area. Together these parks total 15.1 hectares³. Based on the current population of 1,712, residents of the planning area have access to 8.78 hectares of parkland per 1,000 residents.

All three of these parks are located northwest of the planning area, which is a residential district. The entire planning area falls within the 2.5-kilometre service areas of the two district parks - Chancellor District Park and Giovanni Caboto Park. The ATMP indicates that all residential areas should be within 500 metres of a neighbourhood park. As illustrated in Map 1 at the end of the report, only a small portion of the planning area - approximately 19% of the land area - is within 500 metres of a neighbourhood park - Blue Willow Square. This low coverage is due to the predominance of non-residential land uses within the planning area. As the Weston 7 planning area accommodates a more diverse mix of land uses over time, including residential, a greater coverage of neighbourhood parks will be required.

³ The ATMP indicates that district parks have a service area of 2.5 kilometres; local parks have a service area of 500 metres

Chancellor District Park is located approximately one kilometre northwest of the planning area, co-located with Ansley Grove Library and Father Bressani Catholic High School. The 7.7-hectare park features a numerous playing fields, and outdoor ice pad, and playgrounds.

Giovanni Caboto Park is situated approximately 300 metres north of the planning area, and is co-located with Blue Willow Public School. The 6.72-hectare park includes playgrounds, a ball diamond, tennis courts, outdoor bocce courts and playing fields.

Blue Willow Square is a small, 0.64-hectare park serving the residential area immediately north of the planning area. The park features a playground and a large open space.

Parkland type	Size (ha)	Number of parks	Total area
Regional park	15+	4	133.09
District park	5+	14	106.4
Neighbourhood park	0.75 to 5	181	365.9
Urban park	1+	2	0.3
Public square	0.2 to 1		
Total		201	603.6

Table 3: Parkland

Park name	Soccer	Basketball	Tennis	Baseball	Playground	Rink	Bocce
Chancellor District Park	5	2	0	0	3	1	0
Giovanni Caboto Park	2	1	3	1	4	0	3
Blue Willow Square	0	0	0	0	1	0	0
TOTAL	7	3	3	1	8	1	3

Table 5: Inventory of Parks Programming

Park name	Area (ha)	Area/1,000 residents
Chancellor District Park	7.70	4.49
Giovanni Caboto Park	6.72	3.92
Blue Willow Square	0.64	0.37
	15.06	8.78

Table 4: Inventory of Parks

FUTURE PARKLAND PROVISION WITHIN THE PLANNING AREA

As noted, current residents of the planning area have access to 8.78 hectares of active parkland per 1,000 residents, well above the city-wide provision rate of 1.86 hectares per 1,000 residents. This is due to the low current population of the area - 1,712 residents - given existing land uses. Future population growth associated with the secondary plan will create new demand for parkland and other community services and facilities.

Future parkland provision within the planning area is estimated based on the development scenarios prepared as part of the Weston 7 Secondary Plan, which forecast a long-range population of between 12,740 and 34,320 residents.

Over the planning horizon, parkland provision in the planning area would decrease to between 1.18 hectares per 1,000 residents (scenario 1) and 0.44 hectares per 1,000 residents (scenario 5). In all scenarios, future parkland provision would be below the targeted provision rates identified in the ATMP, if no additional parkland is delivered.

The ATMP recommends a target provision rate of 2.0 hectares per 1,000 residents, applied to new growth. Applying this target to the future growth of the Weston 7 secondary plan area would result in between 22.06 and 65.22 hectares of new parkland to serve the planning area, depending on the development scenario.⁴ The resulting provision rate would be between 2.91 hectares per 1,000 residents (scenario 1) and 2.34 hectares per 1,000 residents (scenario 5).

⁴ As noted, parkland does not have to be within the planning area in order to serve the planning area.

Given the scale of development that will result from the Weston 7 Secondary Plan, applying the ATMP target provision rate would require substantial efforts to deliver new parkland, including through parkland acquisition and parkland dedication through Section 42 of the Planning Act. Moreover, applying the ATMP target would result in a level of provision well exceeding the target. The ATMP notes that, in intensification areas, the City may consider applying a unique parkland provision target that reflects the challenges of land assembly and economic realities of development, while still maintaining the overall City-building and public realm objectives.

Considering the current density target of 160 p+j/ha, approximately 9.15 ha of new parkland would be required (in addition to the existing 15.06 ha serving the area) to reach the long-term provision target of 1.9ha/1,000 people. New parkland does not have to be within the planning area to serve the planning area; however, residential areas must be within 500 m of a local park.

Parkland Policy - Planning Act

Section 51 of the Planning Act gives municipalities the power to require parkland dedication of 2% of net developable area for industrial and commercial uses and 5% for all other uses. The development outlook prepared by Hemson does not differentiate the developable area by land use. As such, until a more defined land use program is defined through the secondary planning process, it is not possible to determine the exact amount of parkland that would be required as per the Planning Act. However, if the maximum rate were applied to the net developable area (59 ha to 63 ha, depending on the gross-to-net assumptions of 25%-30%), a maximum of between 2.95 to 3.15 hectares could be dedicated. Parkland dedication per the Planning Act would not be sufficient in meeting the City's provision targets as per the ATMP.

Scenario	Population	Units	Provision	2.0 ha/1,000	Resulting provision/ total ha*
Current	1,712	n/a	8.78	-	-
160 p+j/ha	12,740	5,790	1.18	22.06	2.91 (37.12)
200 p+j/ha	16,340	7,430	0.92	29.26	2.71 (44.32)
250 p+j/ha	20,830	9,470	0.72	38.24	2.56 (53.3)
300 p+j/ha	25,330	11,510	0.59	47.24	2.46 (62.3)
400 p+j/ha	34,320	15,600	0.44	65.22	2.34 (80.28)

Table 6: Future Parkland Provision

*Includes existing 15.06ha of parkland servicing planning area. Parkland does not have to be within planning area to serve planning area.

Outdoor Recreation Facilities

The ATMP establishes current levels of provision for a range of outdoor recreation facilities including soccer fields, ball diamonds, basketball courts, pools, off-leash dog parks and playgrounds. The plan establishes targeted levels of provision based on future population growth, trends in sports and leisure, and feedback from public consultation.

The following table outlines the targeted provision level for these facilities and the current level of provision within the planning area, including facilities farther afield which have service areas that include the planning area. Where a facility is located just beyond the planning area, it has been into the provision level for practical purposes. It is important to note that certain facilities are delivered at a district or regional level. In such cases, a low provision level of a particular amenity does not necessarily signify an under-supply within the planning area.

Please see the reference maps at the end of this document for the location of outdoor recreation facilities.

Outdoor Recreation Facility	ATMP Target	Planning Area Provision Level	Notes	Map
Recreational Trails	Trail/access within 800 m of development	No trail/access within secondary plan area	Existing system includes 21 km of off-road trails, supplemented by multi-use paths and cycling facilities.	
Soccer Fields	1:80 registered youth	1:14	Based on 3 regulation-size fields and a 16% participation rate among 5-19 cohort. Planning area not identified for future field, non-regulation fields at discretion of City.	2
Ball Diamonds	1:40 registered youth	1:2	Based on 5 diamonds and a 4% participation rate among 5-19 cohort	3
Multi-use Fields	1:200,000	0	ATMP recommends two multi-use by 2031; study area is not identified as potential location.	
Tennis/Pickleball Courts	1:5,000 in new residential areas	1:342	Based on five facilities servicing the planning area each with 2-3 courts	4
Basketball Courts	1:500 youth aged 10-19	1:188	Based on 1 court and 188 youth aged 10-19	5
Cricket Fields	1:150,000 (3 by 2031)	0	ATMP recommends three by 2031, as part of future district or regional parks, or within employment area.	
Skateboard Parks & Zones	1:3500 (3 by 2031)	0	ATMP identifies Woodbridge as potential location for local skate zone	
Outdoor Pools	No additional	0		
Waterplay Facilities	One per block	1	Planning area includes roughly one blocks	6
Playgrounds	Within 500 m of urban residential areas	19% of planning area with 500 m of playground	Portion of planning area beyond 500 m of playground is largely non-residential.	15
Outdoor Fitness	Distribution – 2km radius	0	Woodbridge and VMC identified as potential locations	
Off-Leash Dog Parks	One in each quadrant of the City	Zero in southwest quadrant	Portion of study area east of Hwy 400 falls within southeast quadrant, which is served by an off-leash dog park.	
Outdoor Ice Rinks	Distribution (4-5 additional)	1:1,712	ATMP identifies VMC as potential location. Not generally local serving.	7
Outdoor Bocce	No additional	1:570	Three facilities within 2km walkshed. ATMP notes existing courts are under-utilized.	
Playgrounds	Within 500 m of urban residential areas	19% of planning area with 500 m of playground	Portion of planning area beyond 500 m of playground is largely non-residential.	15

Table 7: Outdoor Recreation Facilities ** Maps available at the back of the appendix

Future Provision of Outdoor Recreation

The table below assesses how provision levels of outdoor recreation facilities may change considering forecasted growth in the study area. Except where new facilities serving the study area are being planned or identified in the ATMP (e.g. an outdoor ice surface at VMC), it is assumed no new facilities are added. Where provision targets of recreation facilities are based on participation rates (registered youth), the relative proportion of the specific age cohort was assumed to remain constant across the planning horizon, as well as the participation rates for specific programming. Recreation facilities highlighted in grey indicate facilities which are generally not considered to be locally delivered. Text in red indicates outdoor recreation facilities that will be under-provided in the corresponding development scenarios. Facilities have not been identified as under-provided where the ATMP indicates that no additional facilities are required, or in cases where facilities are delivered on a district or regional scale.

Pedestrian & Bicycle Master Plan & Vaughan Super Trail

The City of Vaughan is currently undertaking an update of the 2007 PBMP in order to guide improvements and enhancements of pedestrian and cycling facilities. As part of this process, the Vaughan Super Trail is being proposed. The Super Trail would connect Vaughan's key parks, open spaces, natural heritage networks, and cultural features as part of a network of 100km of trails, of which 39% currently exist. Opportunities to facilitate connections to access points to the Super Trail should be considered through the planning process (e.g. new/enhanced cycling facilities or multi-use paths).

Recreation Facility	ATMP Target	Development scenario				
		160 p+j/ha	200 p+j/ha	250 P+J/HA	300 P+J/HA	400 P+J/HA
Recreational Trails	None identified	0	0	0	0	0
Soccer Fields	1:80 registered youth	1:102	1:130	1:167	1:203	1:275
Ball Diamonds	1:40 registered youth	1:15	1:20	1:25	1:30	1:41
Multi-use Fields	1:200,000	0	0	0	0	0
Tennis/Pickleball Courts	1:5,000 in new residential areas	+6	+7	+8	+9	+10
Basketball Courts	1:500 youth aged 10-19	1:1,389	1:1,781	1:2,270	1:2,276	1:3,741
Cricket Fields	1:150,000 (3 BY 2031)	0:12,740	0:16,340	0:20,830	0:25,330	0:34,320
Skateboard Parks & Zones	1:3,500 (3 by 2031)	0:12,740	0:16,340	0:20,830	0:25,330	0:34,320
Outdoor Pools	No additional	-	-	-	-	-
Waterplay Facilities	One per block	1	1	1	1	1
Playgrounds	Within 500 m of urban residential areas	Residential Coverage	Residential Coverage	Residential Coverage	Residential Coverage	Residential Coverage
Outdoor Fitness	Distribution – 2km radius	0:12,740	0:16,340	0:20,830	0:25,330	0:34,320
Off-Leash Dog Parks	One in each quadrant of the City	None in quadrant	None in quadrant	None in quadrant	None in quadrant	None in quadrant
Outdoor Ice Rinks	Distribution (4-5 additional)	1:6,370	1:8,170	1:10,415	1:12,665	1:17,160
Outdoor Bocce	No additional	1:4,247	1:5,447	1:6,943	1:8,443	1:11,440

Table 8: Future Provisions of Outdoor Recreation Facilities

School	Capacity	2017 Enrollment	2017 Utilization	2022 enrollment	2022 Utilization
YORK REGION DISTRICT SCHOOL BOARD					
Blue Willow Public School	685	612	89%	560	82%
Elder's Mill Public School	565	604	107%	699	124%
Woodbridge College	708	517	73%	674	95%
YORK CATHOLIC DISTRICT SCHOOL BOARD					
St. Gabriel the Archangel	510	499	98%	N/A	N/A
Immaculate Conception	527	471	89%	N/A	N/A
St. Catherine of Seina	294	255	87%	N/A	N/A
Holy Cross Secondary	1,294	827	71%	N/A	N/A

Table 9: School Enrollment and Utilization

Schools

York Region District School Board

York Region District School Board (YRDSB) operates two elementary schools that serve the study area. Based on 2017 enrolment, the two elementary schools – Blue Willow Public School and Elder's Mill Public School – have utilization rates of 89% and 107%, respectively. By 2022, the utilization of these schools is projected to shift to 82% and 124%. Elder's Mills Public School currently has four portable classrooms.

Based on the potential development scenarios prepared for the Weston / Hwy 7 secondary plan area, the YRDSB has indicated that one elementary school site would likely be required for scenarios 1 and 2 (160 and 200 p+j/ha), and that additional school accommodation requirements would need to be considered for densities greater than 250 p+j/ha (scenarios 3-5)⁵.

⁵ The potential need for new school sites is based on the development scenarios for Weston / Hwy 7 Secondary Plan

School sites would be required to be consistent with the current Vaughan Metropolitan Centre standard of five acres. However, the ultimate size of the school size may be refined through the planning and development process.

The study area is served by one secondary school – Woodbridge College. In 2017, Woodbridge College had a utilization rate of 73%; this is projected to increase to 95% by 2022.

York Catholic District School Board

The York Catholic District School Board (YCDSB) operates three elementary schools that serve the study area – St. Gabriel the Archangel, Immaculate Conception, and St. Catherine of Sienna. Together these elementary schools have a total capacity of 1,331; based on 2017 enrollment figures, these schools are at 92% capacity, with an average utilization rate of 91%.

area, excluding the future population of VMC, as school sites have already been considered for the VMC Secondary Plan area.

The YCDSB operates one secondary school that serves the study area – Holy Cross – which has a capacity of 1,170 students. Enrollment in 2017 was 827, representing a utilization rate of 71%. The YCDSB did not provide enrollment projections.

YCDSB planning staff did not provide any indication of potential school site needs, noting that the need for a school site designation would depend on the selected development scenario, timing and unit types. See Map 8 for the location of schools servicing the study area.

Libraries

The ATMP includes an analysis of the City of Vaughan's public library space needs, establishing a provision strategy to the year 2031, which is guided by population growth and trends, input from the public and library staff, geographic distribution, and space standards. The ATMP uses a provision target of 0.61 square feet per resident, which is an industry standard meant to represent an effective and responsive library system. There is currently one branch library - Ansley Grove Branch Library - which serves the planning area, totaling 10,500 square feet.⁶ A branch library at the VMC is currently under construction, alongside a self-service storefront location, providing an additional 9,400 square feet. These facilities are profiled below, and shown in Map 9.

The current provision level based on the existing population of the planning area is 6.12 square feet per resident, well above the ATMP target. Again, this high-level of provision is due to the

⁶ The ATMP states that, for planning purposes, branch libraries have a service radius of up to 1.5 kilometres. For the purposes of this study, service radii of 1.5 kilometres have been used for branch libraries.

Current	1,712	6.12 sf/pp	Deficit
160 p+j/ha	12,740	1.87 sf/PP	n/a
200 p+j/ha	16,340	1.46 SF/PP	n/a
250 p+j/ha	20,830	1.14 SF/PP	n/a
300 p+j/ha	25,330	0.94 SF/PP	n/a
400 p+j/ha	34,320	0.69 SF/PP	n/a

Table 10: Future Library Provisional Level

predominantly non-residential land uses of the planning area. Future population growth associated with the secondary plan as well as the neighbouring Vaughan Metropolitan Centre will create new demand for libraries services.

Similar to parkland provision, future library provision within the study area is estimated using the development scenarios prepared as part of the Weston 7 Secondary Plan, which forecast a long-range population of between 12,740 and 34,320 residents. The provision level of public libraries will significantly decrease to below the ATMP target of 0.61 square feet per resident, as shown in the following table.

Ansley Grove Library

The Ansley Grove branch is a 10,500 square foot community library located in Woodbridge, adjacent to Chancellor District Park. The branch, which opened in 1990, is co-located with the Chancellor Community Centre, built in 1998. With 9.2 visits per square foot in 2016, Ansley Grove was the third busiest of the six branch libraries. In addition to its collection of more than 53,000 items, including an Italian language collection, the library features computer stations, a theatre-style meeting room which accommodates

60 people, study rooms, and a children's programming room.

The branch was renovated in 2014, and it is anticipated that further renovations will be undertaken to optimize spaces and enhance interior design to increase functionality and flexibility.

Vaughan Metropolitan Centre Library

A new branch library is currently under construction as part of the PwC-YMCA development in Vaughan Metropolitan Centre (VMC). The approximately 10,000 square foot VMC branch, located on the second floor of the nine-storey building, is expected to open in 2019. A 350 square foot self-service library will be located at street level, accessible 24/7 with a VPL library card.

Indoor Recreation Facilities

Community Centres

The City of Vaughan currently supplies 10 municipal community centres. These community centres are distributed relatively equitably across the municipality, with one in each of the communities, except for Kleinburg/Nashville. The ATMP establishes a target of one community centre for every 30,000 residents.

The study area falls within the two-km service area of Chancellor Community Centre (see Map 10), which is co-located with Ansley Grove Library, Chancellor Park, and Father Bressani Catholic High School. The 50,000 sf Chancellor Community Centre offers a wide range of active living, creative, educational and instructional programming. Recreational facilities include a swimming pool, multi-purpose gymnasium, indoor bocce courts, and an outdoor skating

rink. The centre also provides facility rentals for community and private events. Chancellor Community Centre receives an average of 400,000 visitors each year, including visitors to the Ansley Grove Library. The centre services a very large neighbouring older adult population, though programming is offered for all ages and abilities.

The planning area also falls within the service area of the Vaughan Metropolitan Centre YMCA, which is currently under construction. This facility, which is co-located with a new branch library, will include an indoor aquatic centre, a fitness centre, gymnasium, and community space. While the planning area falls within the service area of this facility, it should be noted that Highway 400 presents a significant physical barrier to access by modes other than private vehicle.

Future Community Centre Provision

While the planning area is currently served by one community centre and another is under construction at Vaughan Metropolitan Centre, population growth associated with the secondary plan may increase demand. Given the targeted provision rate and projected population growth, the ATMP recommends that three community centres (in addition to the YMCA at VMC) be developed in each of Carrville, Kleinburg/Nashville and Vellore Village North.

Table 11 outlines how provision levels would change based on the development scenarios, taking into consideration the YMCA at VMC. This table considers the facilities the future population would have access to, but not the capacity of these facilities. For example, while the planning area falls within the service area of the new YMCA in VMC, this facility will also serve the

future population of VMC.

Scenario	Population	Provision
Current	1,712	1:1,712
160 p+j/ha	12,740	1:6,370
200 p+j/ha	16,340	1:8,170
250 p+j/ha	20,830	1:10,415
300 p+j/ha	25,330	1:12,665
400 p+j/ha	34,320	1:17,1260

Table 11: Future Community Centre Provision

The ATMP also identifies community hubs as a potential solution in intensification areas or where service gaps are smaller. A community hub requires a minimum population threshold of 8,000, with a planning target of 1.5 square feet per person based on the target population. The ATMP notes that the demand for community centres (major or minor community centres or community hubs⁷) is largely driven by the need for major components, such as libraries, pools, arenas, gymnasiums, and fitness centres. An understanding of these specific needs, as described in this section, is necessary to fully understand community centre requirements. The ATMP identifies three additional community centres (not including the YMCA at VMC), none of which will be located within the study area.

⁷ Major community centres are typically anchored by ice pads or aquatic complexes, supported libraries, gymnasiums, fitness centres, or other major components, and are generally between 50,000 to 100,000 square feet. Minor community centres – of which there are currently none – would be between 20,000 and 40,000 square feet, and would not contain these major components. Community hubs are smaller facilities for community and recreation programs.

Recreation Facility	ATMP target	Study Area Provision Level	NOTES	Map
Indoor Aquatics	1:35,000	1:1,712	YMCA at VMC will include aquatics centre	11
Arenas	1:500 registered youth	-	Not generally local serving	12
Gymnasiums	1:30,000	1:1,712	YMCA at VMC will include a fitness centre	13
Fitness Centres	1:55,000	0	YMCA at VMC will include a fitness centre	14
Indoor Bocce	No additional	1:428	NO ADDITIONAL	

Table 12: Other Indoor Recreation Facilities

** Maps available at the back of the appendix

Recreation Facility	ATMP Target	Development scenario				
		160 p+j/ha	200 p+j/ha	250 P+J/HA	300 P+J/HA	400 P+J/HA
Indoor Aquatics	1:35,000	1:6,370	1:8,170	1:10,415	1:12,665	1:17,160
Arenas	1:500 registered youth	-	-	-	-	-
Gymnasiums	1:30,000	1:6,370	1:8,170	1:10,415	1:12,665	1:17,160
Fitness Centres	1:55,000	1:12,740	1:16,340	1:20,830	1:25,330	1:32,320
Indoor Bocce	No additional	1:3,185	1:4,085	1:5,208	1:6,333	1:8,

Table 13: Future Indoor Recreation Facilities Provisions

Other Indoor Recreation Facilities

The ATMP establishes provision targets for a range of indoor recreation facilities, including aquatics centres, arenas, gymnasiums, fitness centres, and indoor bocce courts. Similar to outdoor recreation facilities, provision targets consider future population growth, trends in sports and leisure, and feedback from public consultation. The following table outlines the targeted levels of provision across Vaughan, and the current level of provision within the study

Facility	Address	Age groups
St. John Bosco Child Care Centre of Woodbridge	199 Belview Avenue	Toddler, Preschool, School Age
Blue Willow Before & After School Program	250 Blue Willow Drive	Kindergarten, School Age
Tender Treasures Montessori School	171 Marycroft Avenue	Infant, Toddler, Preschool, Kindergarten
Kids Can Doodle B & A School Program – Woodbridge	500 Aberdeen Avenue	School Age
Holy Family Daycare	200 Ansley Grove	Infant, Toddler, Preschool
St. Gabriel Child Care Centre	91 Fiori Drive	Toddler, Preschool, Kindergarten, School Age
King Heights Academy	28 Roytec Road	Toddler, Preschool
Centered on Children Child Care Centre	8201 Weston Road	Infant, Toddler, Preschool
Over the Rainbow Children's Centre	285 Jevlan Drive	Infant, Toddler, Preschool, School Age
Zoe's Tender Years Child Care Centre	8551 Weston Road	Infant, Toddler, Preschool, School Age

Table 14: Child Care

area. Please see the reference maps for the location of these facilities.

Future Indoor Recreation Facilities Provision

The table below assesses how provision levels of indoor recreation facilities may change considering forecasted growth in the study area. Except where new facilities serving the study area are being planned or identified in the ATMP (e.g. an aquatic facility at the YMCA in VMC), it is assumed no new facilities are added. Facilities

highlighted in grey indicate facilities which are generally delivered at a district or regional scale.

Private Recreation Facilities

Private recreation facilities – particularly private sector rinks – supplement municipal facilities. Several private recreation facilities have been identified in and adjacent to the study area, including Emery Village Hockey Training Rinks (Toronto), Canlan Ice Sports at York University (Toronto) and NCI Vaughan Iceplex.

Social Services

The Ontario 211 database was used to identify existing community services and programs within and near the study area. Considering the current land use mix of employment and retail uses, community services and programs in the vicinity of the study area are limited. However, it is important to note that many human services

Facility	Address
All Nations Full Gospel Church	4401 Steeles Avenue West, North York
Weston Islamic Centre	4040 Steeles Avenue West, Woodbridge
New Life Pentecostal Church	8111 Weston Road, Woodbridge
Immaculate Conception Church	399 Ansley Grove Road, Woodbridge
Upper Room Community Church	55 Costa Road, Concord

Table 15: Places of Worship

– especially those which are highly specialized – attract people beyond their immediate area and sometimes from across the city. There were two social services identified within the immediate vicinity of the study area. Community Living York South offers a range of programs and services for people who have an intellectual disability, including social programs and activities, employment training, and housing support, among others. The Vaughan Office of the Canadian Mental Health Association provides recovery-focused programs and services for people of all ages, including a range of therapy services, support groups, and employment support.

Child Care

Ten subsidized and licensed child care facilities were identified using data from York Region's Data, Analytics, and Visualization Services. These facilities provide services to infants, toddlers, preschoolers, kindergarteners and school age children. Some facilities are co-located with YDSB and YCDSB schools. Future growth within the study area will increase the need for child care facilities. The City of Vaughan's 2009 Social Services Study promotes the concept of the "School as Hub", where YRDSB and YCDSB develop as centralized location for learning, care, health, culture, arts and recreation. This is in line with the ATMP's emphasis on the co-location of community services and facilities. Future facilities planning within the study area (e.g. community centres, libraries, and schools) should accommodate child care facilities.

Places of Worship

Five places of worship were identified within the study area, representing a range of religions, denominations and cultures. In addition to their religious function, many of these places of worship provide community gathering space and deliver important community and social services.

Conclusion & Summary of Service Gaps

The purpose of this study has been to assess the current provision of community services and facilities within the study area, and to understand how provision levels may change over time if density targets beyond the current target of 160 p+j/ha are considered. The following are significant findings from the analysis that may be used to inform and support the Weston 7 Secondary Plan planning process:

- The study area is anticipated to experience substantial population growth over the long-term planning horizon. In Vaughan Metropolitan Centre, more than 9,700 units are proposed or approved, representing a potential resident population of 19,224 residents. Development outlooks for the Weston 7 Secondary Plan test a potential population of between 12,740 and 34,320. This new population will place additional pressures on existing facilities and will also require new facilities in order to maintain a high quality of life.
- Future population growth will significantly reduce the provision of parkland, which is currently above the city-wide provision level of 1.86 hectares. However, to apply the ATMP's recommended target of 2.0 hectares per

1,000 residents (new growth) would require significant new parkland – between 22 and 65 hectares. This is not realistic in the context of an intensification area, considering the challenges of assembling land and the economic realities of development. Moreover, applying this target would result in a parkland provision in excess of that target. A parkland provision target specific for the study area should be developed to address this challenge, and parkland acquisition should be front-ended.

- Under the current density target of 160 p+j/ha, approximately 9.15 ha of new parkland would be required to achieve the long-term provision level of 1.9ha/1,000, within the planning area.
- While a land use program has yet to be defined, parkland dedication under the Planning Act, which considers developable land area and not density of population, would not be sufficient in meeting the City's provision targets.
- Future parkland provision must address both provision and geographical distribution. Parks beyond the planning area may serve the future population; however, parks must also be developed within the planning area to ensure coverage of residential areas.
- In all development scenarios, provision levels of public libraries will remain above ATMP provision targets, considering the library branch and self-serve library under construction at VMC. As the existing Ansley Grove branch is one of the busiest in the system, additional consideration should be given to the capacity of existing facilities.
- There is limited capacity at the two YRDSB

elementary schools that serve the Secondary Plan area. YRDSB staff have indicated that an elementary school site would be required for development scenarios 1 and 2, and that additional school sites may need to be considered for the higher density scenarios. School sites would be provided consistent with the VMC standard of five acres, though the ultimate size may be adjusted through the planning and development process.

- The YCDSB was unable to provide an indication of potential school site needs, noting that the need for a school site designation would depend on the selected development scenario, timing and unit types. YCDSB should be re-engaged when the development outlook is refined. As the YCDSB operates more schools in Woodbridge than the YRDSB, there may be lesser need for additional school sites.
- Future residents will have access to two community centres - Chancellor Community Centre and the YMCA at VMC. The later facility, however, is less accessible by foot and bicycle, and will also serve the fast-growing population of VMC. Future population growth in the study area will reduce the provision level of community centres, though provision levels (the number of facilities the population of the planning area will have access to) will remain above target .
- If a higher-density development scenario is considered (e.g. 300-400 p+j/ha), the development of a new community centre should be considered, based on the provision target of one community centre per 30,000 residents. Otherwise, opportunities for community hubs should be explored (e.g. through the development approvals process, or in collaboration with the school boards) to deliver services and facilities closer to home and to supplement the existing and planned community centres. All development scenarios would meet the minimum population threshold for community hubs (8,000).
- Opportunities to facilitate connections to access points to the Super Trail should be explored through the planning process (e.g. new/enhanced cycling facilities or multi-use paths).
- Facilities which are locally-serving and which are or will be under-supplied in the planning area include local parks (residential coverage), playgrounds (residential coverage), and basketball courts (minimum two additional).
- Facilities which serve a broader but still defined area and which are or will be under-supplied in the planning area include tennis courts (minimum six additional) and outdoor fitness equipment (distribution - 2km radius).
- Detailed planning of future parks within the planning area should consider how targets for district- or city-wide facilities could be met. For example, Woodbridge is identified as a potential location for a skate zone, and the southwest quadrant of the City is under-supplied of one off-leash dog park. The ATMP indicates that three cricket fields will be developed by 2031.

Formulation of the two-kilometre walkshed

A two-kilometre walkshed was created for the purposes of the inventory of community services and facilities. The walkshed represents a reasonable travel time and distance to access community services and facilities, either by foot, bicycle, or a short drive. Typically, a walkshed is derived from a single point. To formulate a walkshed of the Weston 7 planning area, several individual walksheds were taken from points along the perimeter of the planning area. These were then merged into a single walkshed area. The major physical barriers that the walkshed takes into consideration at Highway 400 and Highway 407, as limited access routes.

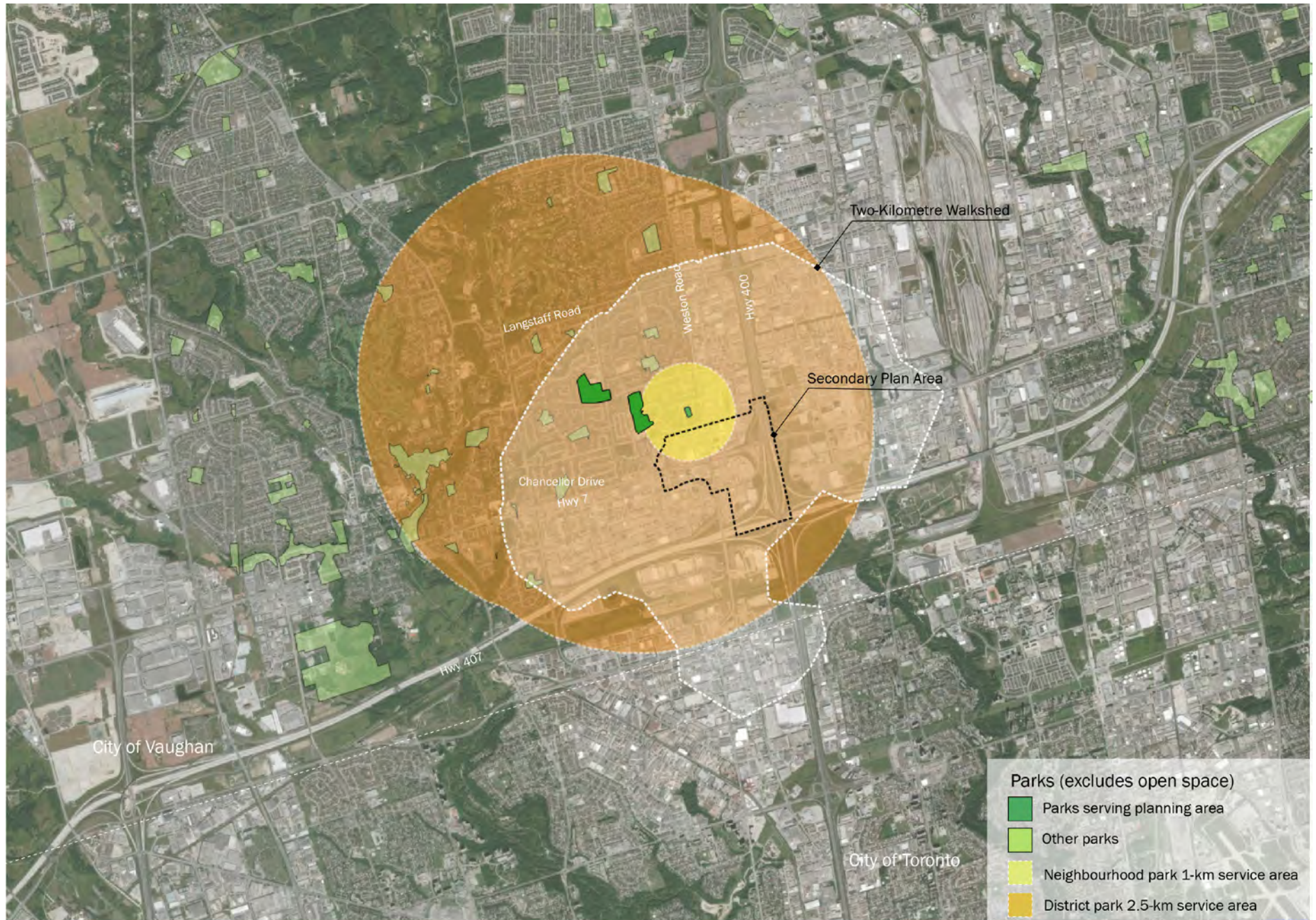
The walkshed is primarily for qualitative and visual purposes, as the ATMP assigns service areas for most facilities. Where the ATMP has not assessed a service area, the walkshed is used to determine whether a specific facility should be included in the inventory (soccer fields, baseball fields).

Weston 7 Secondary Plan Development Scenarios

Development Scenario (PJ/ha)	160	200	250	300	400
Total Population	12,740	16,340	20,830	25,330	34,320
Total Population	5,790	7,430	9,470	11,510	15,600

Surrounding Development Activity

Address	Type	Status	Height	Units
222 Rowntree Dairy Road	SPA	In progress		2 n/a (commercial)
3490 Hwy 7	SPA	In progress		1 n/a (commercial)
2592 Hwy 7	ZBA	In progress	14, 15, 25, 35, 35	1,328
7895 Jane Street	ZBA	In progress	35 + townhouses	572
Millway Avenue/Portage Parkway	ZBA, SPA	In progress	55, 55	1,217
Millway Avenue/Portage Parkway II	ZBA	In progress	55	606
101 Edgeley Boulevard	SPA	In progress	8	0
3201 Hwy 7	SPA	In progress	46, 53, 55	1,641
2908-2916 Hwy 7	ZBA, SPA	In progress	39, 39	1,235
2901 Hwy 7	SPA, OPA, SD, ZBA	In progress	7, 30, 39	962
2920 Hwy 7	SPA	In progress	60	
15 Jevlan Drive	ZBA	In progress	2	n/a (commercial)
Transit Square	SPA	In progress	0	n/a



Map 1: City of Vaughan parks with service areas that include the planning area. Much of the walkshed and Secondary Plan Area is not within walking distance of a neighbourhood park.



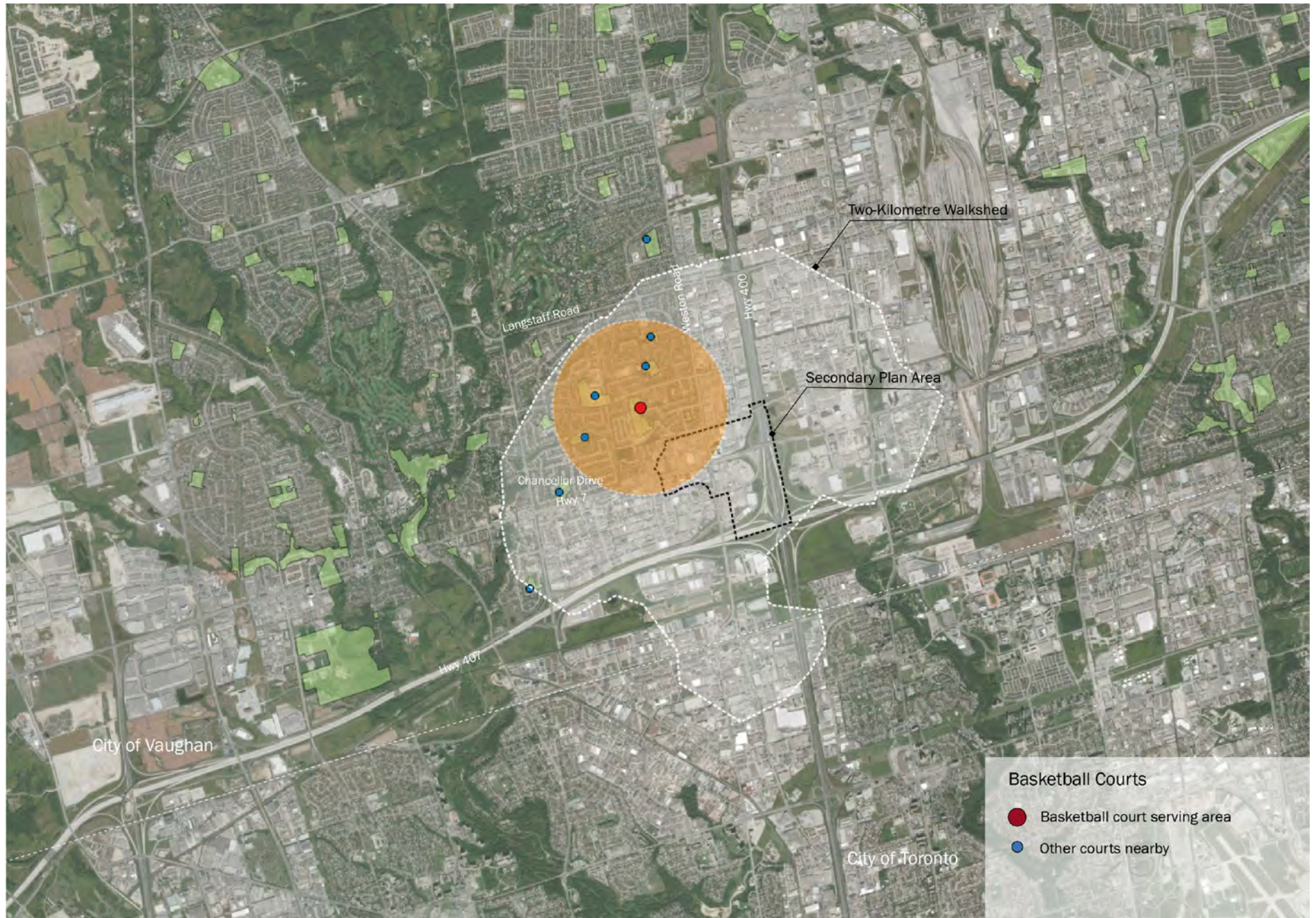
Map 2: There is one soccer field within the walkshed, and two fields just beyond the border. The ATMP does not assign service areas to soccer fields.



Map 3: There are four ball diamonds within the walkshed. The ATMP does not assign a service area to ball diamonds.



Map 4: There are five tennis facilities that serve the walkshed. Tennis facilities (with either two or three pads) have a service area of two kilometres.



Map 5: One basketball courts serves the planning area. . Basketball courts have a service area of one kilometre.



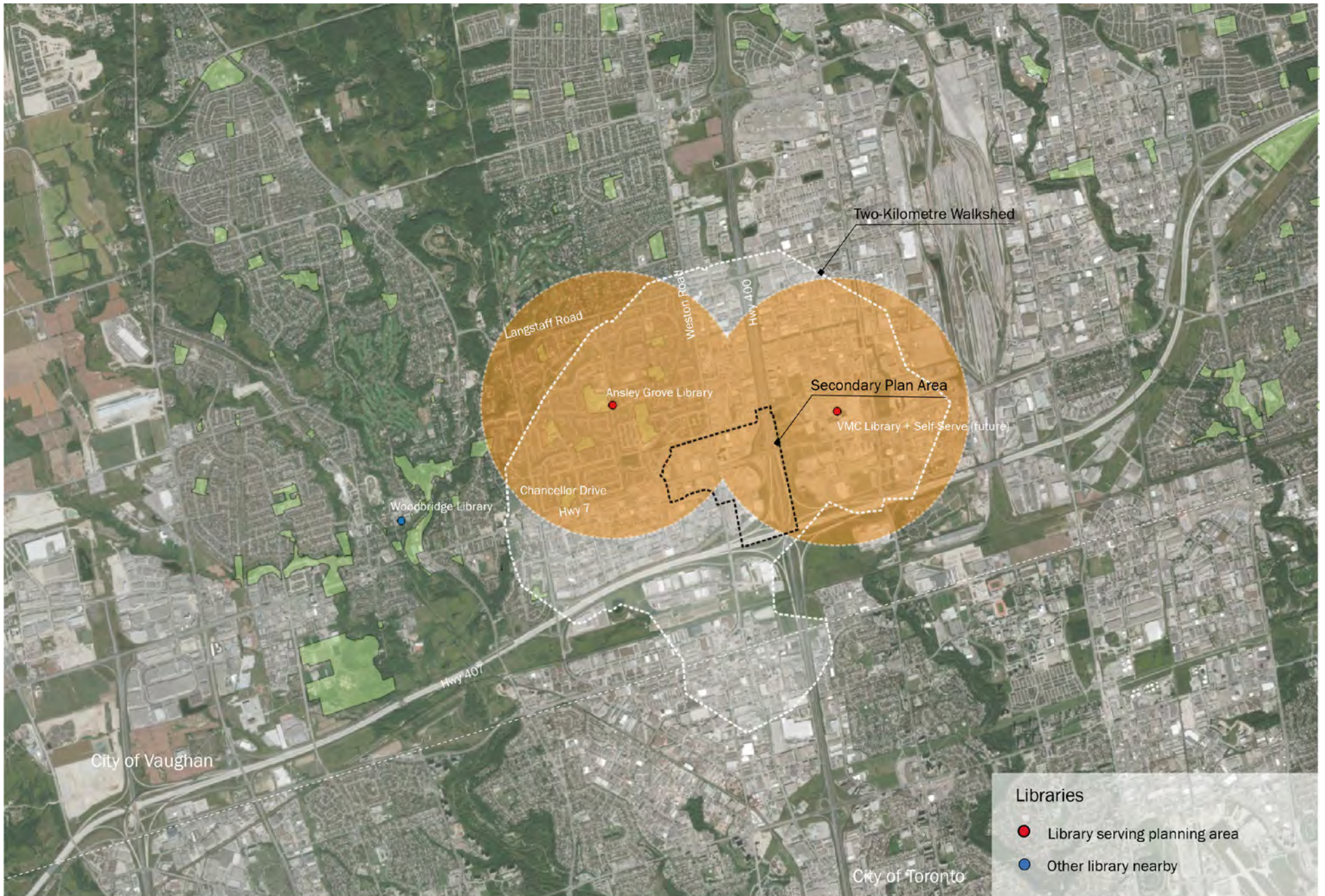
Map 6: There is one waterplay facilities within the walkshed. The ATMP targets one waterplay facilities for each planning block.



Map 7: There is one artificial ice surface in the walkshed area, with another potential surface planned for Vaughan Metropolitan Centre.



Map 8: Seven YDSB and YCDSB schools serve the Secondary Plan Area.



Map 9: Currently, one branch libraries has catchment areas which include the planning area, with a new branch library and self-serve library under construction at Vaughan Metropolitan Centre. v



Map 10: There is one community centre located within the two kilometre walkshed - Chancellor Community Centre. A community centre is planned for VMC.



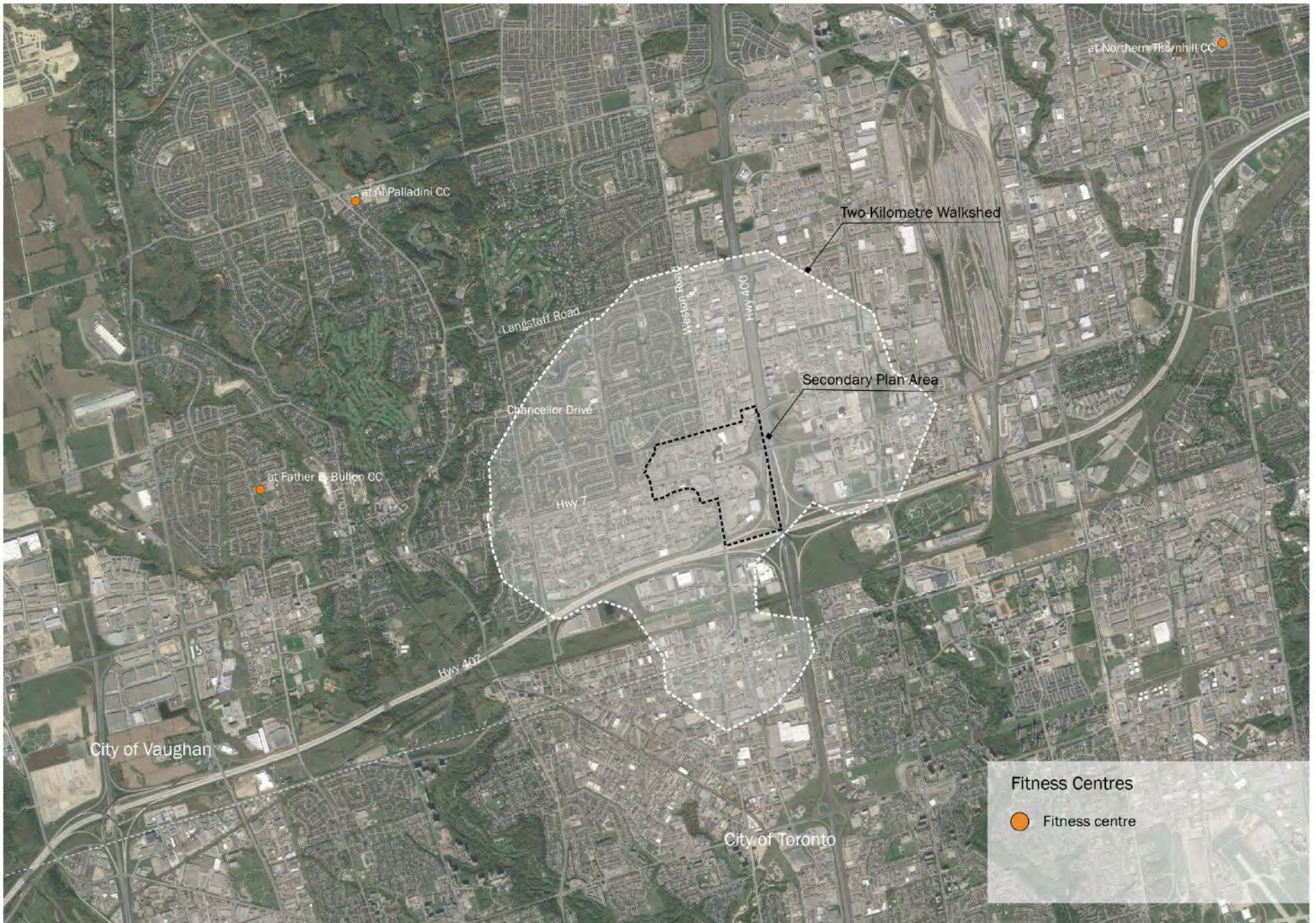
Map 11: There is one indoor pool located within the walkshed, part of Chancellor Community Centre.



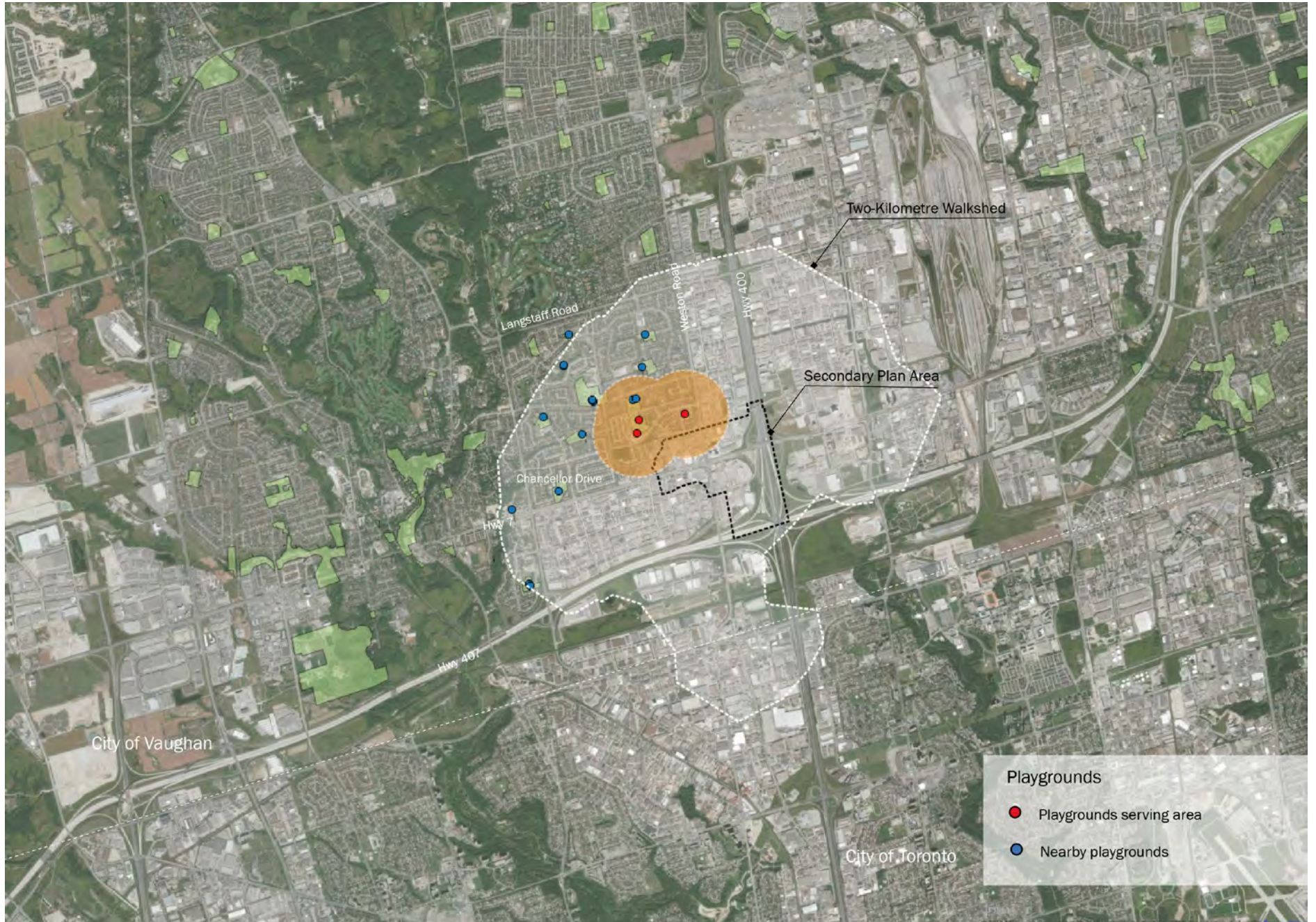
Map 12: There is no indoor arena within the walkshed; however, these facilities are not typically delivered at the local level.



Map 13: There is one gymnasium within the walkshed, at Chancellor Community Centre.



Map 14: There is no fitness centre within the walkshed; a fitness centre, however, is a component of the new YMCA under construction at VMC.

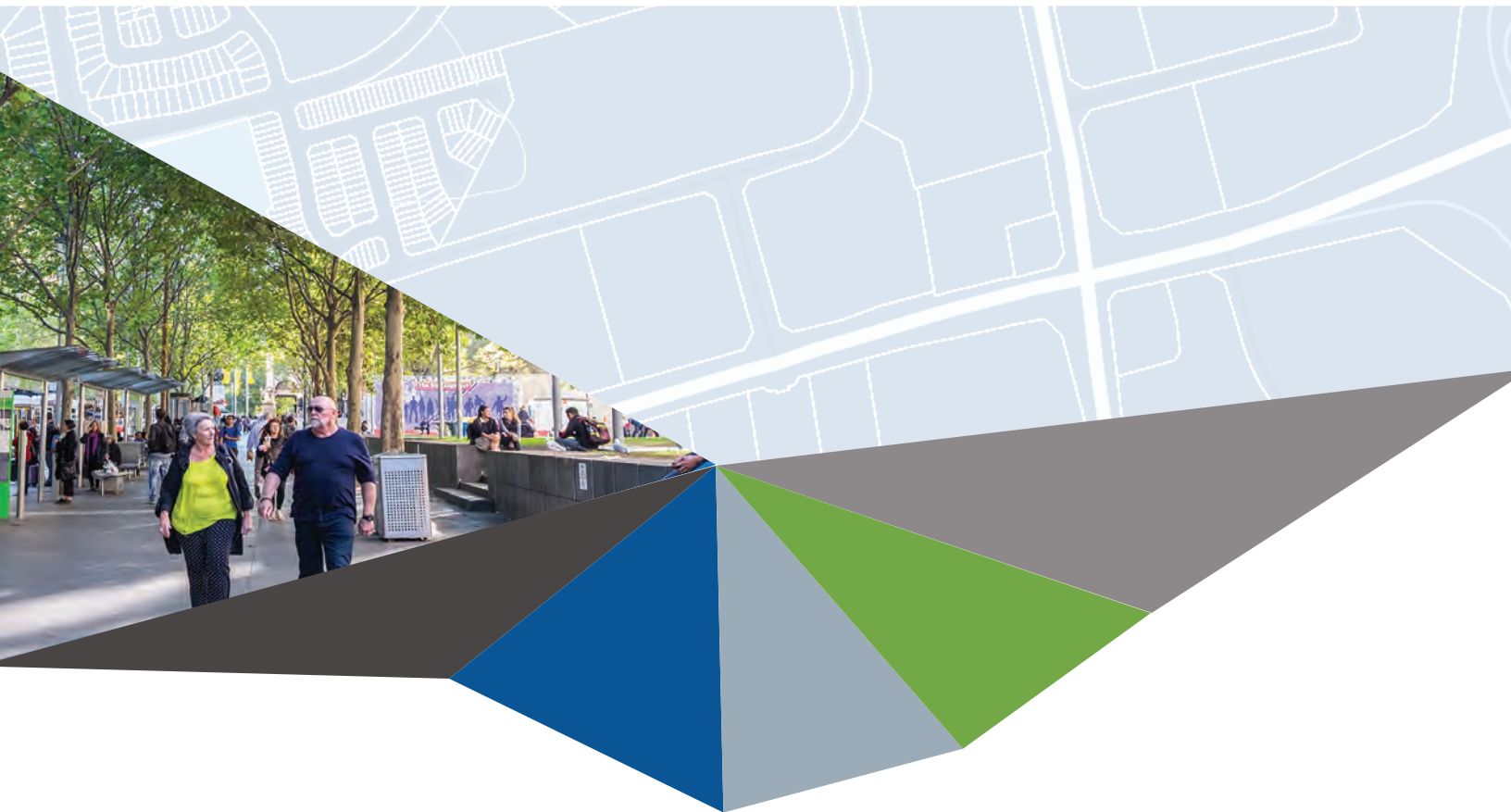


Map 15: Three playgrounds serve a small portion of the planning area.

PRELIMINARY WATER, WASTEWATER AND STORMWATER SERVICING ANALYSIS

APPENDIX 7

October 29, 2018



TECHNICAL MEMORANDUM

DATE	August 30, 2018
TO	Leigh McGrath, Urban Strategies Inc.
CC	
SUBJECT	Weston Road and Highway 7 Secondary Plan Preliminary Water, Wastewater and Stormwater Servicing Analysis
FROM	Kevin Brown, P.Eng.
PROJECT NUMBER	18154

1 Introduction

The Municipal Infrastructure Group Ltd. (TMIG) has been retained by Urban Strategies to conduct a servicing analysis to understand the existing water, wastewater and stormwater systems in the study area, in support of the Weston Road and Highway 7 Secondary Plan process.

Background information for the water distribution, wastewater collection and stormwater management systems were obtained from the City, through the Vaughan City-Wide Water/Wastewater and Stormwater Management Master Plans (dated June 2014).

2 Planning Context

The Weston Road and Highway 7 Area is defined as a “Primary Centre” in the City’s 2010 Official Plan. At that time, the Weston and 7 Area (then identified as “VCC West”) was projected to build out to approximately 6,400 residents (3,000 units) by 2031 (“Where and How to Grow”; Urban Strategies, 2009).

2.1 Current Planning Considerations

At the current stage of the Secondary Plan Process, an updated range of target development densities is being considered, as presented in **Table 1**. These preliminary scenarios have been developed for gross densities (residential population plus jobs) ranging from 160 per hectare to 400 per hectare.

TABLE 1: PRELIMINARY RANGE IN PLANNING DENSITIES

	Development Scenario (Persons + Jobs per hectare)				
	160	200	250	300	400
Total Persons+Jobs/ha (Gross)	16,600	20,700	25,900	31,100	41,400
Existing and Established	1,900	1,900	1,900	1,900	1,900
New Persons and Jobs	14,700	18,800	24,000	29,200	39,500
Total Jobs	1,930	2,480	3,160	3,840	5,200
Total Population	12,740	16,340	20,830	25,330	34,320
Total Residential Units	5,790	7,430	9,470	11,510	15,600
New Space (m ²)	679,600	871,400	1,111,200	1,351,000	1,830,700

Source: Hemson Consulting Ltd. (August 2018)

Water and wastewater servicing requirements are based on the ultimate serviced populations (residential and employment). As such, these are directly impacted by changes in density.

Stormwater management design requirements are generally driven by the percentage of impervious land area. With the range in development densities being considered at this stage of the Secondary Plan process, it is anticipated that the higher densities would be achieved almost entirely through increased building height, with minimal changes to the floor plate areas. As a result, the stormwater management requirements are not expected to vary for the different development scenarios.

3 Water Distribution

The Weston Road and Highway 7 Secondary Plan area is currently serviced primarily from Pressure District 6 (PD6). The lands west of Weston Road and south of Highway 7 are currently serviced from Pressure District 5 (PD5). The primary water infrastructure for the Study Area consists of the following:

- 300 mm watermain along Weston Road, Chrislea Road, Colossus Drive and Wings Road
- 400 mm watermain along Windflower Gate
- 350 mm watermain along Rowntree Dairy Road

A map of the water distribution system surrounding the Study Area is provided in **Figure 1**.

3.1 Master Plan Recommendations

The 2014 Vaughan City-Wide Water and Wastewater Master Plan did not identify upgrades to the water distribution system associated with the intensification of the Weston Road and Highway 7 Secondary Plan Area. Much of the planned intensification can be accommodated within the existing distribution system as the City's watermains were generally constructed based on a design criterion of 450 Lpcd, which does not reflect the historical reductions in water demands over the past several decades. In the City's 2014 Master Plan, a water demand criterion of 300 Lpcd was adopted.

The Master Plan focussed on the City's water distribution system and assumed that the Regional Facilities (water supply sources, booster pumping facilities, storage facilities, and major transmission mains) would be upgraded by the Region as required.

The most recent update to the York Region Water and Wastewater Master Plan (July 2016) lists no projects associated with growth within Vaughan PD5 or PD6. The Region should be advised of the outcome of the Secondary Plan process (in terms of population and employment targets), such that they may assess whether there are any impacts to their current Water Master Planning.

3.2 Range in Water Servicing Requirements

Based on the range in preliminary planning densities presented above (in **Section 2.1**), the overall water servicing requirements are as follows:

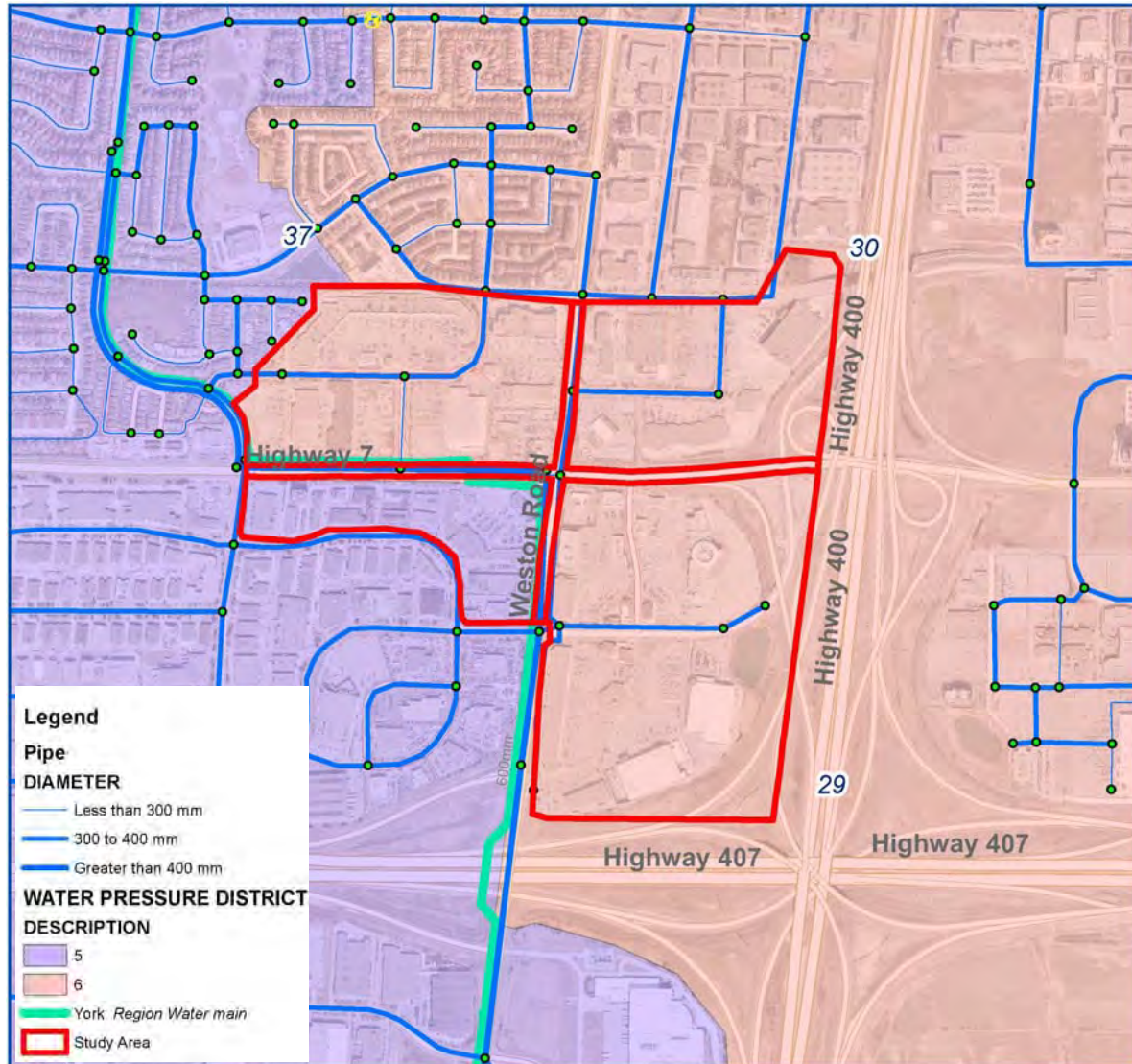
TABLE 2: PRELIMINARY RANGE OF WATER SERVICING REQUIREMENTS

	Development Scenario (Persons + Jobs per hectare)				
	160	200	250	300	400
Average Day Demand (L/s)	58	72	90	108	144
Maximum Day Demand (L/s)	104	130	162	194	259
Peak Hour Demand (L/s)	173	216	270	324	431
Fire Flow (L/s)	300	300	300	300	300

As the Study Area is currently serviced via the City's water distribution system, it is assumed that the redeveloped area will be supplied from the same sources. While it is anticipated that new internal watermains will ultimately be required

to support the redevelopment (likely following an updated road network), the City should review the need for potential external watermain upgrades.

FIGURE 1: EXISTING WATER DISTRIBUTION NETWORK



3.3 Water Servicing Opportunities and Constraints

While a detailed review of the existing water distribution system was not requested as part of this Secondary Plan, an initial review of the local water distribution system indicates the following opportunities and constraints:

- The southwest quadrant is serviced from Pressure District 5. As these lands are at the PD5/PD6 boundary, we would anticipate that water pressures would be towards the lower end of the City’s level-of-service objectives.
- The other three quadrants receive water supply through three separate watermains which are extended into the Study Area from the 900 mm Regional Pressure District 6 feedermain along Rutherford Road. As these lands are immediately adjacent to PD5, the pressures within these quadrants should be towards the upper end of the City’s level-of-service objectives.

- Improvements to the watermain looping in the northwest and southeast quadrants should be considered, as the existing watermain configuration leaves these quadrants vulnerable to watermain breaks, or disruptions resulting from maintenance activities. A new public street network through these quadrants will provide opportunities to improve the looping.
- Further opportunities to improve the looping and to also boost pressures in the southwest quadrant could be achieved by converting the southwest quadrant from PD5 to PD6. This could be achieved through a combination of new local watermains, or by relocating some of the existing zone valves and check valves along the existing boundary.

The City is planning to initiate a Functional Servicing Study for the Weston Road and Highway 7 Area as part of their Master Plan update, which will likely be initiated towards the end of 2018. This future study will assess the overall watermain capacity in the area, and could also involve coordination with York Region to confirm servicing requirements through the Regional infrastructure (feeder mains, booster stations, and storage facilities).

4 Wastewater Collection

The Weston Road and Highway 7 Secondary Plan area lies within the Pine Valley Collector system. The Pine Valley system lies between the Islington Collector System (to the west) and the Jane Street Collector (to the east). The Pine Valley Collector discharges to York Region's Humber Pumping Station. The primary wastewater infrastructure for the Study Area consists of the following:

- 525 mm sewer along Weston Road discharging to Rowntree Dairy Road
- 525 mm sewer along Rowntree Dairy Road which ultimately discharges to Pine Valley Collector
- 375 mm sewer along Ansley Grove Road discharging into Embassy Drive sewer which ultimately discharges to Pine Valley Collector

A map of the water distribution system surrounding the Study Area is provided in **Figure 2**.

4.1 Master Plan Recommendations

The 2014 Vaughan City-Wide Water and Wastewater Master Plan did not identify upgrades to the wastewater collection system associated with the intensification of the Weston Road and Highway 7 Secondary Plan Area. Much of the planned intensification can be accommodated within the existing collection system as the City's sewers were generally constructed based on design criteria of 450 Lpcd, which does not reflect the historical reductions in water demands (and – by extension – wastewater generation) over the past several decades. In the City's 2014 Master Plan, residential wastewater design criteria of 364 Lpcd was adopted.

The Master Plan focussed on the City's wastewater collection system and assumed that the Regional Facilities (sewage pumping stations, trunk sewers and wastewater treatment facilities) would be upgraded by the Region as required.

The most recent update to the York Region Water and Wastewater Master Plan (July 2016) lists a few projects that are intended to service growth within the Region:

- WW11: Leslie Street Sewage Pumping Station – Third Forcemain and Pump Replacement
- WW9: Primary Trunk Sewer (through Durham Region)
- WW7: Duffin Creek Water Pollution Control Plant – Stage 1 and 2 Chlorine Chamber Expansion
- WW2: Duffin Creek Water Pollution Control Plant – Outfall

It is not clear what specific impact the intensification of the Weston Road and Highway 7 Secondary Plan Area had on those recommendations, but the Region should be advised of the outcome of the Secondary Plan process (in terms of population and employment targets), such that they may assess whether there are any impacts to their current Wastewater Master Planning.

4.2 Range in Wastewater Servicing Requirements

Based on the range in preliminary planning densities presented above (in **Section 2.1**), the overall wastewater servicing requirements are as follows:

TABLE 3: PRELIMINARY RANGE OF WASTEWATER SERVICING REQUIREMENTS

	Development Scenario (Persons + Jobs per hectare)				
	160	200	250	300	400
Average Day Design Flow (L/s)	70	88	109	131	175
Peak Design Flow (L/s)	171	209	254	298	381
Infiltration Flow (L/s)	29	29	29	29	29
Total Design Flow (L/s)	199	237	283	326	410

As the Study Area is currently serviced via the City's wastewater collection system, it is assumed that the redeveloped area will continue to be serviced to the Pine Valley Collector. While it is anticipated that new internal sewers will ultimately be required to support the redevelopment (likely following an updated road network), the City should review the need for potential downstream sewer upgrades.

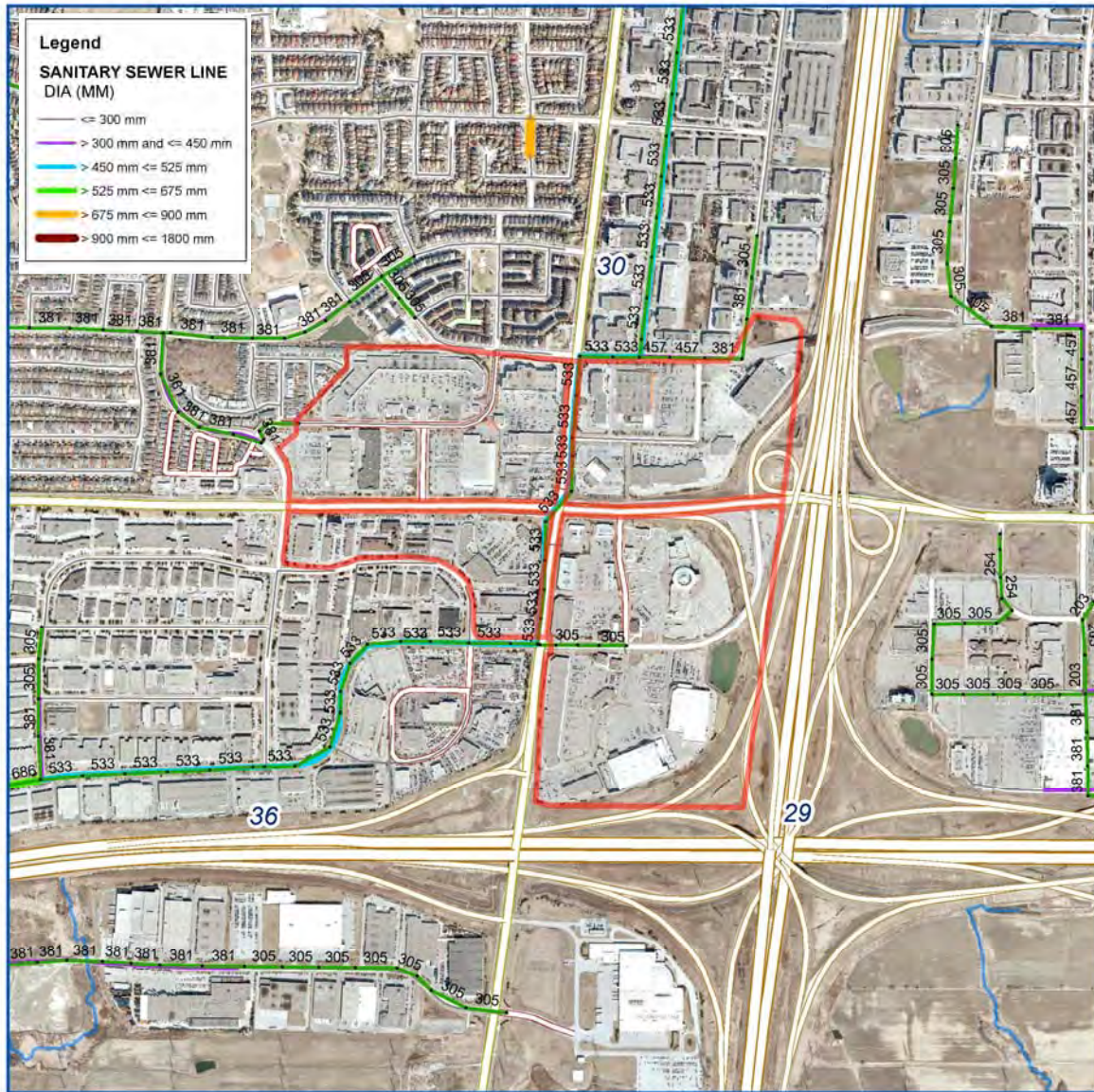
4.3 Wastewater Servicing Opportunities and Constraints

While a detailed review of the existing sewer capacities was not requested as part of this Secondary Plan, an initial review of the local collection system indicates the following opportunities and constraints:

- A design flow of 387 L/s would typically require a 600 mm sewer, assuming it could be built at a grade of 0.5%.
- The northwest quadrant is serviced to the west, via a 375 mm sewer along Windflower Gate and Ansley Grove Road. A typical 375 mm sewer (assumed installed at a grade of 0.5%) would have a full-pipe capacity of approximately 125 L/s.
- The other three quadrants are serviced to the south, via a 525 mm sewer along Weston Road. A typical 525 mm sewer (assumed installed at a grade of 0.5%) would have a full-pipe capacity of approximately 300 L/s.

The City is planning to initiate a Functional Servicing Study for the Weston Road and Highway 7 Area as part of their Master Plan update, which will likely be initiated towards the end of 2018. This future study will assess the overall sanitary sewer capacities in the area, also accounting for the servicing requirements of lands upstream of the Study Area. That future study could also involve coordination with York Region to confirm servicing requirements through the Regional infrastructure (trunk sewers and pumping stations).

FIGURE 2: EXISTING SANITARY SEWER NETWORK



5 Stormwater Management

The existing study area is a mix of commercial and industrial development, with impervious coverage estimated at 90% or higher. There are three primary drainage areas for the Study Area:

- The quadrants west of Weston Road drain to an existing stormwater management pond located south of Highway 407;
- The southeast quadrant drains to the existing stormwater management pond located south of the existing movie theatre; and,
- The northeast quadrant drains to a ditch running along the west side of Highway 400.

It is expected that most of the development in the study area incorporate on-site peak flow controls in accordance with City standards for commercial/industrial development (i.e. 180 L/s/ha maximum release rate), some of the sites may have installed oil-grit separators to address water quality, and no sites within the study area incorporate runoff volume

control measures. The controlled discharge rate from the individual properties in the Study Area need to be confirmed prior to redevelopment.

5.1 Master Plan Recommendations

The 2014 Vaughan City-Wide Stormwater Management Master Plan included recommendations for future development of the Weston Road and Highway 7 'Future Secondary Plan Area'. The Master Plan recommended that redevelopment sites draining to existing end-of-pipe stormwater management facilities control peak flow rates to existing levels and/or in accordance with the existing pond design criteria. For redevelopment of properties not draining to existing SWM facilities (i.e. north of Highway 7 and east of Weston Road), the Master Plan recommended on-site controls to meet peak flow control targets.

5.2 Stormwater Servicing Requirements

All new developments within the Weston Road and Highway 7 Secondary Plan study area will be required to adhere to most up-to-date City of Vaughan, Toronto and Region Conservation Authority (TRCA), and Ministry of the Environment, Conservation and Parks (MECP; formerly the Ministry of the Environment and Climate Change) standards.

These more stringent standards will be applied to redevelopment, which will significantly reduce runoff volumes, further reduce peak flow rates and reduce pollutant loadings at the source. However, it is noted that the planned on-site controls will not achieve the Humber River unit rate targets for peak flow control, which are applied to new, greenfield development.

With reduced runoff volumes and peak flow rates from the study area, the existing stormwater management facility in the south-east quadrant of the study area could be modified (within its current footprint) to optimize its performance for extended detention and peak flow control, benefitting flooding and erosion downstream in Black Creek.

5.3 Stormwater Management Opportunities and Constraints

The 2014 Stormwater Management Master Plan suggested that if redevelopment of the northeast quadrant of Highway 7 and Weston Road were to occur in an integrated fashion, with all properties redeveloping over a relatively short period of time, it may be economical to construct a new end-of-pipe stormwater management facility instead of individual on-site controls to address water quality and quantity control.

As it appears feasible to achieve the applicable stormwater management criteria through on-site controls, a new, centralized stormwater management facility is not recommended for the northeast quadrant as part of the Secondary Plan, but could be considered by landowners in the future if there is a co-ordinated approach to stormwater management. Another option could be to expand the existing pond in the southeast quadrant.

6 Next Steps

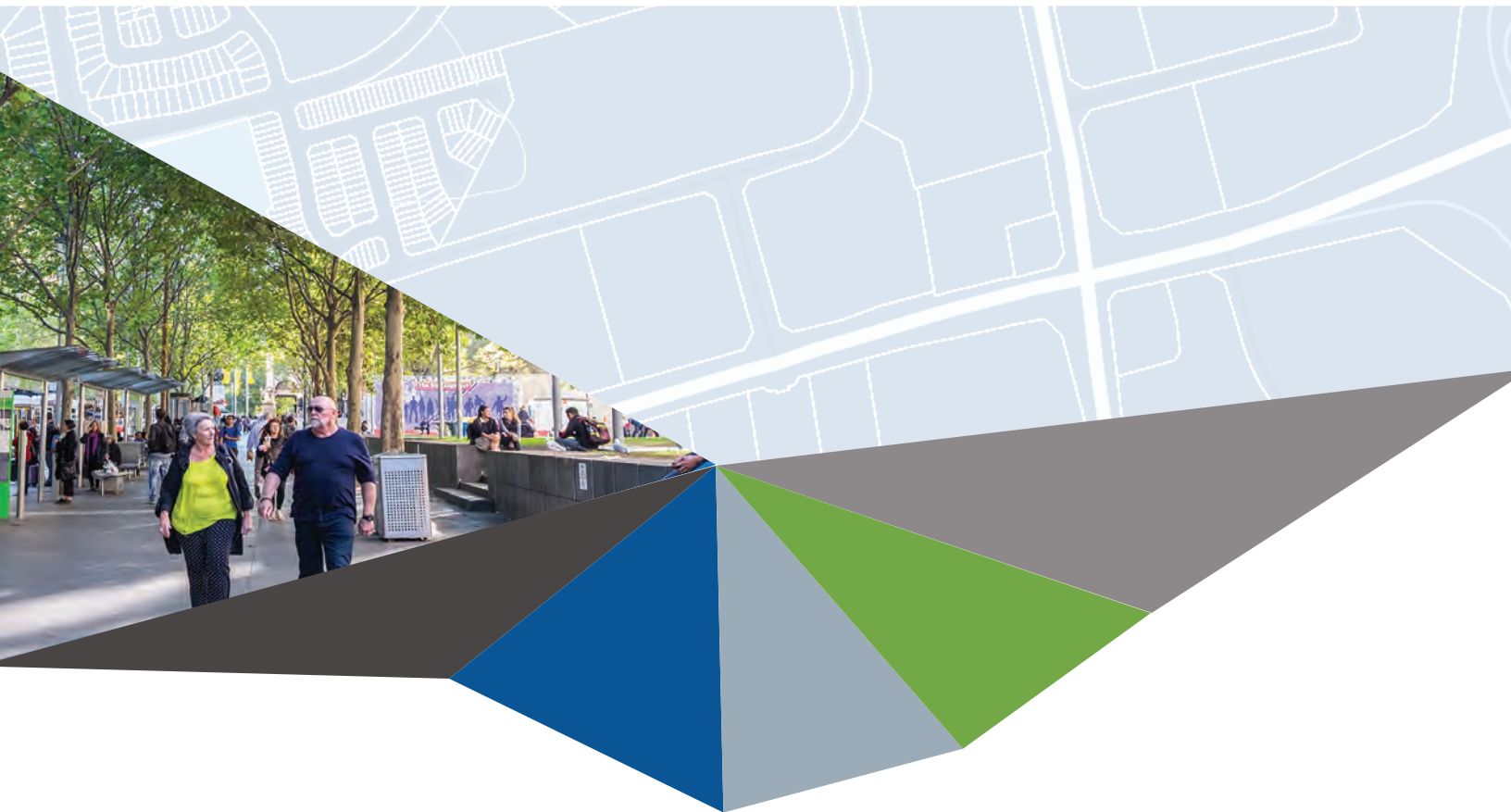
Once the development alternatives are further defined, a more detailed analysis of the servicing requirements of the alternatives will be prepared. The subsequent analysis will review details such as sub-block definition and determining the appropriate servicing locations for the Study Area. This subsequent review will consider the impacts of dividing the existing parcels into smaller development blocks, and further define the strengths, weaknesses, opportunities and threats (SWOT) associated with the redevelopment of the Study Area.

A Functional Servicing Report will not be prepared as part of this Secondary Plan Process, as this will be undertaken at a later date in conjunction with an update of the City's Infrastructure Master Plans. Rather, the servicing component of this Secondary Plan Process will establish the needs and general policies that should be considered when the City proceeds to the update of the Master Plans.

TELECOMMUNICATIONS MEMO

APPENDIX 8

October 29, 2018





RTG SYSTEMS INC.
ELECTRICAL CONSULTING ENGINEERS

August 20, 2018

Via PDF Email Only.

Urban Strategies Inc.
197 Spadina Avenue, Suite 600
TORONTO ON M5T 2C8

Attention: Ms. Leigh McGrath

**Reference: Highway 7 and Weston Road Secondary Plan
Bell and Rogers Telecommunications Provisioning Memo
Our File: 04727-00**

Dear Ms. McGrath:

Pursuant to your request please find attached our Bell and Rogers Telecommunications Provisioning memo for inclusion in your overall Highway 7 and Weston Road Secondary Plan Report.

We trust that this information is satisfactory for your current purposes, however, if there are any questions or concerns do not hesitate to call.

Yours truly,

**Mark A. Gayowsky
Principal**

Email Copy To:

**Bell Canada - ATTN: Mr. Jared Rundle
Bell Canada - ATTN: Ms. Maureen Grisdale
Rogers Cable Inc. - ATTN: Ms. Melanie Labaj**

WESTON ROAD AND HIGHWAY 7 SECONDARY PLAN – PHASE 1

COMMUNICATIONS INFRASTRUCTURE REPORT FOR CITY OF VAUGHAN

REPORT PREPARED BY: RTG SYSTEMS INC.

DATE: AUGUST 20, 2018

The Weston 7 Secondary Study Plan area is currently serviced by both Bell Canada and Rogers Cable Communications for telephony, television and internet servicing. This report has been produced to not only explain what Bell and/or Rogers will require to provide fiber optic cable servicing to new developments but to also engage both companies early in the planning process so that they have a better understanding of the future needs of the study area.

Bell Canada and Rogers Cable Communications now utilize fibre optic cables as part of their standard servicing architecture. At the time of this report (August 2018) both Bell and Rogers have existing fibre plant along the Highway 7 and Weston Road corridors and Bell has existing infrastructure throughout the local roads surrounding the intersection. It would be Bell and Rogers intent to review service applications within the secondary plan, confirm financial viability and then provide service to the developments as required connecting to their existing infrastructure grid. If additional capacity is required to service the area, it will be brought in via the existing Highway 7 or Weston Road corridors.

Both Bell and Rogers will work with Utility Co-ordination Consultants and City of Vaughan Staff to ensure that their proposed infrastructure maximizes accordance with the City of Vaughan Official Plan Section 8.4.4 in as much as that is technically feasible at the time of installation.

Specific application will have to be made to one or both communications companies regarding the servicing of the building. Any equipment required by the communications equipment specifically related to the servicing of a given site, must be located on the site itself and not in the municipal boulevard. Typically, the duct provision from lot line to electrical room is supplied by the builder in accordance with Bell and Roger's respective requirements. Ideally, installation of new plant in municipal boulevards will be completed in conjunction with Hydro and Gas servicing in a joint use trench configuration. All work in Municipal boulevards will be completed in accordance with City of Vaughan standards and specifications.

The communications companies may require flush to grade pull boxes to be installed in temporary locations throughout the municipal boulevard. As the Secondary Plan is developed it is expected that all such pull boxes either be removed or relocated within the property as part of site plan. This will allow the boulevard to be completed without hindrance. Bell and Rogers should be notified to coil sufficient fibre cable in all such boxes to allow for relocation to permanent on site location.

At the time of the creation of this report, ubiquitous wifi throughout the community is not offered by either Rogers or Bell but this service may be offered in the near future.

As the planning for the study area evolves, Area Managers for both Bell and Rogers should be kept apprised of developments on a regular basis to ensure that they can provide the most up to date services available to the area.