City of Vaughan

Vaughan Metropolitan Centre (VMC) Transportation Master Plan

August 2025

Final Report

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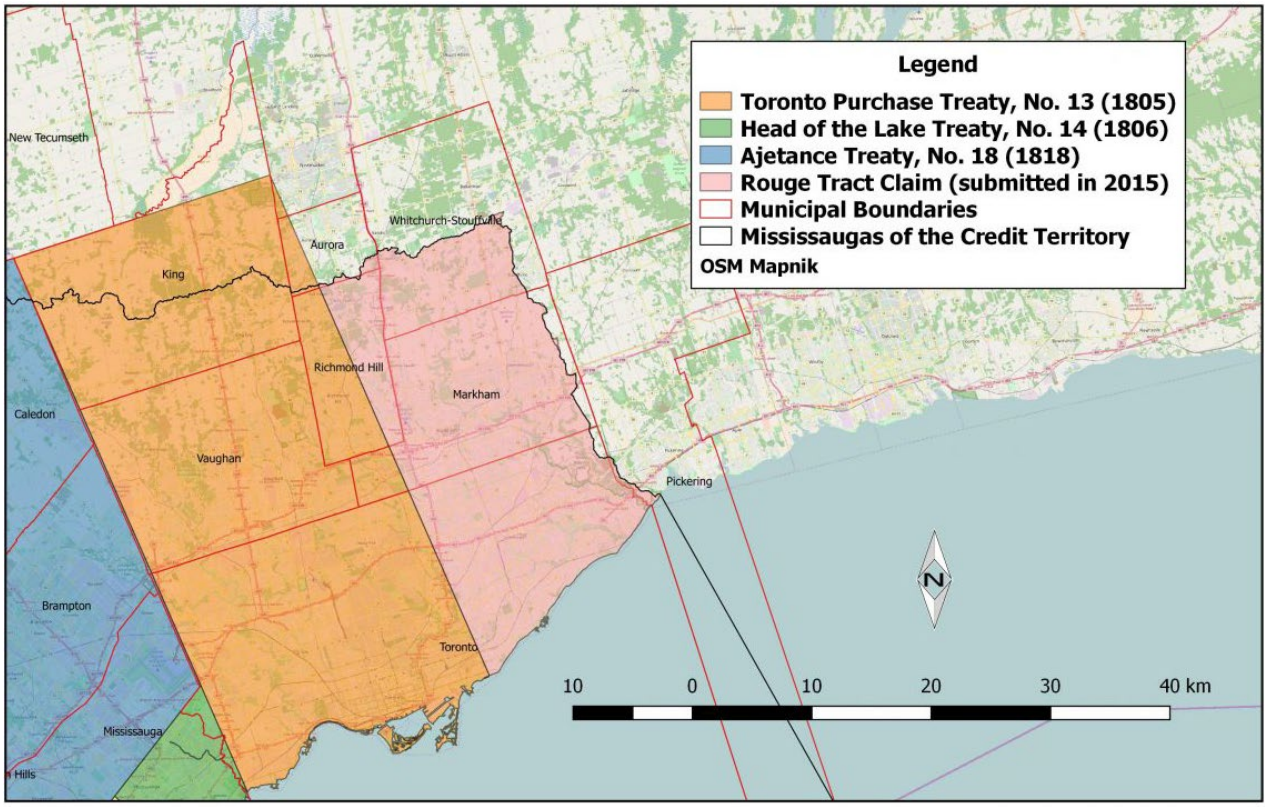
Indigenous Land Acknowledgement

We respectfully acknowledge that the City of Vaughan is situated in the Territory and Treaty 13 lands of the Mississaugas of the Credit First Nation. We also recognize the traditional territory of the Huron-Wendat and the Haudenosaunee. The City of Vaughan is currently home to many First Nations, Métis and Inuit people.

As representatives of the people of the City of Vaughan, we are grateful to have the opportunity to work and live on these lands.



Municipal Boundaries Related to the Toronto Purchase Treaty, No.13 (1805)

Source: Mississaugas of the Credit First Nation, November 2020, The Toronto Purchase Treaty, No.13 (1805), <The Toronto Purchase Treaty, No. 13 (1805) – Mississaugas of the Credit First Nation>

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1 Introduction

1.1 Study Overview

The City of Vaughan has retained WSP Canada Inc. to carry out an update of the 2012 Vaughan Metropolitan Centre Transportation Master Plan.

The TMP will outline a long-term vision for transportation in the VMC, consisting of a multi-modal transportation network with associated policies and implementation strategies. Developed through an integrated and holistic approach, the TMP seeks to improve accessibility and connectivity for all modes of transportation to support the substantial growth anticipated in the VMC. The TMP plans for 105,500 people and jobs by the year 2051. Details regarding the development process and approach for the TMP are outlined in **Section 1.3**.

The VMC is planned to become Vaughan's downtown. It was identified as a Secondary Plan Area in the Vaughan Official Plan, with a new Secondary Plan currently being developed. It is also identified by the Province of Ontario as an Urban Growth Centre in A Place to Grow and a Regional Centre in the 2022 York Region Official Plan (Office Consolidation June 2024).

The new Secondary Plan continues to envision the VMC as a transit-oriented, walkable, accessible, diverse, vibrant, green, and beautiful community. As a future downtown, it will be a major focus for intensification for a wide range of residential, office, retail, cultural and civic uses, including the tallest buildings and most intense concentration of development in Vaughan. This land use mix and density will enable the VMC to evolve into a multi-faceted and dynamic place. The TMP Update builds upon this Secondary Plan vision.

The VMC TMP Update will also build on the foundation laid by the 2023 Vaughan Transportation Plan (VTP). The VTP is the City's blueprint for a transportation network that addresses Vaughan's future growth and development. It sets out a plan to build multi-modal transportation infrastructure, empower residents to choose non-auto modes, and prepare for future trends. More information on how the VTP integrates with the VMC TMP is provided in **Section 2.3.2**.

The VMC TMP also builds on the context of the abutting Weston 7 Transportation Master Plan. While the two TMPs are distinct initiatives within the City of Vaughan, they are linked by utilizing the same travel demand model to create a unified transportation network for this specific urban area.

What is a TMP?

A Transportation Master Plan is a policy document that outlines strategic transportation planning direction for a specific Study Area. Led by municipal and community goals, a TMP is a forward-thinking document that sets out a community's long-term vision and goals for transportation. It typically analyzes the needs of a range of transportation modes and infrastructure to accommodate future growth and meet policy objectives. The development of a TMP involves a comprehensive analysis of the transportation system and trends that may influence it, including factors such as demographics, existing conditions, emerging trends, best practices, stakeholder inputs, and associated policies. The goal is to produce long-term transportation recommendations that will cater to growth and enhance quality of life.

1.2 Study Objectives

Transportation planning direction for the VMC was first set out in 2012, in a Vaughan-wide TMP. Since then, various improvements and policy changes to the VMC TMP Study Area were introduced, calling for a review of, and updates to, the transportation directives for the area. Examples of improvements include the opening of the VMC subway station, VMC Bus Terminal, and Highway 7 VIVA Bus Rapid Transit. In addition, a surge in forecasted growth necessitates a review of the adequacy of planned transportation infrastructure. The VMC TMP will therefore update existing policy directions for the Study Area and is intended to:

- **Evaluate existing and future conditions** through assessment of current and forecasted future transportation needs, demands and limitations within the VMC Study Area, and use a multimodal level of service approach to evaluate network connections and infrastructure;
- **Undertake a complete mobility review** of future development scenarios for the VMC Study Area, supporting the implementation of a public realm vision based on complete streets, while addressing emerging mobility trends such as ride share, micromobility and parking;

- **Identify a preferred transportation network** based on an evaluation of preliminary options to optimize future performance of traffic operations;
- **Integrate a multimodal network** which accounts for various users regardless of age or ability and supports goods movement;
- **Guide growth and development** within the VMC Study Area by building upon the 2023 Vaughan Transportation Plan;
- **Engage stakeholders** by providing a decision-making tool to identify and implement key actions related to the enhancement of the transportation system;
- **Develop an implementation plan** that include prioritized recommendations for transportation infrastructure improvements, policies, and programs while also outlining short, medium, and long-term horizons for achieving municipal and community objectives.

The future recommendations and policies outlined in the VMC TMP have been developed to meet the listed objectives while aligning with the needs of external stakeholders, the public, and Council. Further information regarding the public consultation process can be found in **Section 5.**

This transportation study is being carried out concurrently with, and in support of, the new VMC Secondary Plan, under a fully integrated and holistic approach to transportation and land use planning, and in a similar manner to the 2012 TMP and 2010 Vaughan Official Plan.

1.3 Study Process and Approach

The study process and approach for the VMC TMP Update is summarized in **Figure 1-1**, following the MCEA process. The MCEA phases can be broken down as follows:

- **Phase 1** will identify existing and potential transportation needs within the VMC based on projected land uses. It will also set out opportunities to address these needs and improve the existing transportation system. The results of Phase 1 were used to inform **Sections 3** and **3.8** of this TMP.
- **Phase 2** will generate alternative solutions and undertake an evaluation to determine a preferred transportation solution for the VMC. The results of this phase inform the recommendations outlined in **Section 6** of this TMP**.**

Figure 1-1. MCEA Process Breakdown for VMC TMP

The City is undertaking other relevant background studies within the vicinity of the VMC Study Area (**Section 2.4**). These background studies include the Weston Road and Highway 7 Secondary Plan and supporting TMP (Weston 7 TMP) and are being conducted with the intent of carrying out land use planning and infrastructure planning/design in a fully integrated manner. **Section 2.4** provides further details on the impact of these background studies on the development of the VMC TMP recommendations.

1.4 Study Area

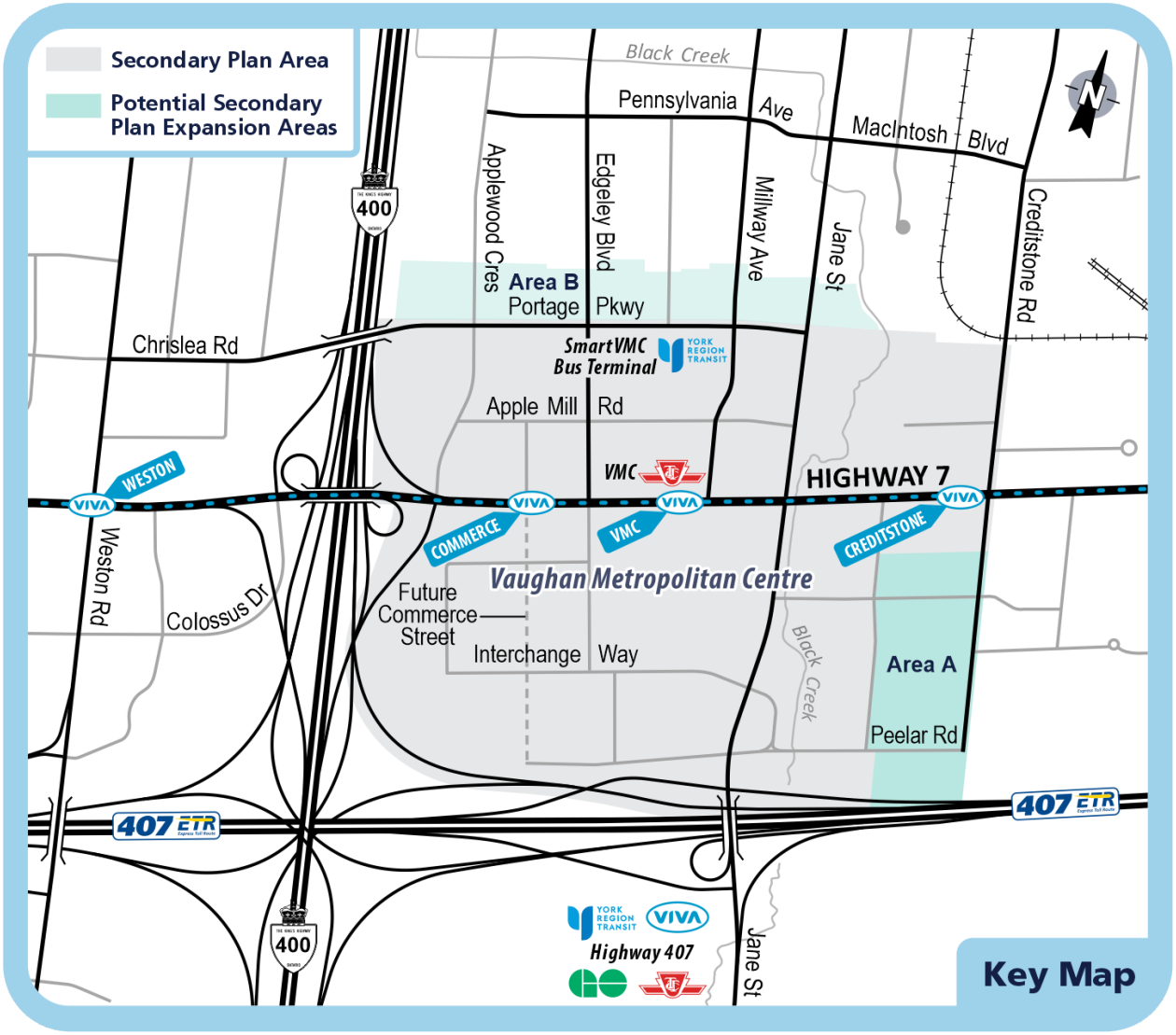
The Study Area for the VMC TMP Update is bound by Creditstone Road to the east, Portage Parkway to the north, Highway 400 to the west and 407ETR to the south. There are two Secondary Plan Expansion Areas. Expansion Area A extends the existing boundary east to Creditstone Road on the south side of the Highway 7, resulting in a continuous east boundary line. Expansion Area B extends the existing boundary north, incorporating the lots on the north side of Portage Parkway. The Study Area is presented in **Figure 1-2.**

Three Strategic Growth Areas abut or are adjacent to the VMC. These are:

- The Weston 7 Secondary Plan Area located immediately to the west of the VMC;
- The Concord GO Centre Secondary Plan located to the east of the VMC; and
- The Vaughan Mills Centre Secondary Plan located to the north of the VMC.

The following sections identify planned land uses and key areas in the VMC, forecasted population and employment, and existing travel behaviours.

Figure 1-2: VMC TMP Update Study Area



1.4.1 Land Use and Key Areas

The VMC is planned as a high density, mixed-use downtown core centred around the VMC subway station, the terminus of the TTC's Line 1. To accommodate this vision, the VMC Secondary Plan sets out a recommended land use framework, as identified in **Figure 1-3**. The two main transportation arteries in the VMC – Highway 7 and Jane Street – will be lined by high-density mixed-use areas. A proposed performing arts and cultural centre is recommended at the intersection of Commerce Street and Doughton Road, while a major community service facility is recommended at the intersection of Doughton Road and Millway Avenue.

Four residential neighbourhoods are planned, one in each quadrant of the Study Area. One to two schools are envisioned in each of these neighbourhoods. Furthermore, non-residential mixed-use areas are planned at the eastern periphery of the VMC. A network of open spaces and parks is also planned throughout VMC, with the largest concentration located on the east side of Jane Street.

As the new Secondary Plan is ongoing, the future land use vision is subject to change.

Figure 1-3. VMC Land Use Designation

Source: Vaughan Metropolitan Centre Secondary Plan, City of Vaughan, 2025

1.4.2 Population and Employment Trends

The VMC is currently home to approximately 13,500 residents and 1,900 jobs. As Vaughan's future downtown, population and employment within the VMC are expected to soar by 2051, to a combined 105,500 people and jobs.

Population and employment forecasts for VMC by quadrant are displayed in **Table 1-1.**

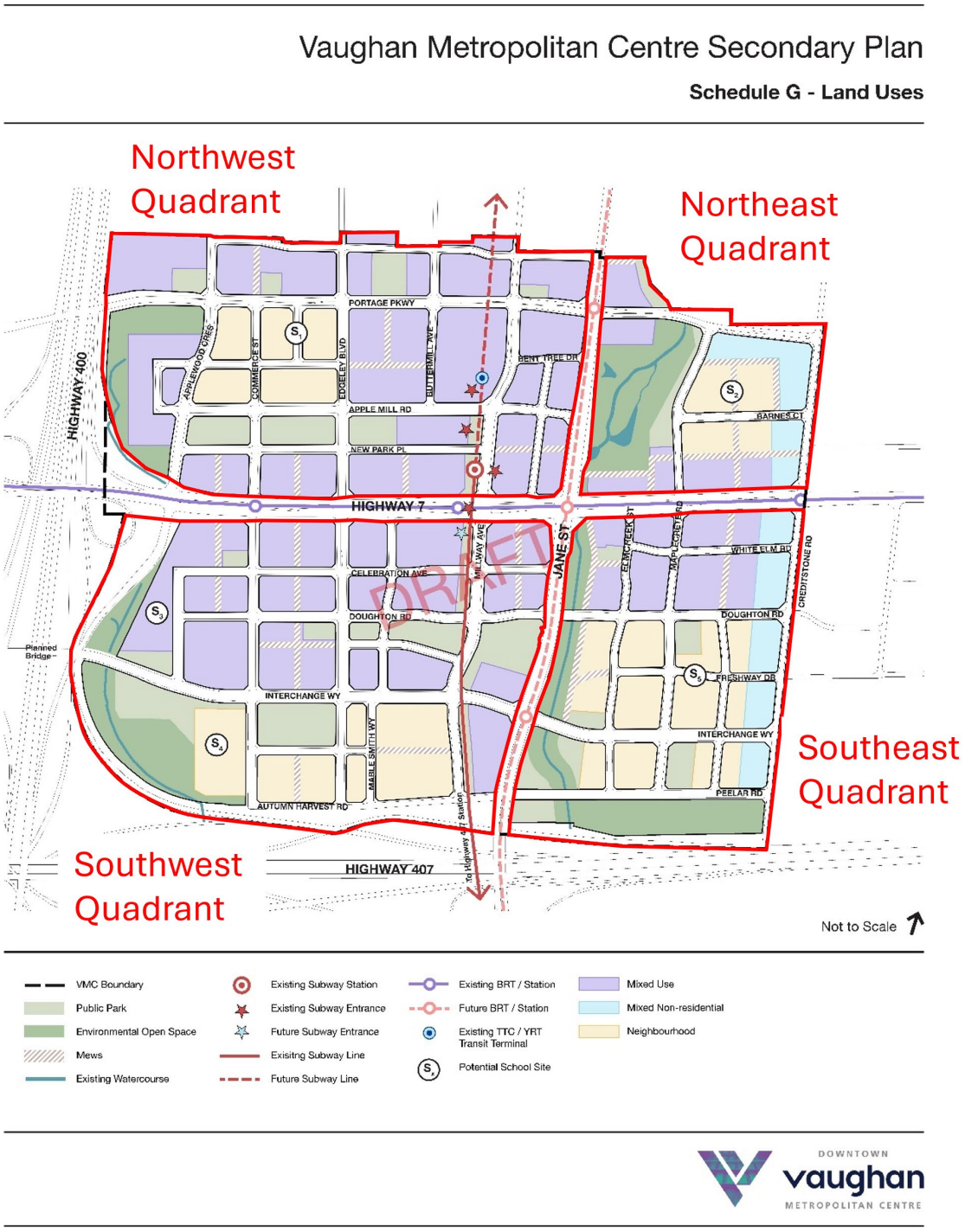
Table 1-1. Option 1 - Total Population and Employment for and 2051

Location	Population	Employment
NW quadrant	24,683	8,605
SW quadrant	30,455	15,649
SE quadrant	14,398	1,890
NE quadrant	7,886	2,050
Total	**77,423**	**28,194**

Note: These forecasts have been purposefully rounded to 105,500 for this report.

The locations of the quadrants are shown in **Figure 1-4**.

Figure 1-4: VMC Quadrants



Source: Vaughan Metropolitan Centre Secondary Plan, City of Vaughan, 2025

1.5 Report Structure

The report is divided into the following sections:

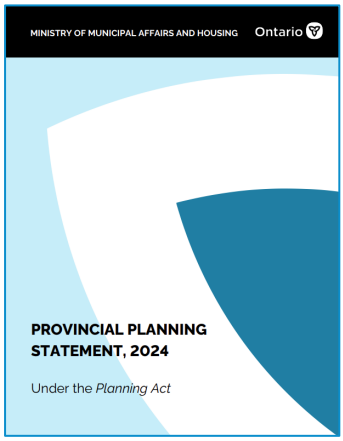
Setting the Stage: the TMP Context	**Chapter 1** Provides an overview of the TMP, including what it is and why it is being prepared, how it fulfills Phases 1 and 2 of the Municipal Class Environmental Assessment Process, and the Study Area characteristics.
Transportation Planning Context and Relevant Studies	**Chapter 2** Outlines the existing policy structure at the Provincial, Regional, and City levels that is guiding the TMP.
Existing Transportation Network	**Chapter 3** Reports on the existing multi-modal infrastructure in place today in the Study Area, existing travel patterns and the performance of the existing transportation networks.
Opportunities and Constraints to Meeting Growth Targets	**Chapter 4** Identifies constraints and opportunities to enhance the transportation network to accommodate future growth. Presents the vision statement and objectives. This chapter meets the requirements of Phase 1 of the MCEA process.
Stakeholder and Public Engagement	**Chapter 5** Summarizes the feedback received from stakeholders and the public throughout the project, focusing on the two rounds of engagement.
Alternative Network Development and Assessment	**Chapter 6** Presents future scenarios, meeting Phase 2 of the MCEA process. Reports the assessment of the alternatives for the ultimate build-out scenario. Uses the technical analysis to identify the preferred scenario.

	Presents the development of the travel demand model, population and employment allocation, base year model results, transportation scenario analysis, alternative designs for the preferred transportation option, preliminary design for the preferred option, intersection analysis of future conditions, goods movement, and preferred future road network.
The Future Multi-Modal Network	**Chapter 7** Presents the multi-modal elements of the preferred scenario, illustrating how the active transportation, transit, and street network recommendations work together to help facilitate mobility given the forecast growth in population and employment.
Cross Sections and Standard Road Network Design	**Chapter 8** Provides proposed cross-sections including number of lanes and active transportation facilities for major and minor arterials, as well as collector and local roads, and mews.
Supporting Policies	**Chapter 9** Supporting policies include TDM, Road Safety, Parking Management, Micromobility and Curbside Management.
Implementation Schedule and Costing	**Chapter 10** Maps a phasing plan for implementing the multi-modal infrastructure with projects needed by 2041 and 2051 to accommodate projected growth. Estimates construction costs of these projects are in 2025 dollars.

2 Transportation Planning Context and Relevant Studies

2.1 Provincial Planning Policies

2.1.1 Provincial Planning Statement (2024)



The Provincial Planning Statement (PPS) 2024, issued under Section 3 of the Planning Act, came into effect on October 20, 2024. It provides policy direction on matters of provincial interest related to land use planning and development. As a foundational component of Ontario's policy-led planning framework, the PPS guides how land is developed and used across the province, supporting the goal of accommodating rapid population growth while enhancing overall quality of life. Sections of the PPS that are applicable to the planning of transportation infrastructure include:

The new Statement seeks to support an increased supply and mix of housing options and a strong and competitive economy. It prioritises compact and transit-supportive design where appropriate, as well as optimized investments in infrastructure to support convenient access to housing, quality employment, services, and recreation for all Ontarians.

The Provincial Planning Statement (PPS) 2024 outlines several key transportation-related policies, including the following:

- Planning should support the achievement of complete communities, including by accommodating a mix of transportation options with multimodal access.
- Densities for new housing should support the use of active transportation.
- Transit-supportive development and intensification is required in proximity to transit, including corridors and stations.

- Land use patterns within settlement areas should have densities and land use mixes that support active transportation, are transit-supportive, and are freight supportive.
- Transportation systems should be safe, energy efficient, appropriate to address projected needs, and support the use of zero- and low-emission vehicles.
- Transportation Demand Management strategies should be employed to ensure efficient use of the network.
- Connectivity between different transportation systems and modes should be maintained and improved.
- Major goods movement facilities and corridors should be protected for the long term.

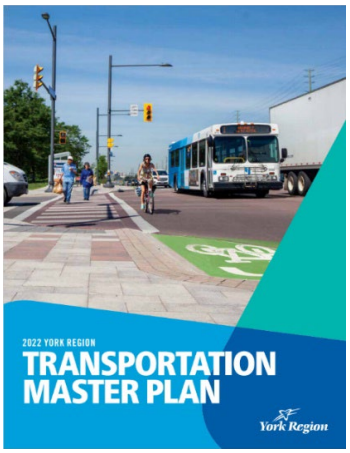
2.2 Regional Planning Policies

2.2.1 York Region Official Plan (2022)

The 2022 York Region Official Plan (YROP) was adopted by York Region Council in June 2022 and approved by the Minister of Municipal Affairs and Housing in November 2022. The YROP provides a long-term strategic policy framework for guiding growth and development in York Region, while providing opportunities for more detailed planning by local municipalities.

Specific YROP objectives and policies that guide transportation planning decisions are reflected in Chapter 2, 4, and 6. Chapter 2, “The Foundation for Complete Communities”, provides policies intended to help create well-designed complete communities that integrate greenspace, trails, pedestrian, and transit networks, and that offer a variety of housing, transportation, accessible human services, and employment options. Chapter 4, “An Urbanizing Region”, provides the foundation for vibrant cities and complete communities. It recognizes that the VMC is one of the four Regional Centres that is strategically located and connected along Regional Corridors to enhance the mobility of people and goods. Chapter 6, “Servicing Our Communities” includes policies that

coordinate the provision of services with the city and community building policies of the YROP, as well as policies that support the long-term vision of Transportation.



The YROP provides a strong policy foundation for the future transportation network by establishing a number of key policies that guide the more detailed policies and recommended actions of the TMP. These include:

- Make efficient use of existing and future transportation infrastructure;
- Promote walking, cycling, transit use and carpool through Comprehensive TDM and Sustainable Mobility Measures; and
- Reduce automobile trips towards more sustainable modes of transportation to improve travel options, enhance air quality, and protect York Region's natural heritage.

2.2.2 York Region Transportation Master Plan (2022)

The York Region Transportation Master Plan (YRTMP), 2022, builds on the Regional Official Plan and sets out the infrastructure and policy requirements required to build and maintain the transportation system. This includes planning and policies for additional road and transit infrastructure, and a system of sidewalks, separated cycling facilities and trails to facilitate active transportation. The TMP is a fundamental planning / policy document addressing the capacity of the current transportation network and maintaining the quality of life for York Region residents and businesses while accommodating the dramatic growth that is forecast by the Growth Plan.

The Plan objectives include:

- Make the best use of infrastructure and services;
- Encourage all types of travel;
- Provide a resilient and adaptable transportation network;
- Enhance partnerships;
- Actively engage and share information; and
- Align project costs.

The VMC is recognised as a Mobility Hub in the YRTMP, as defined in the Metrolinx Regional Transportation Plan. Some of the policies and recommendations in the YRTMP state that the Region will implement the Rapid Transit network and continue to

improve and expand the services outside the rapid network. It notes that the Region will support local municipalities for mitigating barriers in the major collector road network for new and existing development areas. The YRTMP states that it will continue to collaborate with local municipalities as they develop and implement their active transportation plans and work with local municipalities to proactively review ways to make existing communities more complete through interventions addressing both land use and transportation systems.

In addition to the vivaNext Rapid Corridor along Highway 7 through the VMC Study Area, Jane Street is also identified in the Regional Viva Network Expansion Plan, with curbside stations being constructed between Steeles Avenue and Major Mackenzie Drive. The Rapid transit along Jane Street is intended to provide a service connection with the TTC Line 1 Subway Extension.

2.3 City of Vaughan Policy Framework

2.3.1 City of Vaughan Official Plan (2010 & 2025)

The City of Vaughan Official Plan (VOP), 2010 and 2025 are part of an overall Growth Management Strategy, initiated and passed by Council, which will shape the future of the City and guide its continued transformation into a vibrant, beautiful and sustainable City. The overall Growth Management Strategy in the 2010 Official Plan consists of three main components:

- Vision 2020 – the City's Strategic Plan;
- Green Directions – the City's Sustainability Master Plan; and
- A Plan for Transformation – the City's new Official Plan.

The main principles of Vaughan's Vision for Transformation and the resultant policies are summarized through eight key themes, identified below. These applicable goals have become the goals of the Official Plan:

- Strong and Diverse Communities;
- A Robust and Prominent Countryside;
- A Diverse Economy;
- A Vibrant and Thriving Downtown;
- Moving Around without a Car;
- Design Excellence and Memorable Places;
- A Green and Sustainable City; and

— Directing Growth to Appropriate Locations.

With respect to the goal of a vibrant and thriving downtown, the Province identified the VMC as a provincially designated Strategic Growth Area. The VMC can accommodate a significant amount of Vaughan's planned residential and employment growth, and it is an appropriate location for major institutional uses. Through planning, design, programming, and investment, the VMC will be the focus of Vaughan's identity.

The VMC will be comprised of distinct development precincts including residential neighbourhoods, office districts, employment areas and mixed-use areas, all linked by a robust system of parks, public squares and open spaces, including the Edgeley Pond and Black Creek system, and a fine-grain grid pattern of streets. The Official Plan Schedule 1 Urban Structure is provided in **Figure 2-1** and key aspects are summarized below:

— The VMC is identified as an intensification area.
— Regional Intensification Corridors, which are Regional Roads that have been identified for major higher-order transit investments, such as Viva Rapid Transit on Highway 7, will link the VMC with other intensification areas in Vaughan and across York Region.

The VOP 2010 provides direction in transforming the transportation network within the City. The OP notes the following transportation policies applicable to the VMC TMP Study:

— To establish a comprehensive transportation network that allows a full range of mobility options, including walking, cycling and transit;
— Developed as a pedestrian-friendly and transit-oriented place, providing a variety of housing options and diverse employment opportunities;
— The VMC Study Area and Regional Intensification Corridors aspires to have a transit-modal split of 50% during peak periods by 2031.
— Land-use planning decisions within Intensification Areas should maximize the use of existing and planned transit infrastructure, considering potential impacts on nearby neighbourhoods; and
— To consider the coordination of central bicycle parking facilities, which may also include supporting amenities such as lockers, showers and changing facilities, in the VMC

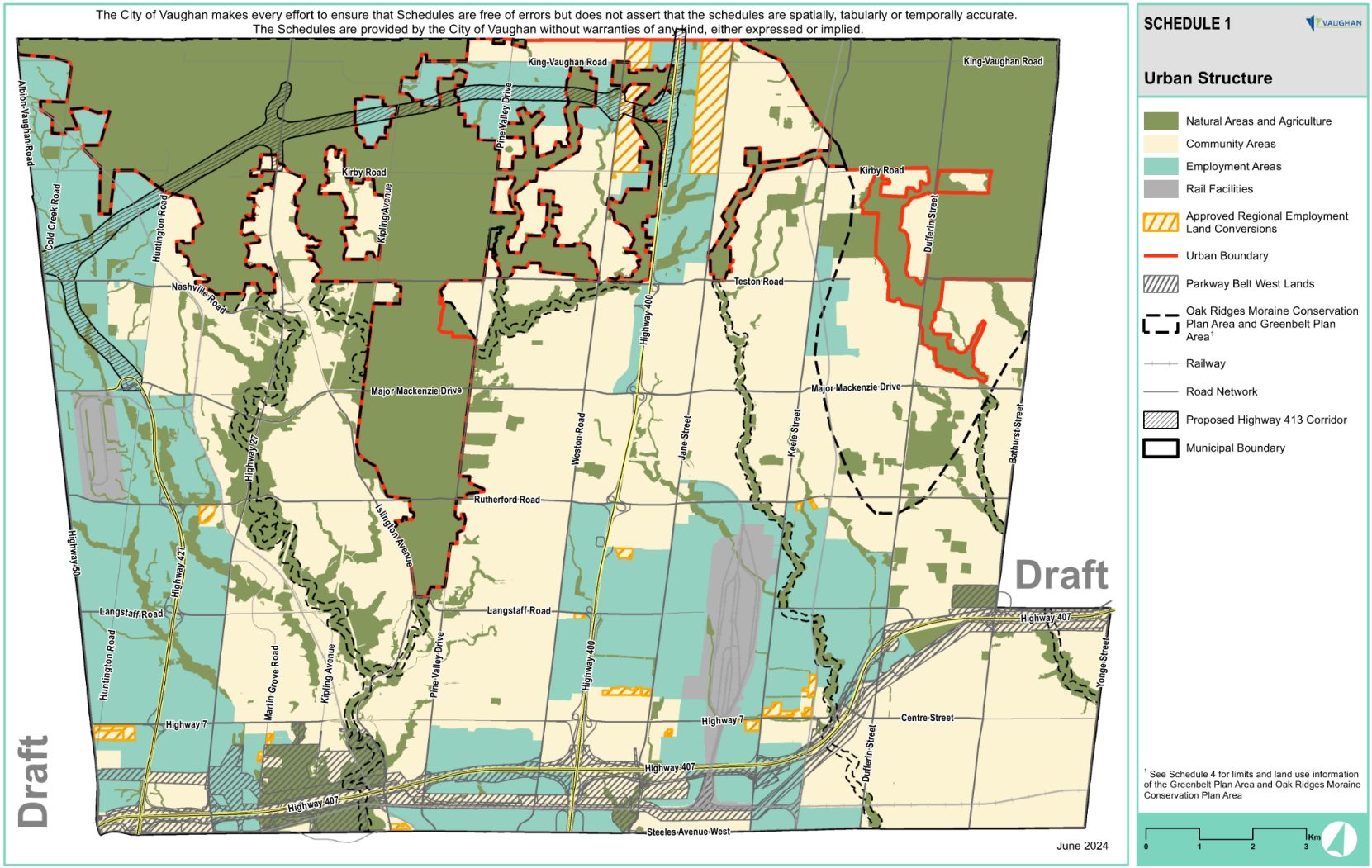
At the time of this TMP report, the City of Vaughan is developing the New Vaughan Official Plan, 2025. The New Official Plan, 2025 will reflect changes to the Provincial

policy regime, as well as evolving circumstances and challenges that influence planning in the Greater Golden Horseshoe.

Once adopted by Vaughan Council and approved by the Province of Ontario, the new VOP 2025 will:

- Provide for more housing and a wide range of housing options;
- Be consistent with new Provincial policies, plans and growth targets for people and jobs; and
- Direct density and protection of employment, environmental and agricultural areas and more to the year 2051 to better serve the community.

Figure 2-1. VOP 2010 - Schedule 1 Urban Structure



Source: City of Vaughan, Comprehensive OPA, June 2024

2.3.2 Vaughan Transportation Plan (2023)

The Vaughan Transportation Plan (VTP) 2023 is the City of Vaughan's long-range TMP which replaces the first TMP completed in 2012. The VTP incorporates the updated planning context which influences the city and provides baseline transportation conditions today through to 2051. It provides direction for future transportation projects, policies, initiatives, studies, and decisions that will direct transportation changes in the City to create a network supportive of all users.

The vision set out by the VTP is to provide the city with high-quality, competitive, sustainable and attractive mobility choices. There have been four pillars established to support this vision which include:

- Provide choices by letting people choose how they will travel through providing multiple attractive options instead of being limited to driving to their destination.
- Move more people and goods through improving sustainability and maximizing infrastructure to be used effectively and flexibly for people and goods.
- Be equitable by developing a transportation system that serves everyone, regardless of age, ability, background, and income level, and
- Promote good health by minimizing pollution and greenhouse gases from vehicles and building safe infrastructure for vulnerable users.

2.3.3 Pedestrian and Bicycle Master Plan Update (2020)

The 2020 Pedestrian and Bicycle Master Plan Update focuses on creating a more walkable and bikeable community for the City of Vaughan through the provision of pedestrian and cycling facilities for all ages and abilities. The updates of the Master Plan focus on the following four key themes that emerged as community priorities through the study:

- **Safety** through physically separated pedestrian and cycling infrastructure;
- **Infrastructure** will be advanced in a cost-effective yet timely manner;
- **Connectivity** through prioritizing initiatives, such as Vaughan Super Trail, VMC Separated Cycling Network, mini-networks and intensification areas; and
- **Awareness and Culture** will be fostered through ongoing education and outreach, as well as expanding active transportation policies in applicable City plans.

The Pedestrian and Bicycle Master Plan Update includes recommendations to prioritize the buildout of the VMC Separated Cycling Network (**Figure 2-2**), as part of the key

theme ‘Connectivity’ and to implement pedestrian facilities on both sides of every street within 800 metres of the VMC Study Area. The Separated Cycling Network was advanced, and a revised network plan approved by Council before the completion of the Pedestrian and Bicycle Master Plan study and then later reaffirmed through the approval of the Pedestrian and Bicycle Master Plan and Vaughan Transportation Plan. It will provide access to a high-quality and connected network by allocating space for cycling upfront, with more than 20 kilometres of physically separated cycling facilities and multi-use recreational trails.

Figure 2-2. VMC Separated Cycling Network

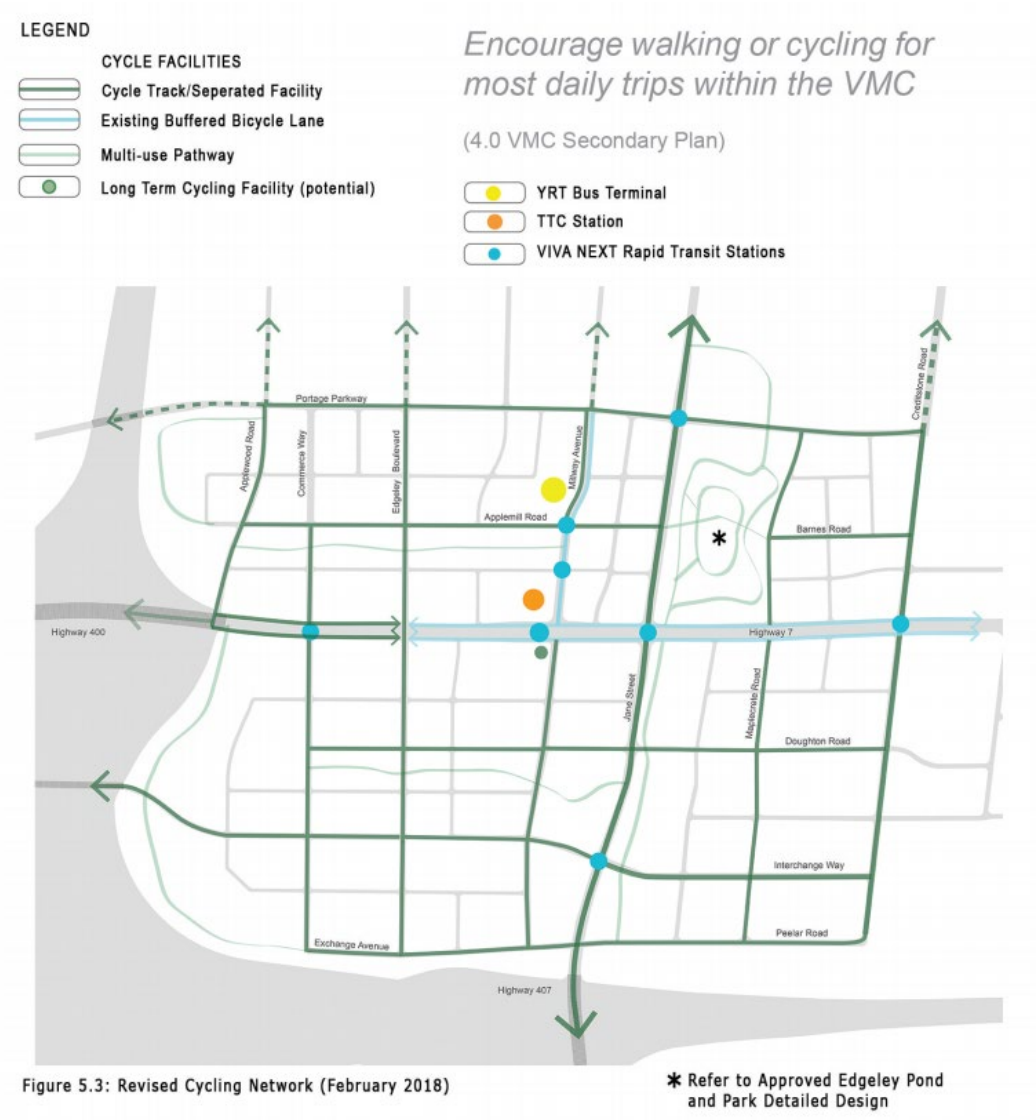


Figure 5.3: Revised Cycling Network (February 2018)

Source: Pedestrian and Bicycle Master Plan, City of Vaughan, 2020

2.3.4 Weston Road and Highway 7 Secondary Plan and Transportation Master Plan

The Weston Road and Highway 7 Secondary Plan and TMP ("Weston 7 TMP") provides policy direction for the new Primary Centre, located to the west of the VMC Study Area. The City of Vaughan concluded Phase 1 of the Weston 7 Secondary Plan in June 2019, which developed the vision and guiding principles for growth and development in the Study Area.

Following the commencement of Phases 2 and 3 of the Secondary Plan in May 2020, the City initiated the Weston 7 TMP in November 2020 to develop a long-range planning and implementing framework based on the identification of a multi-modal transportation network, policies and phasing strategy for improved accessibility and connectivity, for all forms of transportation in support of future growth and transformation. The intent is to identify opportunities for improvement for all forms of transportation in support of the future growth and transformation envisioned by the Secondary Plan.

The Weston 7 TMP is being carried out in accordance with the Municipal Engineers Association Municipal Class Environmental Assessment (as amended) and will satisfy Phases 1 and 2 of the MCEA.

The VMC TMP Update will consider the recommended transportation plan including any future projects given its proximity to the VMC Study Area.

2.3.5 Concord GO Centre Secondary Plan (2015), Concord GO Centre Mobility Hub Study (Ongoing) and Concord GO Centre Transportation Master Plan (Ongoing)

The Concord GO Centre Secondary Plan (2015) establishes the appropriate land use and urban design policies that guide development within the Concord GO Centre Secondary Plan Study Area to the 2031 horizon. The Study Area is bound by Rivermede Road to the north, the hydro corridor to the east and south, and the GO rail line and Bowes Road to the west. The Concord GO Centre is identified as a Primary Centre in the City of Vaughan and will play a role in providing a mix of uses developed around a multi-modal transportation network. The area will be integrated into the surrounding

community and will provide places to live, work, and play while providing connections for both pedestrians and cyclists.

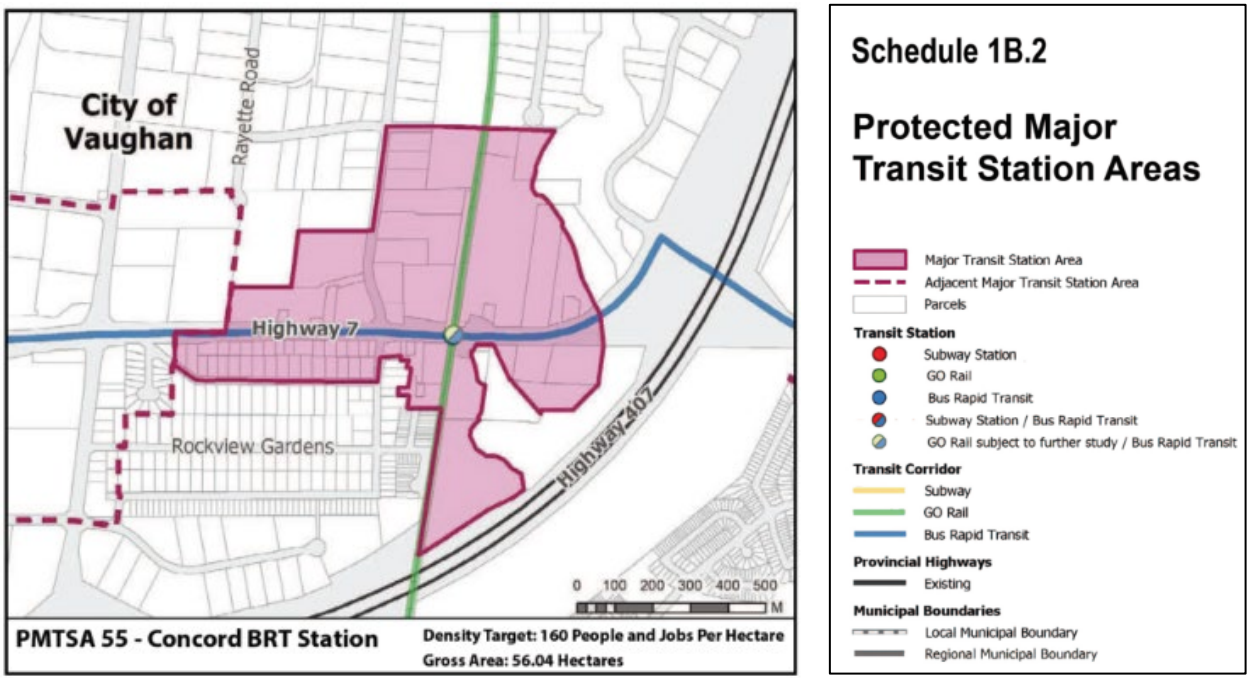
The City of Vaughan has initiated the Concord GO Mobility Hub Study to provide a business case for a GO Station within Concord. The purpose of the Mobility Hub study is to aid in establishing a land-use planning policy framework to develop a complete community around a potential GO station and to improve input into the Metrolinx Business case to support a potential Concord GO station. **Figure 2-3** displays the Mobility Hub Study Area.

The Concord GO Centre TMP was initiated to develop a multi-modal transportation networkby assessing options for street connectivity, accessibility, and mobility. This TMP would include an assessment of existing and future existing conditions, identify transportation needs, test scenarios developed by the Mobility Hub Study, select the preferred multi-modal network alternative, and update transportation policies/plan in the Secondary Plan to reflect the preferred alternative. The Study also considers the feasibility of an east-west grade-separated road crossing on the GO Barrie rail line. The TMP has a vision to create a multimodal transportation network that:

- Improves safety;
- Encourages sustainable travel;
- Enhances connectivity;
- Embraces Smart Mobility; and
- Supports intensification of land use.

The Concord GO Centre TMP is ongoing. The VMC TMP will consider this future multi-modal transportation hub given its proximity to the VMC Study Area.

Figure 2-3. Mobility Hub Study Area

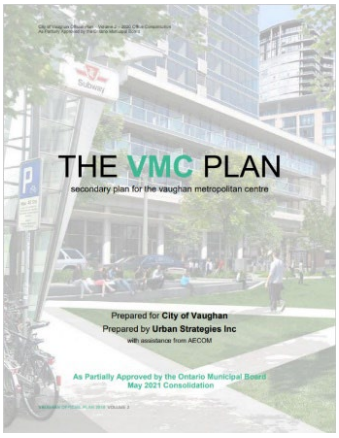


Source: City of Vaughan, Comprehensive OPA, June 2024

2.4 VMC Policy Framework and Background Studies

2.4.1 VMC Secondary Plan (Partially Approved 2021)

The VMC Secondary Plan Review began in 2008 as part of the City's Growth Management Strategy: Vaughan Tomorrow. The final Secondary Plan was approved by Council to form part of Volume 2 of the VOP 2010 and was partially approved by the Ontario Municipal Board in May 2021.



The following principles described the long-term vision for the VMC:

- Transit-oriented;
- Walkable;
- Accessible;
- Diverse;
- Vibrant;

- Green; and
- Beautiful.

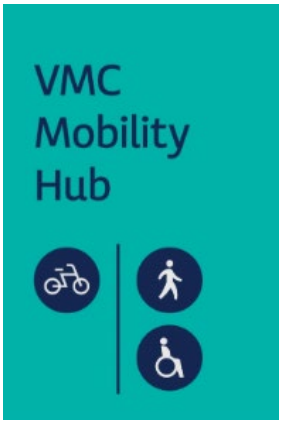
Section 4 of the Plan discusses the VMC streets and transportation network and outlines specific policies regarding transportation in general, public transit, the street network, streetscaping, the bicycle network and parking. The intent of these policies is to:

- Develop a multi-modal transportation system in the VMC that is efficient, safe and convenient and supports planned land uses;
- Encourage routine use of existing and planned transit services by residents and workers in the VMC;
- Encourage walking or cycling for most daily trips within the VMC;
- Establish and maintain logical and direct connections to the surrounding network of streets and highways;
- Encourage the diversion of through traffic, particularly truck traffic, to peripheral streets;
- Ensure the provision and efficient use of parking facilities, including parking structures and on-street parking, required to support the planned land uses; and
- Ensure planned and appropriate transportation infrastructure, including public transit facilities and streets, is coordinated with development and supports the urban design objectives for the VMC.

Schedule B and C of the VMC Secondary Plan include the transit network and street network, as shown in **Figure 2-4** and **Figure 2-5**, respectively.

A TDM plan is now a requirement of development within the VMC. Trends in development such as reduction in vehicular parking supply rates and increases in bicycle parking supply rates reflect the changing transportation paradigm in the VMC. A shift to active modes is occurring.

VMC Parks and Wayfinding Master Plan



The City of Vaughan has completed the VMC Parks and Wayfinding Master Plan in 2024 that includes a master plan and implementation strategy for the timely development of parks and open space in the VMC. It includes the creation of a wayfinding and signage strategy to make it easier to navigate this area.

The VMC Parks and Wayfinding Master Plan builds on existing groundwork to enable the implementation of a diverse, multi-functional, and seamlessly interconnected parks and open space network. The goals of the study are to:

— assess the parks and open spaces proposed for the VMC;
— define the character and design of the parks and open spaces proposed for the VMC;
— create a phasing and implementation plan for the delivery of the parks and open spaces proposed for the VMC alongside development; and
— develop a wayfinding strategy and design, produce prototypes, and install the first signage elements for the VMC area as part of a pilot project.

As outlined in the VMC Parks and Wayfinding Master Plan, the additional land required to meet the anticipated facility demand is larger than the total amount of Active Parkland (28 hectares) proposed in the existing VMC Secondary Plan. As the downtown continues to be built out, a focus on the need to advance the planning and implementation of parks, schools, emergency services, places of worship and other social infrastructure is required to ensure the community is well supported by these necessary amenities and facilities. The development of social infrastructure is as important as the development of buildings to contribute to the placemaking that will enhance the character and identity of the VMC.

As residential development in the VMC exceeds targets, its workforce grows, and visitor numbers increase, there is an urgent need to enhance public spaces. The VMC Parks and Wayfinding Master Plan addresses these challenges by developing a connected system of parks and open spaces, reinforcing physical and visual connections, and improving wayfinding. The plan enhances natural features, locates public art, improves multi-modal mobility, and increases downtown vibrancy. It identifies service gaps, guides strategic investment, and supports the City of Vaughan's city-building objectives.

Additionally, it implements a coherent signage system throughout downtown parks and across transportation modes.

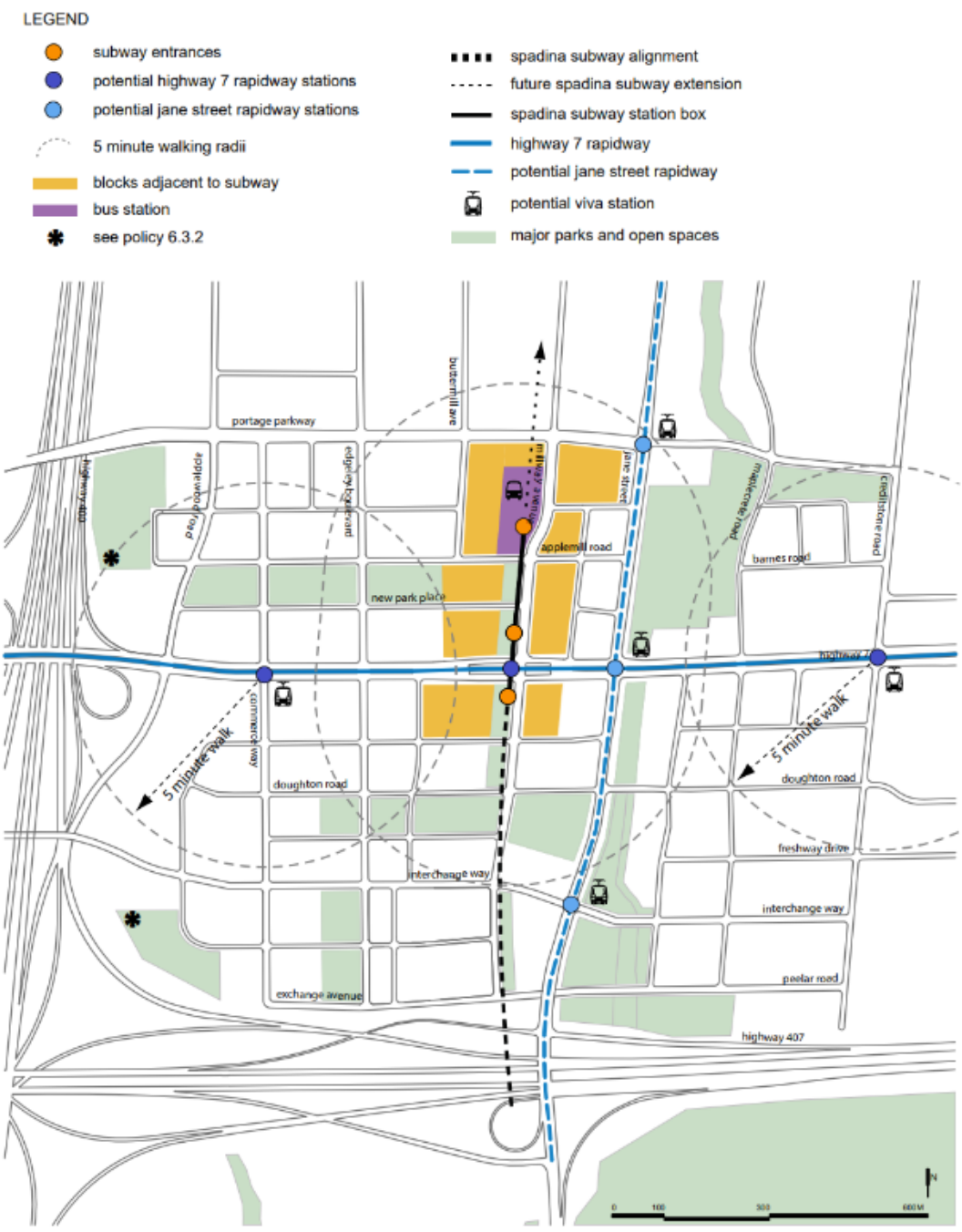
The wayfinding component of this study recognizes that a comprehensive public realm signage and wayfinding system is essential for residents, businesses, and visitors. It defines the VMC's character, assists in navigating downtown, and promotes vibrant city life. Commuters will better combine walking and cycling with public transit, and customers will more easily find local businesses and key destinations. The study includes detailed recommendations and implements a pilot project, with future downtown-wide implementation as the VMC develops.

Integrated Urban Water Plan

The Integrated Urban Water Plan study evaluates servicing plans for current and future developments, such as the VMC, and identifies alternative solutions and sustainability initiatives. The study also integrates current sustainability, resiliency and climate change adaptation/mitigation initiatives identified in Green Directions Vaughan and the New Official Plan. The Plan also takes into consideration Protected Major Transit Station Areas (PMTSAs) and Major Transit Station Areas (MTSAs), as per York Region's Municipal Comprehensive Review, to create new tools based on best practices.

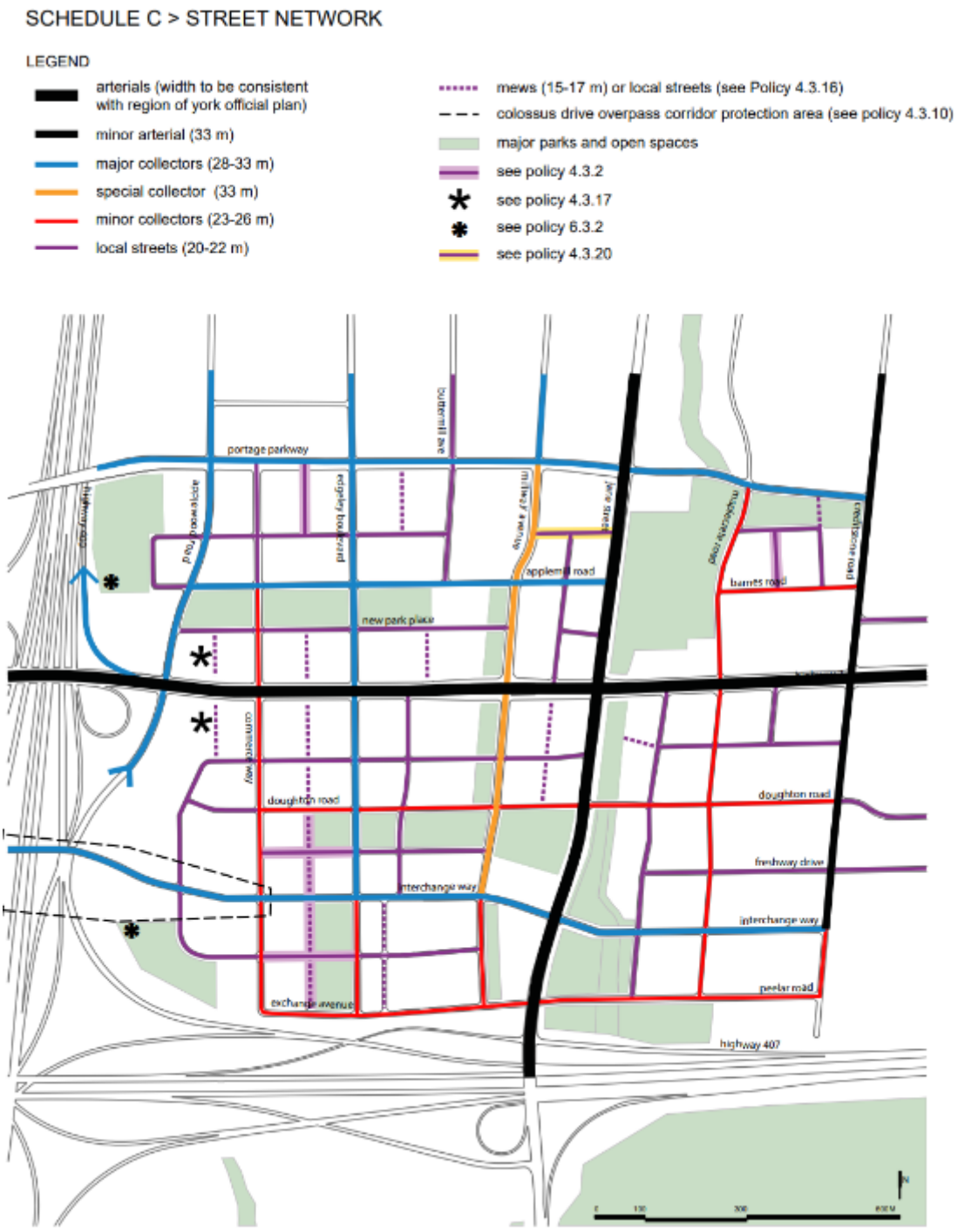
Based on the findings of the study, the Integrated Urban Water Plan includes water, wastewater and stormwater strategies, and sustainable green initiatives. The study identifies and evaluates long-term strategies, initiatives, programs, and projects to meet servicing needs for the growth and protection of Vaughan's Natural Heritage Network.

Figure 2-4. VMC Secondary Plan - Schedule B Transit Network



Source: VMC Secondary Plan, City of Vaughan, 2021

Figure 2-5. VMC Secondary Plan - Schedule C Street Network



Source: VMC Secondary Plan, City of Vaughan, 2021

2.4.2 VMC Transportation Master Plan (2012)

The scope of the VMC Transportation Plan included identifying appropriate population and employment projections and necessary road network improvements for the 2031 planning horizon. This involved classification of roadway segments and identification of required rights-of-way, identification of TDM programs, transit and cycling initiatives. The transportation plan also addressed the needs of the 2021 planning horizon and developed an implementation strategy for the necessary improvements.

The VMC Transportation Plan identified 4 key transportation improvements that were either underway or committed at the time, that are now complete or in progress:

Portage Parkway Crossing of Highway 400

The Portage Parkway crossing was opened prior to the completion of the VMC Transportation Plan. The new 4-lane road provides an alternate connection between Weston Road and Jane Street to the north of Highway 7, reducing some of the congestion around the Highway 400 and Highway 7 interchange.

Toronto-York Spadina Subway Extension

The VMC Transportation Plan identified the Toronto-York Spadina Subway extension as the most important element in support of Vaughan's downtown core. The terminal station opened in December 2017 in the heart of the VMC at the northwest corner of Highway 7 and Millway Avenue. The station interfaces directly with the Viva Highway 7 Bus Rapid Transit (BRT) and Smart VMC Bus Terminal (opened in November 2019). Highway 407 Station and Pioneer Village Station (both opened in December 2017) on the subway extension also directly serve the City of Vaughan, providing a significant supply of commuter parking – there are no formal parking facilities at VMC Station.

Millway Avenue Improvements

The Toronto-York Spadina Subway Extension project has identified the following base municipal infrastructure elements that will be fully funded by the project:

- Replacement of the existing three lane Millway Avenue to its new alignment from Highway 7 to Apple Mill Road and tapering back to match the existing alignment north of Apple Mill Road;
- Replacement of the existing Millway Avenue 26.0 metre right-of-way;
- Replacement of existing streetscape features;

- The proposed VMC Park;
- Relocation of all existing utilities as a result of the Millway Avenue realignment; and
- Temporary / permanent Passenger Pick-Up & Drop-Off (PUDO) facilities.

The Millway realignment was completed in 2017.

Viva Highway 7 Bus Rapid Transit

The Viva Highway 7 Bus Rapidway provides a dedicated median transit right-of-way along Highway 7 across York Region. The Rapidway currently operates between Martin Grove Road in the west and the Cornell Bus Terminal in the east. Three stations directly service the VMC: at Commerce Street, at Millway Avenue (with an underground connection to the subway) and at Creditstone Road.

Longer Term Transit

The Region of York Transportation Master Plan and Metrolinx's Regional Transportation Plan both identify several other new rapid transit corridors including along Jane Street between Highway 7 and Major Mackenzie Drive - this project is currently unfunded.

The Province of Ontario and Metrolinx are pursuing the Highway 407 Transitway that will run parallel to the highway through the regions of Halton, Peel, York and Durham. The project is divided into 5 segments:

- Brant Street to Hurontario Street,
- Hurontario Street to Highway 400,
- Highway 400 to Kennedy Road,
- Kennedy Road to Brock Road,
- Brock Road to Enfield Road.

Environmental Assessments have been conducted for each segment; however, the detailed designs have not been completed.

2.4.3 VMC and Surrounding Area Transportation Study (2013)

The purpose of the VMC and Surrounding Areas Transportation Study (2013) was to further define the transportation infrastructure needed to facilitate planned (and potential) development within the VMC and surrounding areas, based on the approved Secondary Plan, that will ensure feasibility from a technical perspective. The Study, undertaken jointly by the City of Vaughan and York Region, reviewed transportation

network issues that had been identified in previous work, including the Colossus Drive Extension (Crossing Highway 400) and Highway 400 / Highway 7 Interchange (NB Off-Ramp Extension).

Colossus Drive Extension (Crossing Highway 400)

The Study outlines the proposed alignment for the extension, which continues easterly from Colossus Drive, across Highway 400 where Colossus Drive will connect with Interchange Way, located within the VMC Study Area. The Study suggests that the proposed extension would assist in alleviating congestion and reduce traffic flows along Highway 7 and 407 ETR, respectively.

The study recommended that the Colossus Drive Extension be implemented in the 'longer-term' (beyond 2031). The current study will review the timing for the Colossus Drive extension in light of development forecasts for the Weston 7 and VMC Study Areas.

Highway 400 / Highway 7 Interchange (NB Off-Ramp Extension)

Four functional preliminary design options providing a northbound off-ramp extension that would connect with Applewood Crescent at Portage Parkway were developed. The realignment of the NB off-ramp and the extension / connection to Applewood Crescent have been constructed and opened to the public in 2019.

The VMC and Surrounding Area Transportation Study recommended that the City of Vaughan and/or York Region initiate the planning and detailed design studies required to implement the following defined Short-Term transportation infrastructure improvements (0-5 years):

- Millway Avenue Realignment from Highway 7 to Portage Parkway (discussed in Section 2.4.2);
- Portage Parkway Widening from Edgeley Boulevard to Jane Street (discussed in Section 2.4.7);
- Portage Parkway Extension from Jane Street to Creditstone Road (discussed in Section 2.4.7);
- Toronto-York Spadina Subway Station (discussed in Section 2.4.2);

- Highway 400 Northbound off-ramp extension at Highway 7 to Portage Parkway (discussed above); and,
- Highway 7 Rapidway; VIVA stations at Commerce Street, Millway Avenue, Creditstone Road (discussed in Section 2.4.3).

2.4.4 VMC Streetscape and Open Space Plan (2018)

The VMC Streetscape and Open Space Plan outlines a comprehensive landscape framework for the implementation of the public realm identified for the VMC. Building on the vision and principles set out in the previous VMC Secondary Plan, detailed in **Section 2.4.1**, the following goals were identified for the Plan:

- Create a unique identity for the VMC;
- Develop a strong public realm framework and green infrastructure system;
- Develop a connected urban centre;
- Promote high quality design; and
- Develop a healthy and safe community.

The Plan discusses streetscape designs for Pedestrian Priority Zones (PPZ), the cycling and transit network and road classification landscape treatments.

Pedestrian Priority Zones

Pedestrian Priority Zones (PPZs) are designed as pedestrian-first places that may include features such as flexible spaces, raised intersections, special surface and/or curb treatments, accent lighting, street furnishings, public art and weather protection. The Plan designated the following areas as PPZs:

- The primary mobility hub around the subway station, transit square, bus terminal and Millway Avenue Promenade;
- Streets around schools, community centres, cultural and civic buildings;
- Streets that run between park blocks;
- Shopping and entertainment streets to promote pedestrian activity and public life; and
- Mews are pedestrian-first streets that may or may not include vehicle traffic / service access.

Cycling Network

Cycling facilities in the VMC street network will seamlessly connect with transit facilities, parks and open spaces to support multi-modal transit connections and to promote cycling in the new downtown. The plan recommends both in-boulevard and open space/park facilities in addition to cycling amenities, such as bike lock-up facilities and a bike-share rental program.

Transit Network

As an Anchor Mobility Hub, the VMC is an important destination and transfer point in the regional system, integrating subway, regional rapid transit and local bus services. The VMC intends to provide appropriate walking distances to transit stops and/or stations.

2.4.5 VMC Urban Design Guidelines (2016)

The VMC Urban Design Guidelines, which were completed in 2016, are intended to facilitate the implementation of the VMC by setting a framework for built form excellence. The VMC vision and principles, as outlined in **Section 2.4.1**, inform these built form guidelines.

Several 'Character Areas' are outlined in these guidelines, which are based on the land use vision introduced in the previous VMC Secondary Plan precincts and share common building typologies, interfaces with proposed open spaces and approaches to access and circulation. The Character Areas relevant to the VMC TMP Update are detailed below:

- Highway 7 is planned to become the central spine of the VMC and transformed into a grand avenue. Some urban design strategies include wide setbacks to build a wide boulevard that should accommodate all users and uses; and strong and consistent streetscape design with enhanced street furnishing.
- Millway Avenue is poised to become the cultural and social spine for the VMC that connects the subway and BRT station with the bus terminal. It is intended to be a bustling pedestrian zone.

2.4.6 Black Creek Renewal Detailed Design

The VMC Black Creek Renewal EA Study considered different potential alignments and physical forms, following the identification of the preferred solution as part of the Black CreekStorm Water Optimization Study Master Plan Class EA, to reduce flooding and

flood damages, improve water quality and limit stream bank erosion. The Environmental Study Report (ESR) was filed in 2018, and the Black Creek Renewal Detailed Design Study is currently underway.

2.4.7 Portage Parkway Class EA Study: Widening and Easterly Extension to Creditstone Road

In 2016, the City of Vaughan completed an EA Study for 2 road projects: the Portage Parkway Widening and the Extension to Creditstone Road, which was identified as a strategic network improvement from the 2012 TMP: A New Path. A portion of the Portage Parkway extension (up to BlackCreek) has been implemented east of Jane Street as part of ongoing development.

3 Existing Conditions

3.1.1 Existing Travel Behaviour

The VMC is rapidly transforming from a big-box retail and industrial neighbourhood with no residents to a mixed-use centre with a large population. As a result, travel patterns within the area are changing swiftly – travel behaviour observed in the past may not necessarily reflect future travel patterns.

To try to depict the impacts of these rapidly changing travel patterns, two datasets were examined. Transportation Tomorrow Survey (TTS) data from 2016 was leveraged to identify travel patterns of trips coming into and going out of the VMC. 2016 information was used as newer TTS data is not available: data collection was scheduled for 2021 but was postponed because of COVID-19 (collection was resumed in 2022 but the results have not yet been released as of the time of writing). To supplement the TTS with newer data, the 2021 census was leveraged. While even the smallest census geography is larger than the VMC, the data helps to provide a better understanding of recent changes in commute patterns and how the residents of the newly completed residential developments in the Study Area travel. **Table 3-1** highlights how the two different data sources were combined to provide a comprehensive picture of travel behaviours in the VMC.

Table 3-1. Data Sources Used to Examine Existing Travel Behaviours in the VMC

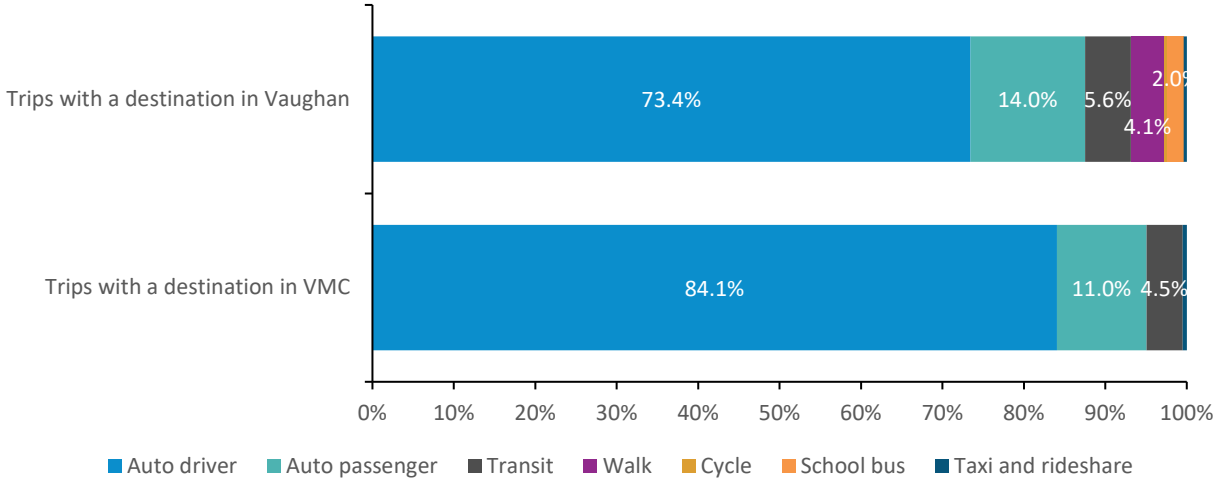
	TTS	Census
How it was used in this analysis	— Describe travel patterns for **all trips** ending at the VMC and Vaughan in 2016. — Describe travel patterns for **all trips** starting in the VMC in 2016. — Highlight vehicle ownership rates in 2016.	— Describe travel patterns for **commute trips** starting in the dissemination area (DA) in which the VMC is located, for 2021.
Benefits	— Covers both commute and non-commute trips (which are more common than commutes).	— More recent data better reflects the development pattern within VMC.

	TTS	Census
	— TTS traffic zones examined represent the VMC Study Area only.	
Disadvantages	— As the latest TTS data available is from 2016, it does not capture changes related to VMC's redevelopment.	— A more limited set of information is available: only commute trips, only trips originating in the area, and no information on vehicle ownership. — The DA is larger than the VMC Study Area and thus also captures the travel behaviour of neighbourhoods north and northeast of the VMC (up to approximately Rutherford Road and Dufferin Street).

Inbound Travel Patterns

VMC's employment and retail uses made it a major trip attractor in Vaughan in 2016, with approximately 13,200 people per day ending their trip in the VMC. 95% of these trips were conducted by car, a considerably higher mode share than for all trips ending in Vaughan, see **Figure 3-1** . Half of the trips ending in the VMC were for work purposes, with another quarter being discretionary trips.

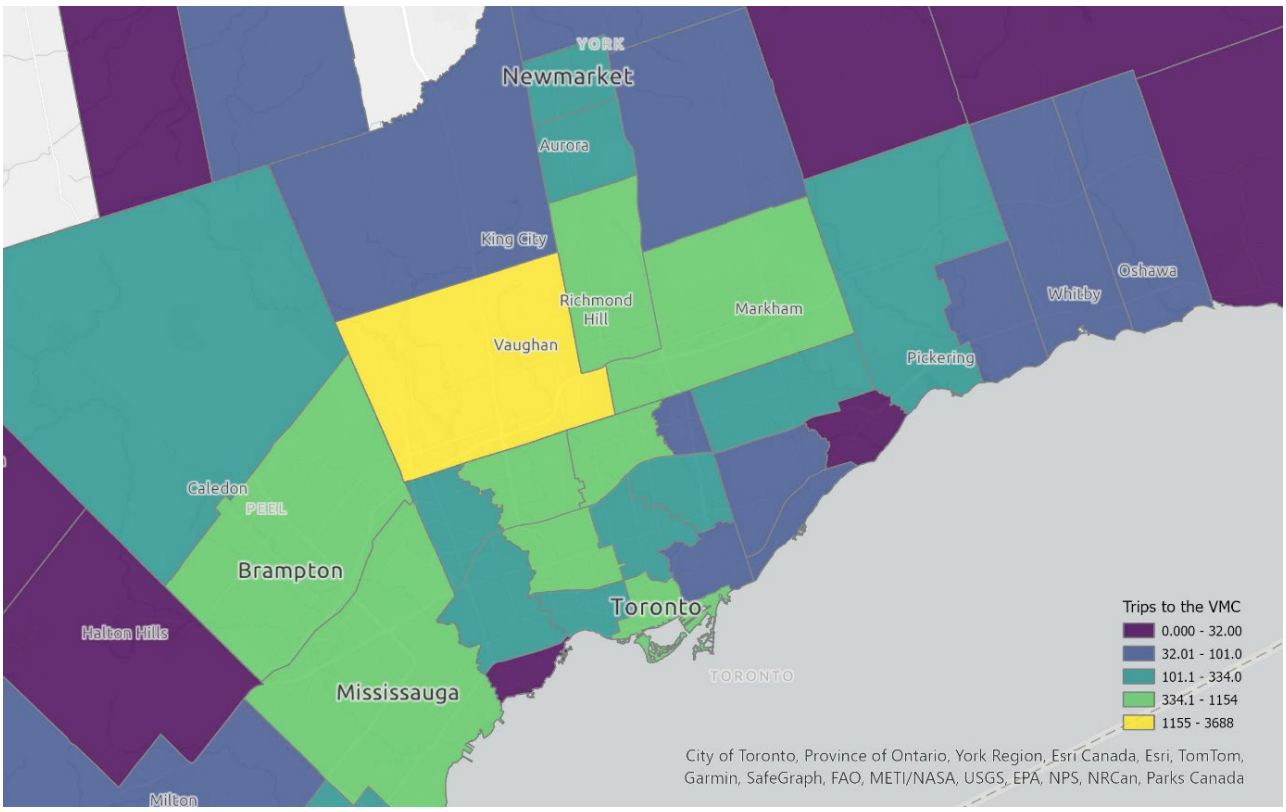
Figure 3-1. Mode Share of Trips with a Destination in VMC and Trips with a Destination in Vaughan, in 2016



Source: Transportation Tomorrow Survey, 2016

The trips going to the VMC mostly originated in Vaughan (particularly from the Pine Grove and Thornhill neighbourhoods), as well as northern Toronto (particularly the area bounded by Bathurst Street, Steeles Avenue and Highways 400 and 401). Trips from Markham, Richmond Hill, Brampton, downtown Toronto, and Mississauga into the VMC were also common, see **Figure 3-2**. This confirms VMC's role as a major employment and transit hub attracting residents from across the GGH.

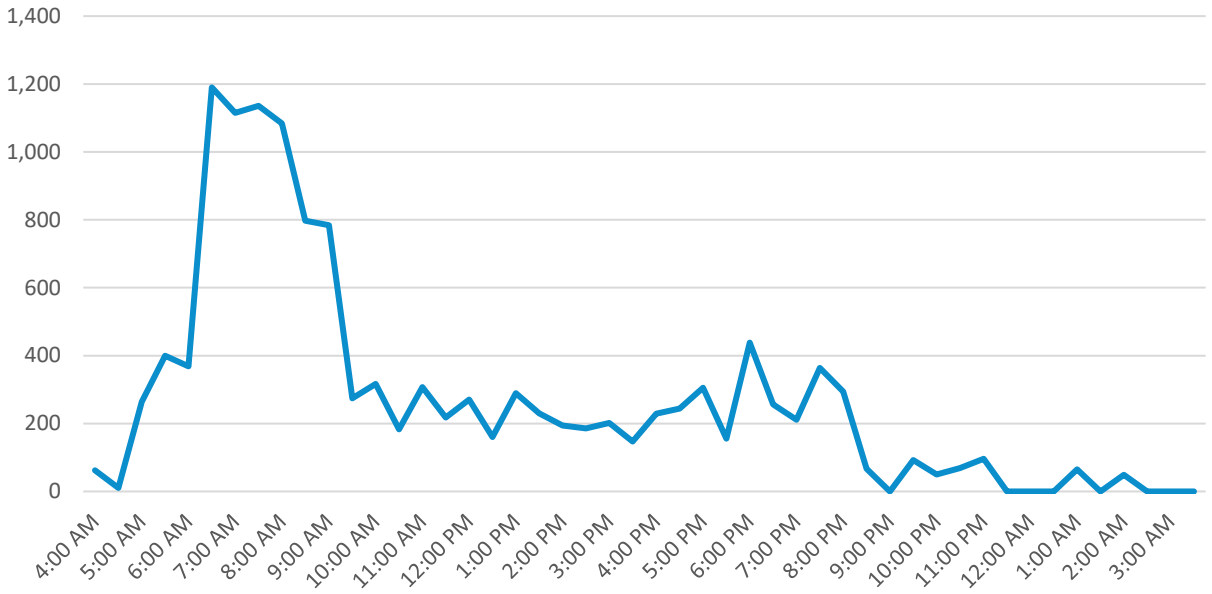
Figure 3-2. Number of Trips with a Destination in the VMC in 2016, by Municipality of Origin



Source: Transportation Tomorrow Survey, 2016

Most of the trips with a destination in the VMC occurred during the AM peak hour, see **Figure 3-3**.

Figure 3-3. Trips with a destination in the VMC by trip start time, in 2016



Source: Transportation Tomorrow Survey, 2016

Outbound Travel Patterns

TTS Travel Patterns

Approximately 1,200 trips originated from the VMC daily in 2016, a quarter of which were completed by transit, with the remainder using the car. This is a significantly higher transit mode share than for inbound trips.

However, only around 400 people (in 300 households) called the VMC home in 2016 (in one of the first residential buildings constructed as part of the ongoing redevelopment of the area). As the population has increased significantly since this time, and the Highway 7 BRT and VMC subway station were opened later, travel patterns are likely to be different now than they were in 2016.

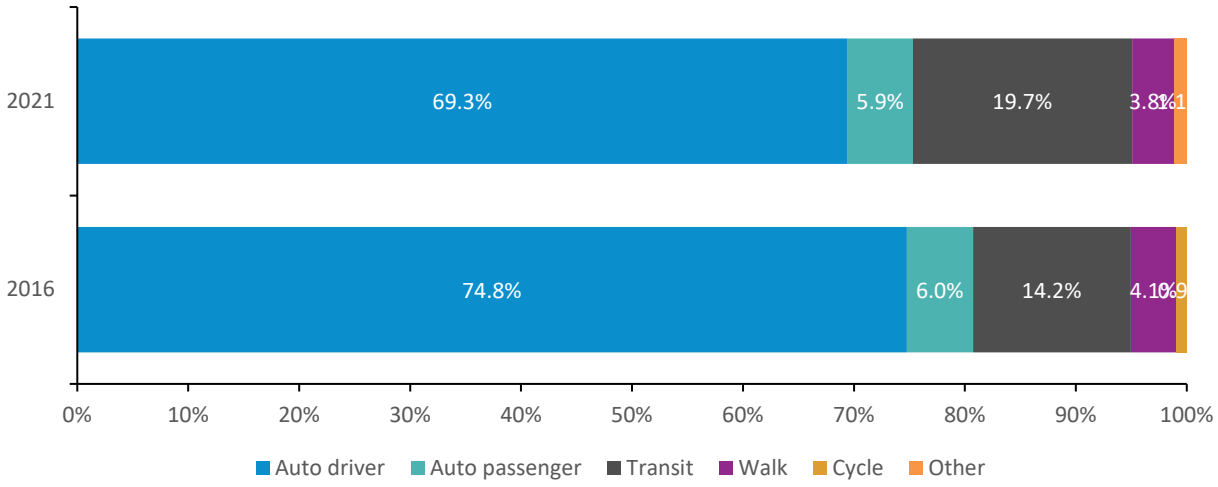
The households in the VMC had on average 1.08 cars, compared to 1.93 in the entirety of Vaughan. This can be partly explained by the lower household size in the VMC: there were 1.34 people per household in the VMC compared to 3.18 people per household in Vaughan – the number of cars per person is thus likely similar.

Census Travel Patterns

More recent data from the census was leveraged to provide additional insights into travel patterns of outbound trips. By 2021, the dissemination area (DA) in which the VMC is located was home to approximately 7,000 people (up from 1,900 in 2016). While the DA covers a larger area than the VMC, analysis of aerial satellite images over time reveals that a large share of the 2021 population in the DA is likely located in the VMC. As such, data for the 2021 DA should be representative of travel patterns in the VMC.

Between 2016 and 2021, average household size in the VMC DA decreased from 2.7 to 2.0, suggesting that the new condo developments in the VMC cater to smaller households. At the same time, transit mode share for commute trips increased from 14% to 20%, see **Figure 3-4**. This indicates that the recent investments in transit in the area have been effective at attracting new riders. It also suggests that residents choosing to live in the VMC are more likely to find transit a suitable travel option.

Figure 3-4. Mode share for commute trips originating in the dissemination area in which the VMC is located, in 2016 and 2021



Source: Statistics Canada

The census further reveals that commute times for trips originating in the DA in which the VMC is located are decreasing: while 46% of 2016 commuters travelled for less than 30 minutes, 53% of 2021 commuters travelled for less than 30 minutes. This suggests new residents in the VMC are likely to live closer to their work locations.

Summary

Travel behaviours in the VMC are rapidly changing, with residents in the new developments increasingly reliant on transit to meet their daily needs. VMC also remains a major trip generator, attracting significant flows of car traffic from nearby neighbourhoods.

3.2 Pedestrian Network

The existing pedestrian network within the VMC Study Area encompasses sidewalks on most major and minor roadways, excluding the industrial areas in the south-east quadrant. Highway 7, New Park Place, Apple Mill Road and Millway Avenue, between Portage Parkway and Highway 7, have all been re-designed to provide appropriate active transportation facilities and improved conditions for pedestrians.

The existing VMC pedestrian network is presented in **Figure 3-5**.

The reconfiguration of Highway 7 has vastly improved pedestrian conditions along this busy corridor, by providing a boulevard between the sidewalk and vehicle lanes that separates pedestrians and vehicles. Additionally, a multi-use path is provided in the centre of the Highway 7 overpass (over Highway 400), which includes intersections on the east and west side of the overpass to provide access to the newly constructed multi-use pathway. The multi-use path has also recently been expanded to the east side of Applewood Crescent, between Portage Parkway and Highway 7.

A pedestrian realm network, connecting to the Transit Square and TTC Plaza (associated with the subway), is located on Apple Mill Road, New Park Place, and Millway Avenue, as presented in **Figure 3-5**. As illustrated in **Figure 3-6**, a pedestrian realm is more generous than traditional sidewalks, which serve the pedestrians with wider clearways typically ranging from 2-3 metres in width.

Figure 3-5. Existing VMC Pedestrian Network

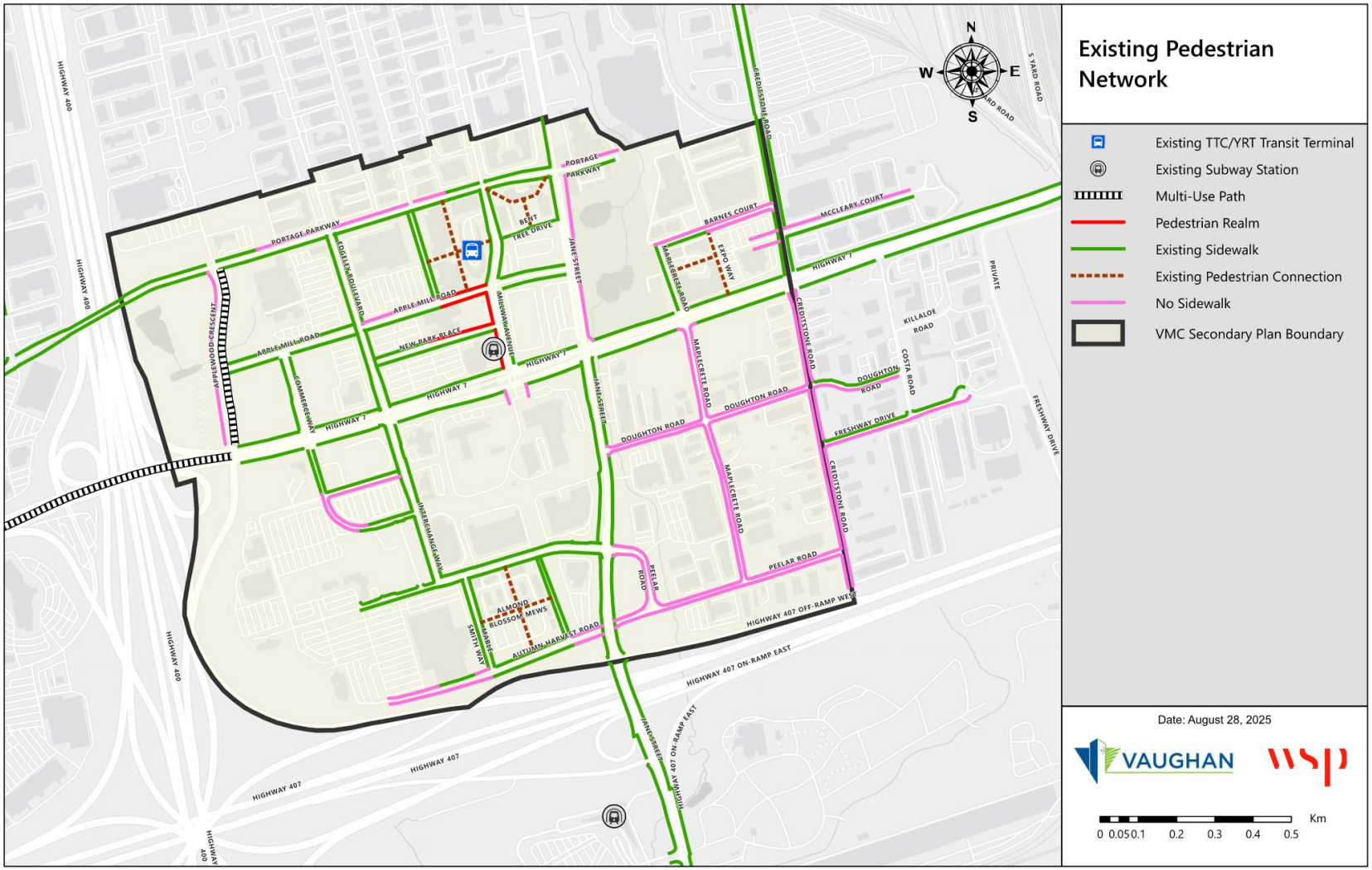


Figure 3-6. Pedestrian Realm on New Park Place

Source: Google Street View

Newer sidewalks are generally 2.0 metres wide with all available sidewalks at least 1.5 metres wide within the VMC Study Area and are separated from vehicular traffic by planting zones. On some streets, the sidewalks are separated by an asphalt buffer that occasionally contains street furniture or a vegetation area (commonly lined with trees). However, some of the existing sidewalks are curb-faced sidewalks (with no separation from vehicular lanes), for example, Edgeley Boulevard's west side between New Park Place and Highway 7, Freshway Drive, and a part of Jane Street between Highway 7 and Doughton Road in the northbound and southbound directions.

The existing sidewalk network in the VMC Study Area is mostly complete, except for a few roadways with limited or no pedestrian facilities. The following arterial and collector segments do not have sidewalks:

For East-West Major Links:

- North side of Portage Parkway between Applewood Crescent and Millway Avenue, and east of Jane Street;
- North side of Apple Mill Road between Edgeley Boulevard and Buttermill Avenue;
- Both sides of Barnes Court between Creditstone Road and Expo Way
- Doughton Road (both sides between Jane Street and Creditstone Road; southside only east of Creditstone Road); and
- Both sides of Peelar Road and Autumn Harvest Road, except for a short stretch between Mable Smith Way and Millway Avenue.

For North-South Major Links:

- West side of Applewood Crescent between Portage Parkway and Highway 7;
- Both sides of Commerce Street between Celebration Avenue and Doughton Road;
- East side Jane Street north of Highway 7;
- Both sides of Peelar Road connector;
- Both sides of Maplecrete Road between Highway 7 and Peelar Road; and
- Both sides of Creditstone Road south of Highway 7.

3.3 Cycling Facility Network

There are multiple existing cycling facilities located within the VMC Study Area, with the highest order facilities introduced as part of the recently re-designed corridors. The cycling facilities identified in the VMC Study Area are:

- Multi-use path in the centre of Highway 7 with physical separation extending between Famous Avenue and Applewood Crescent (across Highway 400);
- Uni-direction raised in-boulevard cycle tracks on both sides of Highway 7 between Applewood Crescent and Commerce Street, the facility continues westbound along Highway 7;
- Bike lanes on both sides of Highway 7 east of Commerce Street, separated from traffic by a painted buffer only; This includes a pocket bike lane (bike lane sandwiched between vehicular through or left turning lanes on the left side and vehicular right turning lane on the right side) along Highway 7 between Millway Avenue and Jane Street;
- Rolled curb bike lanes on both sides of Apple Mill Road extending between Applewood Crescent and Jane Street;

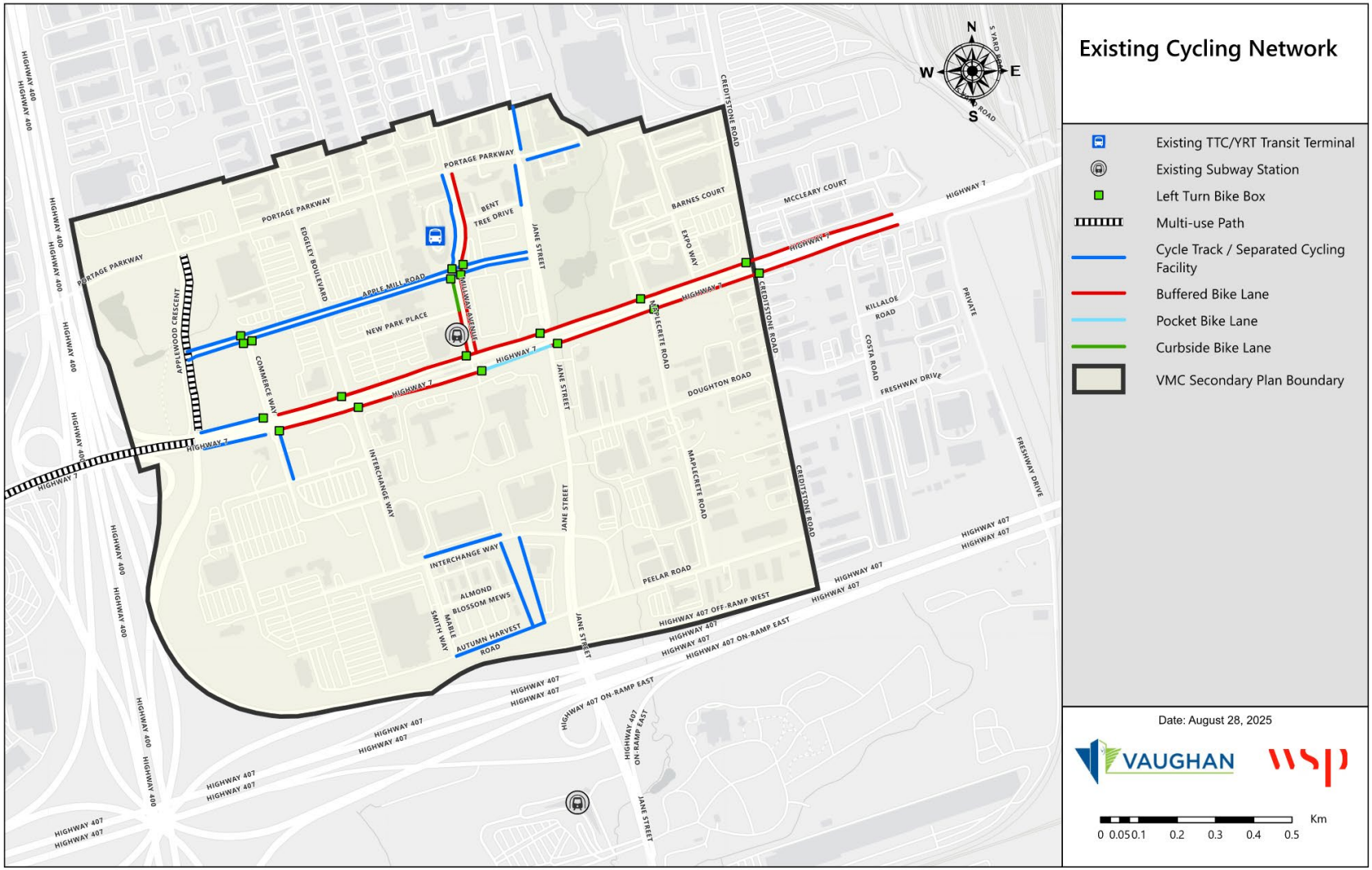
- Interim multi-use path on the east side of Applewood Crescent connecting to Portage Parkway in the north and Highway 7 in the south; and
- Painted bike lanes on Millway Avenue between Portage Parkway and Highway 7 with a portion of the facility in-boulevard and physically adjacent to the York Region Transit Terminal between Portage Parkway and Apple Mill Road.

Provisions for cyclists turning left (left-turn bicycle boxes) are available at some intersections including:

- East and west approaches of intersections along Highway 7 at Commerce Street, Edgeley Boulevard/Interchange Way, Millway Avenue, Jane Street, Maplecrete Road and Creditstone Road;
- All the approaches of Millway Avenue and Apple Mill Road intersection; and
- East, west, and north approaches of the Apple Mill Road intersection with Commerce Street (the intersection is currently operating as a three-leg T-intersection and is planned to operate as a four-leg intersection with the addition of a north approach, connecting Commerce Street to Portage Parkway).

The existing VMC cycling network is presented in **Figure 3-7**.

Figure 3-7. Existing VMC Cycling Network



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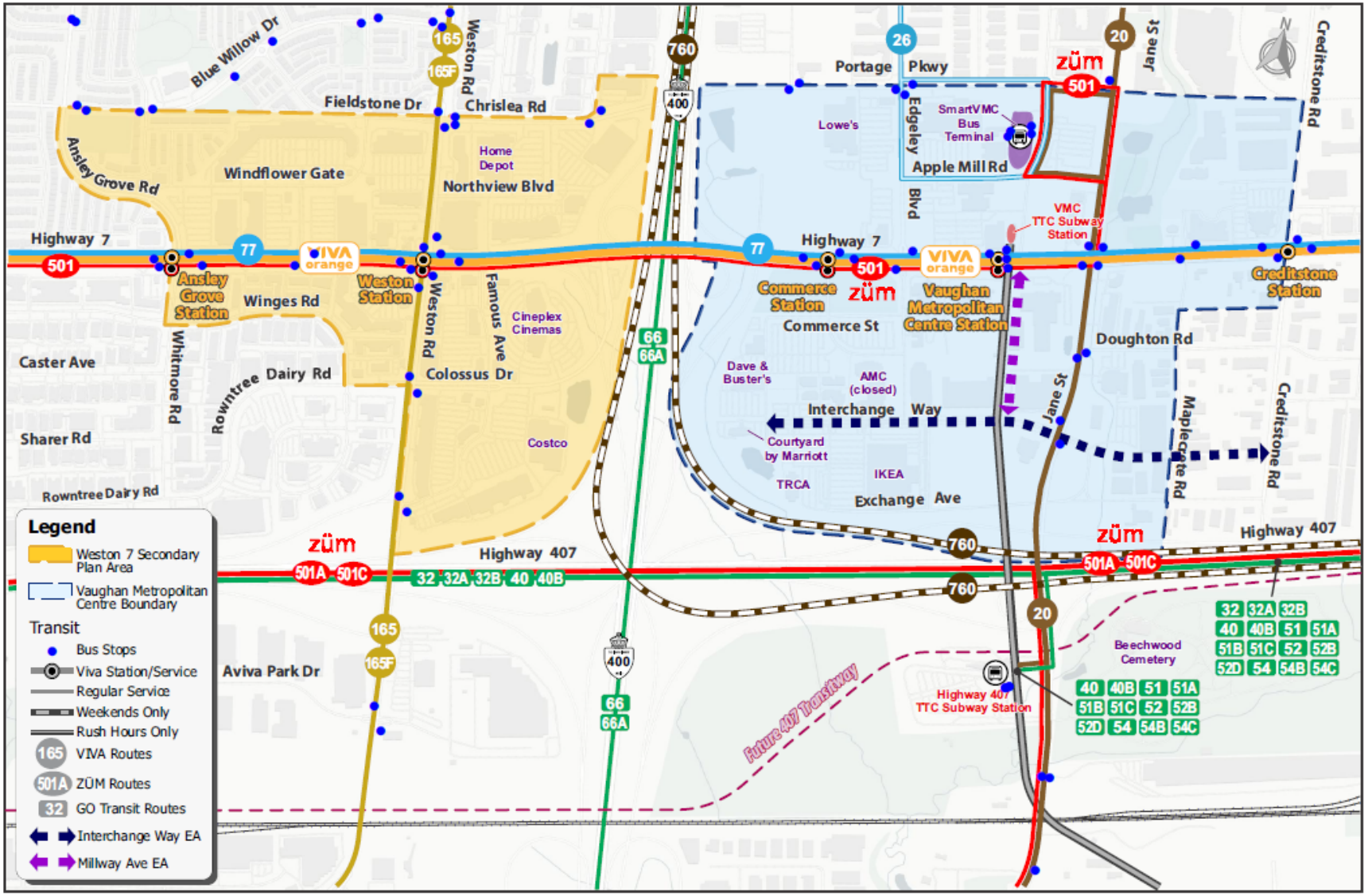
3.4 Transit Network

The VMC Study Area is served by York Region Transit (YRT), Brampton Transit, and the TTC. YRT is the main transit provider for the VMC, providing bus service along various corridors in the Study Area, including Highway 7, Jane Street, Edgeley Boulevard, and Millway Avenue. Brampton Transit provides a bus service on Highway 7, terminating at the VMC subway station. The VMC subway station itself is the terminus of the TTC's Line 1.

The Smart VMC Bus Terminal is located at the intersection of Millway Avenue and Portage Parkway. The terminal, as well as all transit routes within Study Area are presented in **Figure 3-8**. Current transit routes and schedules are subject to changes due to COVID-19 service impacts.

Figure 3-8. Existing Transit Network



3.4.1 York Region Transit Routes

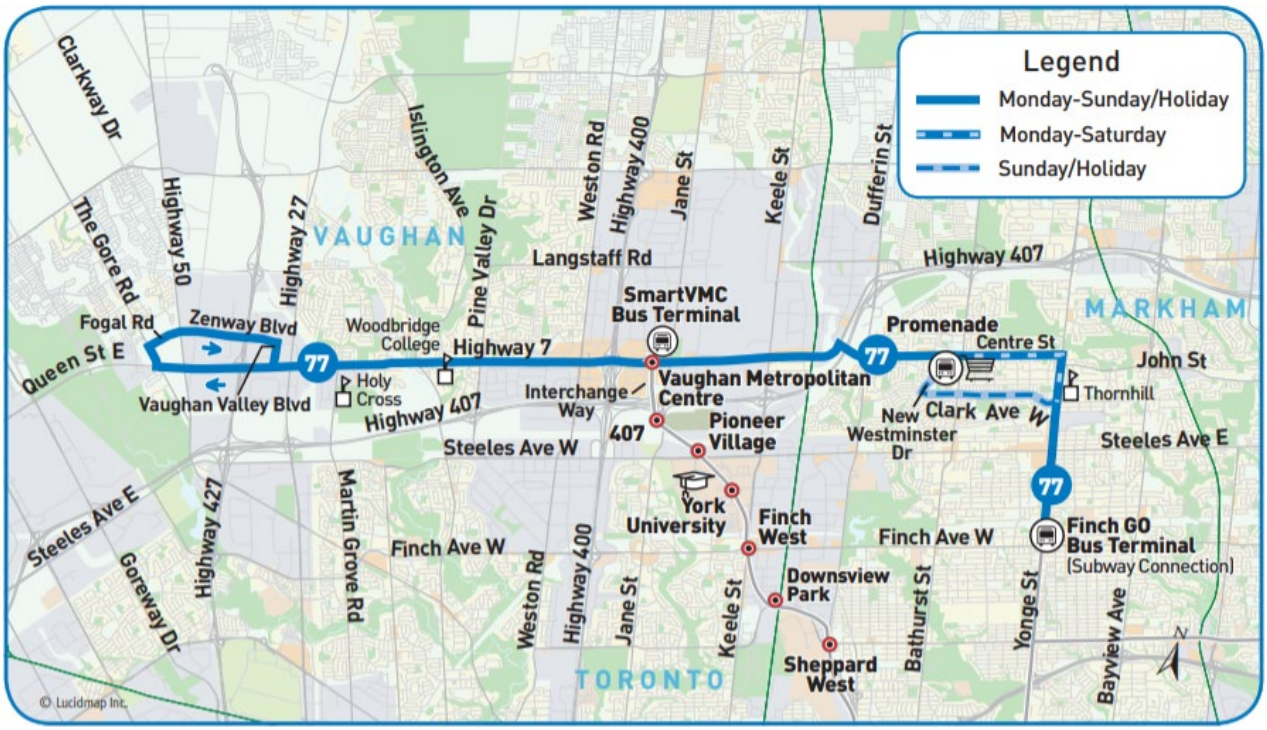
YRT is the public transit operator in York Region. YRT provides service within York Region and has connecting service to the City of Toronto and the Regions of Peel and Durham. As part of its infrastructure portfolio, YRT shares some facilities with other transit agencies including the TTC and Metrolinx.

YRT routes provide a basic minimum level of service and route coverage. YRT's fixed route services operate along designated arterial and collector corridors with minimal or no deviation, except at major transfer locations such as multi-modal terminals, GO stations, major shopping malls and centres to provide connections. Local routes typically operate along the major travel corridors, generally perpendicular to and intersecting the Viva routes. Several YRT bus routes operate through the VMC area.

Highway 7 – Route 77

The Highway 7 – Route 77 route runs (predominantly) east-west, along Highway 7 and Centre Street, between the Finch GO Bus Terminal and Gore Road in Brampton, seven days a week. It operates with an approximate headway of 15 minutes during weekday morning rush hour, 20 minutes during weekday afternoon rush hour, 30 minutes during weekday non-rush hours, 35-45 minutes on Saturdays, and 52 minutes on Sundays. The route connects the Finch GO Bus Terminal with the predominantly residential lands abutting Yonge Street and Centre Street in Markham, the Promenade Shopping Centre area, the VMC, and the (predominantly) commercial and employment lands abutting Highway 7 from Centre Street to Highway 50. The Highway 7 route 77/77A is illustrated in **Figure 3-9.**

Figure 3-9. Highway 7 - Route 77 / 77A



Source: York Region Transit

Maple – Route 26

This route operates along Edgeley Boulevard, Portage Parkway, and Millway Avenue with an approximate frequency of 48 minutes during the PM peak and 42-44 minutes during the AM peak. The service does not currently operate outside of weekdays. The route serves the SmartVMC bus terminal, commercial / employment lands north of Highway 7 to Rutherford Road, Vaughan Mills Mall, and the residential lands north of Rutherford Road, ending at the Maple GO Station. The Maple - Route 26 is shown in **Figure 3-10**.

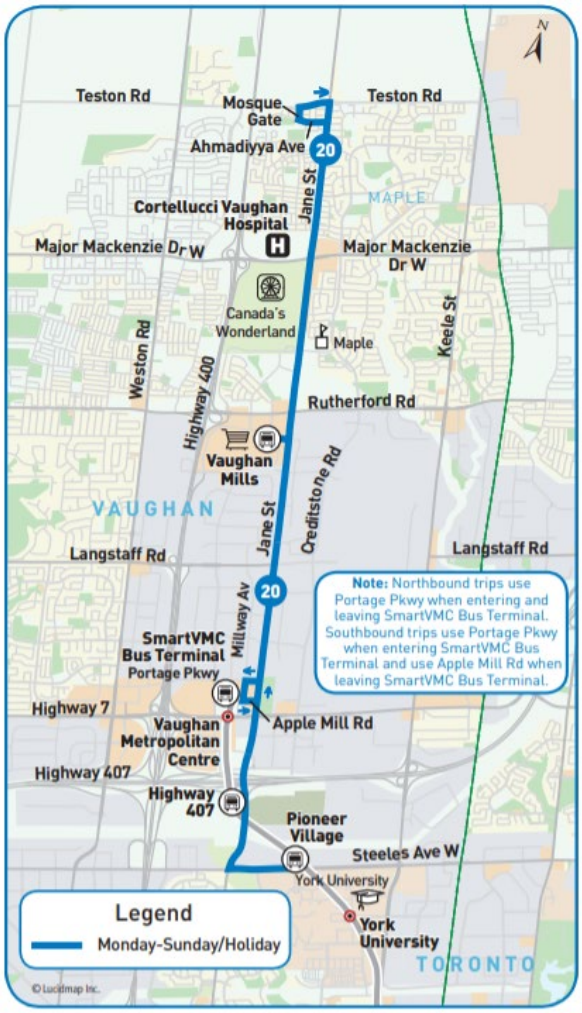
Figure 3-10. Maple - Route 26

Source: York Region Transit

Jane – Route 20

This route operates between Pioneer Village and Teston Road via Jane Street, seven days a week. YRT buses on this route operate with an approximate frequency of 15 to 22 minutes during the afternoon peak, and approximately 16 minutes during the morning peak. The route connects the Pioneer Village Station, the commercial/employment lands abutting Jane Street north of Highway 407, SmartVMC Bus Terminal, Vaughan Mills Mall, Canada's Wonderland, the residential lands north of Major Mackenzie Drive West, and the Baitul Islam Mosque. The Jane – Route 20 route is shown in **Figure 3-11**.

Figure 3-11. Jane - Route 20



Source: York Region Transit

Vaughan Mills / Wonderland – Route 360

This route operates on weekends and holidays only. It operates express between Canada's Wonderland and the Richmond Hill Centre Bus Terminal, via Highway 400 and Highway 407, to the GO Finch Bus Terminal via Yonge Street. The Vaughan Mills/Wonderland route is shown below in **Figure 3-12**.

Figure 3-12. Vaughan Mills / Wonderland - Route 360

Source: York Region Transit

Mobility On-Request Woodbridge (Formerly Woodbridge – Route 10)

This route is a stop-to-stop request-responsive service route. A YRT-marked vehicle will pick-up and drop-off passengers at the requested bus stop. Within the VMC Study Area, the service runs along Ansley Grove Road, Blue Willow Drive, and Chrislea Road/Portage Parkway, during the daytime seven days a week.

3.4.2 Viva Routes

Viva Orange

Viva service commenced in 2005 and currently consists of six different service lines. The Orange line, which is the only Viva line that services and passes through the VMC Study Area, has a total number of seventeen stations. The route operates on Highway 7 and Centre Street between the Richmond Hill Centre Terminal and Martin Grove Road, serving the Promenade Terminal, VMC, and the (predominantly) commercial and employment lands abutting Highway 7 from Centre Street to Martin Grove Road. Viva Orange serves with an approximate frequency of 12-13 minutes during weekday rush hours, 21-31 minutes during weekday non-rush hours, 22-24 minutes on Saturdays and 20-25 minutes on Sundays. The Orange line – Route 605 is illustrated in **Figure 3-13**.

Figure 3-13. Orange - Route 605

Source: York Region Transit

3.4.3 Brampton Transit Routes

Züm Queen – Route 501

The Züm service is a rapid transit service operated by Brampton Transit, which provides connections to the City of Mississauga, City of Toronto, and York Region. The 501 route operates on Queen Street and Highway 7 between the Brampton GO Station and the VMC bus terminal, seven days a week with an approximate frequency of 10 to 12 minutes during the weekday peak periods, 12 minutes midday weekdays, and 15-20 minutes weekday evenings. It serves the Brampton GO Station and Downtown Brampton, the Bramalea Bus Terminal, the commercial/employment lands abutting Highway 7, and ultimately the SmartVMC Bus Terminal. Variation 501C operates express on Highway 407 to the York University Terminal. **Figure 3-14** shows where the rapid transit service Queen – Route 501 travels within Vaughan.

Figure 3-14. Queen - Route 501 (Vaughan section)

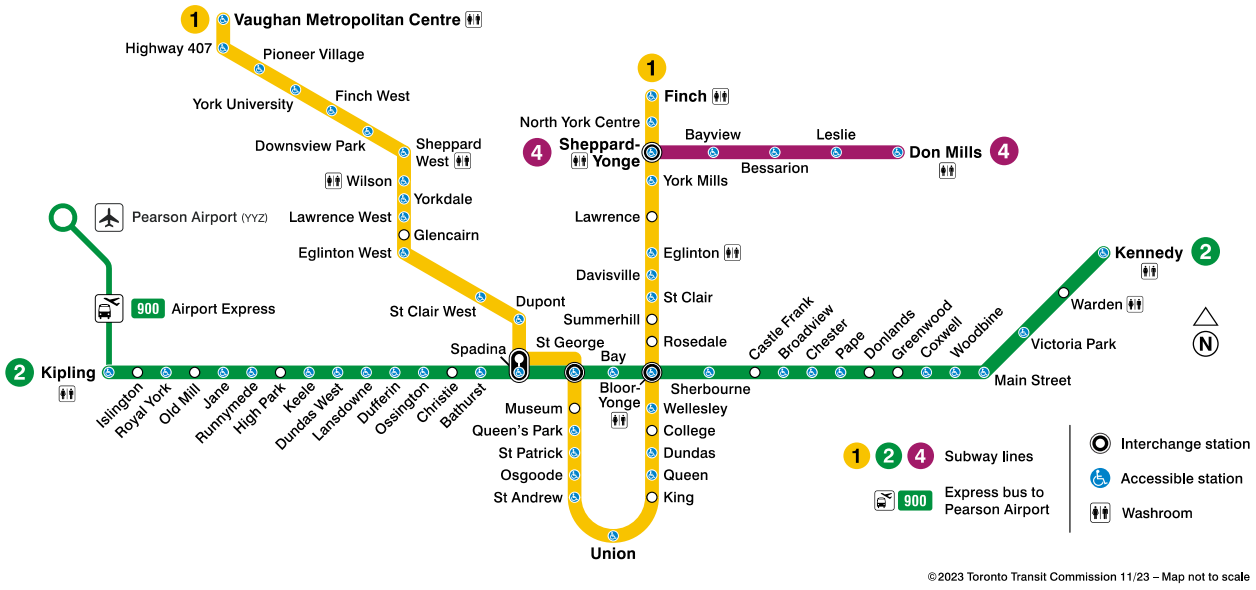
Source: Brampton Transit

3.4.4 Toronto Transit Commission Subway

Yonge – University – Line 1

The VMC TTC Subway Station is located at the intersection of Highway 7 and Millway Avenue and is the terminus of the Yonge-University Subway Line (Line 1). Line 1 operates (generally) in the Spadina Avenue and Allen Road corridors between Union Station and the VMC, every 2 to 3 minutes during the morning and afternoon peak periods (**Figure 3-15**). The route connects the VMC with key destinations in Toronto, including Pioneer Village, York University, Downsview Park, Yorkdale Mall, Eglinton West Station, Queen's Park, and Union Station. The route also intersects the TTC east-west subway line along Bloor Street at Spadina station.

Figure 3-15. Yonge - University (Line 1)



Source: Toronto Transit Commission, 2024

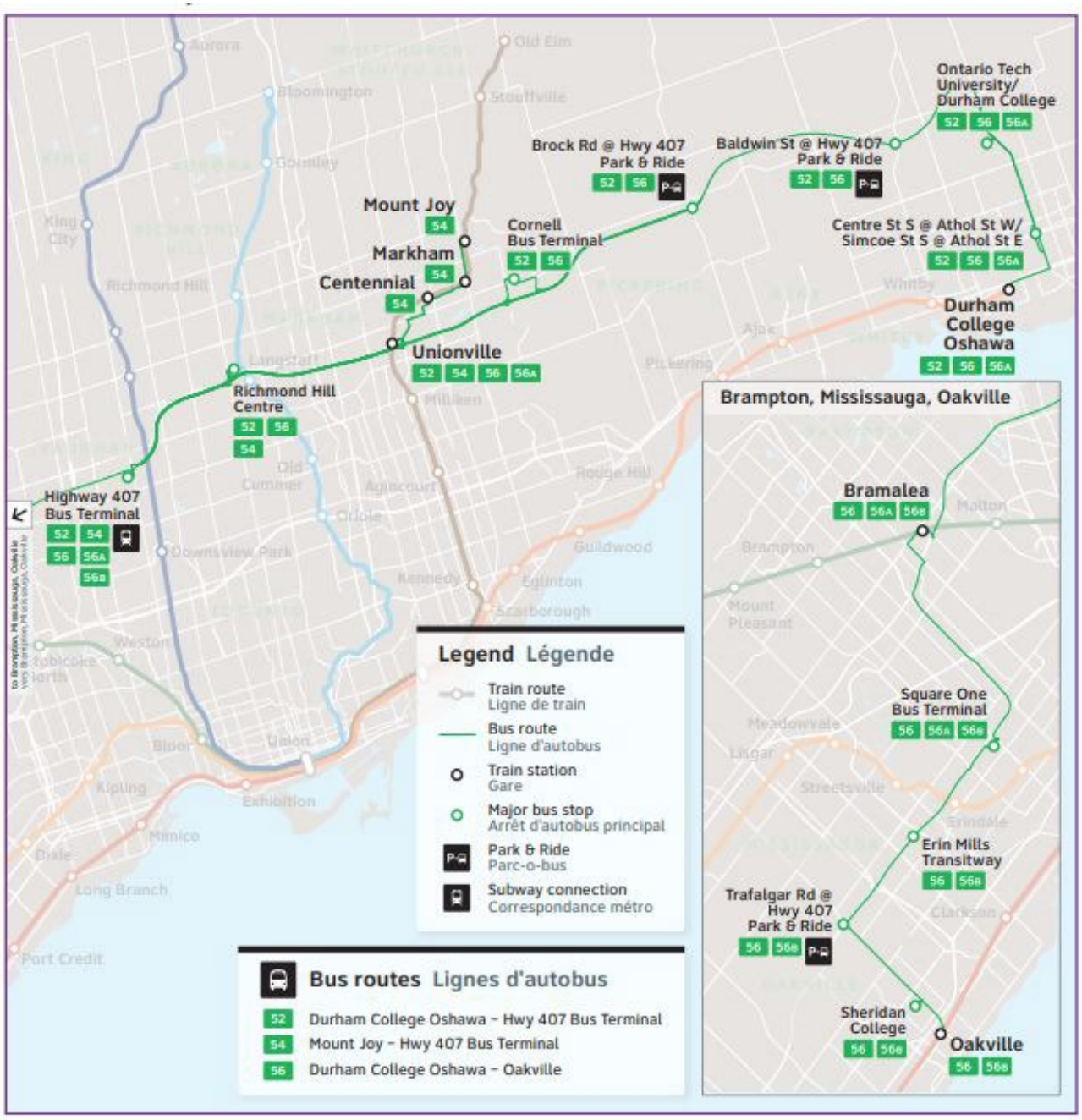
3.4.5 GO Transit

There are several GO Transit bus routes that use Highway 407 and pass through the VMC Study Area, as shown in **Figure 3-16, Figure 3-17,** and **Figure 3-18**. The routes serve different locations in the Greater Toronto and Hamilton area, and while they do not directly service the VMC Study Area identified in this report, they are accessible at the Highway 407 Bus Terminal south of Highway 407.

Figure 3-16. Hamilton / Richmond Hill - Route Number 40

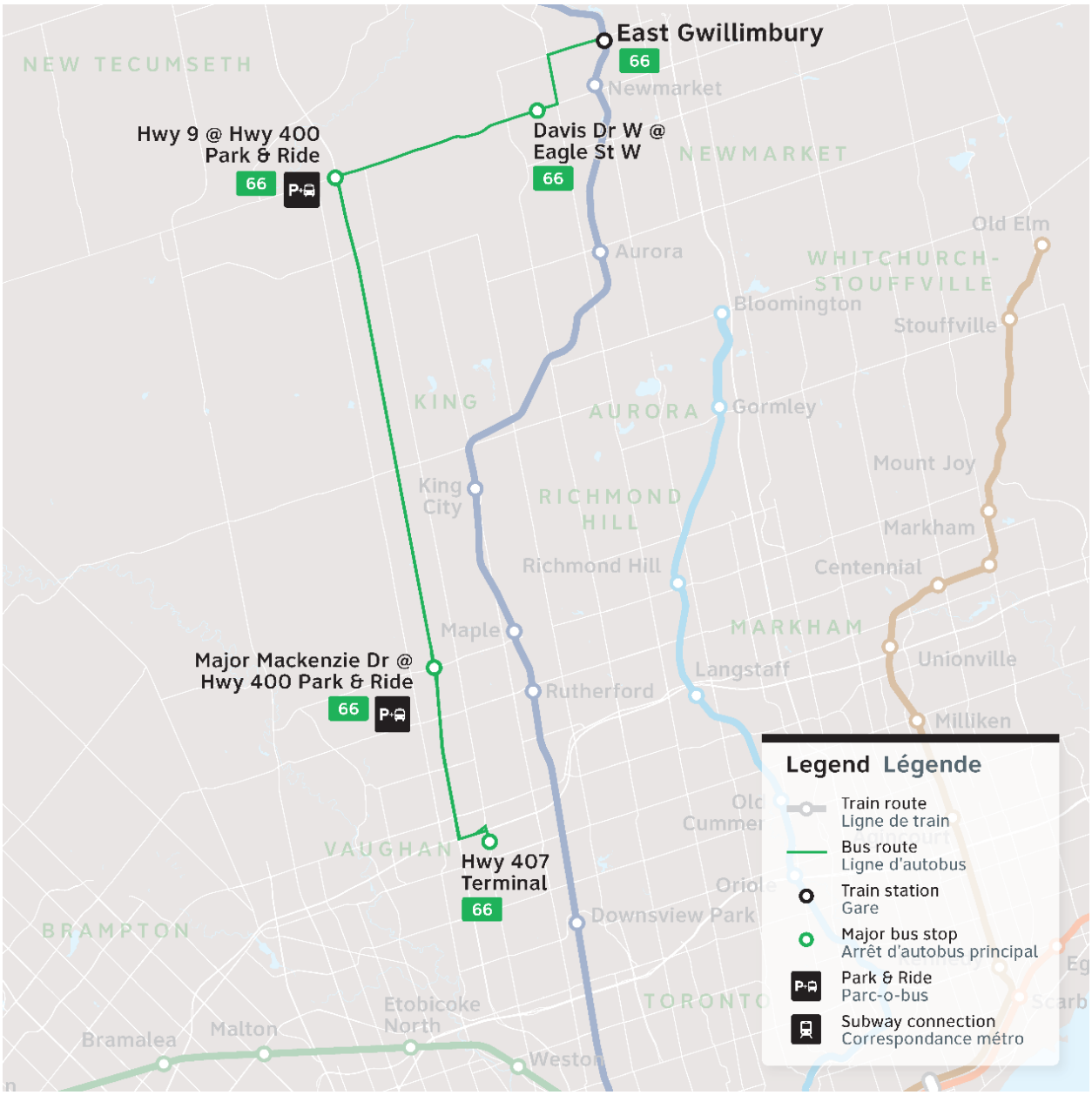
Source: GO Transit

Figure 3-17. Oshawa/Oakville - Route Number 52/54/56



Source: GO Transit

Figure 3-18. East Gwillimbury/Newmarket/Vaughan – Route Number 66



Source: GO Transit

3.4.6 Service Frequency

Table 3-2 shows route frequencies for routes operating in the VMC during weekdays, for both peak and off-peak periods.

Table 3-2. Weekday Bus Route Service Frequency at Service Terminals (southern terminus for north-south routes, east terminus for east-west routes, as of 2024-02-01)

Route #	Route Name	Monday to Friday					
		First Start Time	Morning (6AM-9AM)	Mid-Day (9AM-3PM)	Afternoon (3PM – 7PM)	Evening (After 7PM)	Last Start Time
77	Highway 7	4:30 am	16 min	16-30 min	19 min	19-33 min	2:23 am
26	Maple	5:05 am	43-45 min	No service between 9:17 am and 2:00 pm	48 min	No service	7:36 pm
20	Jane	5:22 am	14-18 min	16-19 min	15 – 22 min	15-24 29 min	2:34 am
605	Viva Orange	4:05 am	12 min	21 min	13 min	23-33 min	1:05 am
501	Queen	4:30 am	10-12 min	12 min	10-12 min	15-20 min	10:02 pm
1	Yonge-University	5:59 am	2-3 min	4-5 min	2-3 min	4-5 min	2:35 am
40	Hamilton / Richmond Hill	3:05 am	20-30 min	25-30 min	20-25 min	60 min	2:05 am
52/54/56	Oshawa / Oakville	3:45 am	25-35 min	25-30 min	15-35 min	60 min	10:35 pm

Table 3-3 shows route frequencies on weekend days, during both peak and off-peak periods.

Table 3-3. Weekend Bus Route Service Frequency at Service Terminals (southern terminus for north-south routes, east terminus for east-west routes, as of 2024-02-01)

Route #	Route Name	Saturday				Sunday			
		First Start Time	Day	Evening (After 7PM)	Last Start Time	First Start Time	Day	Evening (After 7PM)	Last Start Time
77	Highway 7	5:11 am	35-46 min	25-43 min	2:16 am	9:10	52 min	40-49 min	2:20 am
20	Jane	6:05 am	15-25 min	12-43 min	2:27 am	7:13	16-19 min	16-20 min	2:26 am
605	Viva Orange	5:00 am	22-24 min	24 min	1:06 am	6:34	21-23 min	23 min	12:24 am
501	Queen	5:30 am	15 min	30 min	10:45 pm	7:14	30 min	30 min	10:46 pm
1	Yonge-University	6:10 am	2-5 min	5 min	2:30 am	7:58	2-5 min	5 min	2:30 am
40	Hamilton / Richmond Hill	3:00 am	30-60 min	60 min	2:05 am	3:00	30-60 min	60 min	2:05 am
52/ 54/ 56	Oshawa/ Oakville	6:35 am	55-60 min	60-65 min	9:35 pm	6:35	55-60 min	60-65 min	9:35 pm

3.4.7 York Region Transit Passenger Activity

The YRT bus routes serving the area attract a collective ridership of approximately 975 passengers per day. **Table 3-4** illustrates average weekday boardings within the VMC Study Area, by route and time of day, for transit routes serving the Study Area.

Table 3-4. VMC Study Area - Bus Route Service Boardings (Average Weekday, Oct 2019)

Route Number	Route Name	Boarding - Weekdays				
		AM (6AM-9AM)	Mid-Day (9AM-3PM)	PM (3PM-7PM)	Evening (After 7PM)	Total
YRT Route 26	Maple	294	69	205	34	602
YRT Route 20	Jane	332	482	475	228	1,517
YRT Route 77	Highway 7	159	124	173	83	159
YRT Route 77A	Highway 7	11	1	29	0	41
YRT Route 605	Orange	157	138	200	91	586
Brampton Transit Route 501	Queen	No Data				
GO Transit Route 40	Hamilton/Richmond Hill	No Data				
GO Transit Route 52/54/56	Oshawa/Oakville	No Data				
TTC Subway Line 1	Boardings at VMC Station	1,404	1,494	3,557	1,734	8,189
TTC Subway Line 1	Boardings at Highway 407 Station	196	1,158	2,389	525	4,268

YRT/Viva passenger activity (by route) at the bus stops in the VMC Study Area can be seen in **Appendix F**. Ridership information is taken from October 2019, reflecting the latest available pre-pandemic counts.

3.5 Existing Multimodal Level of Service Analysis

The existing VMC Study Area is primarily a commercial hub, with many points of interest generating a substantial amount of automobile trips. The convergence of all these high-volume highways and busy regional roadways presents a challenging environment for cycling and pedestrian modes of transportation. The upcoming sections present the multi-modal level of service (MMLOS) analysis, which follows the City of Ottawa's Multimodal Analysis Guidelines, for the roadways and intersections located in the VMC Study Area. MMLOS is a tool that evaluates the performance of each mode – pedestrians, bicycles, transit, and autos, to provide an integrated depiction of the multi-modal levels of service. This table-based approach considers the roadway characteristics and facility type and quality for both intersections and mid-blocks (segments). This analysis will focus on pedestrian and bicycle level of service, to assist the multi-modal transportation decisions.

3.6 Pedestrian Level of Service

3.6.1 Pedestrian Level of Service Criteria

The pedestrian level of service (PLOS) analysis for the VMC Study Area was conducted following the City of Ottawa's Multimodal Analysis Guidelines. The PLOS analysis is presented as a ranking of intersections and mid-block (segments) that a pedestrian could encounter in the Study Area. The PLOS methodology measures the level of traffic stress (LTS) experienced by a pedestrian for each segment and signalized intersection. Each LTS score is associated with roadway characteristics and scored (from A to F) based on the degree a pedestrian will encounter these types of stressors. The criteria for segments and intersections, respectively, are outlined below:

Segment PLOS considers the width of a facility and the horizontal separation between pedestrians and moving motor vehicles (Buffer/ Boulevard). The analysis also adds considerations to traffic volumes on the adjacent roadways, presence of on-street parking, and roadway operating speeds. The segment overall LOS is based on the lowest quality section of the segment.

Intersection PLOS is based on two measures – the Pedestrian Exposure to Traffic at Signalized Intersections (PETSI) and Pedestrian Delay LOS. The evaluation of PETSI is based on crossing characteristics, such as crossing distances, and signal phasing and

timing features. The evaluation of Pedestrian Delay LOS is based on a simple equation, which considers cycle length and Pedestrian Effective Walk Time. Each approach is evaluated individually, and the overall LOS for an intersection represents the worst score approach.

The inputs for the segment PLOS and Pedestrian Exposure to Traffic LOS are summarized in **Table 3-5** and **Table 3-6** respectively. **Table 3-7** provides examples of how the criteria were applied to roadways in the VMC Study Area. The details of the methodology, including an example showing the calculations for the segment and intersection PLOS are provided in **Appendix A**.

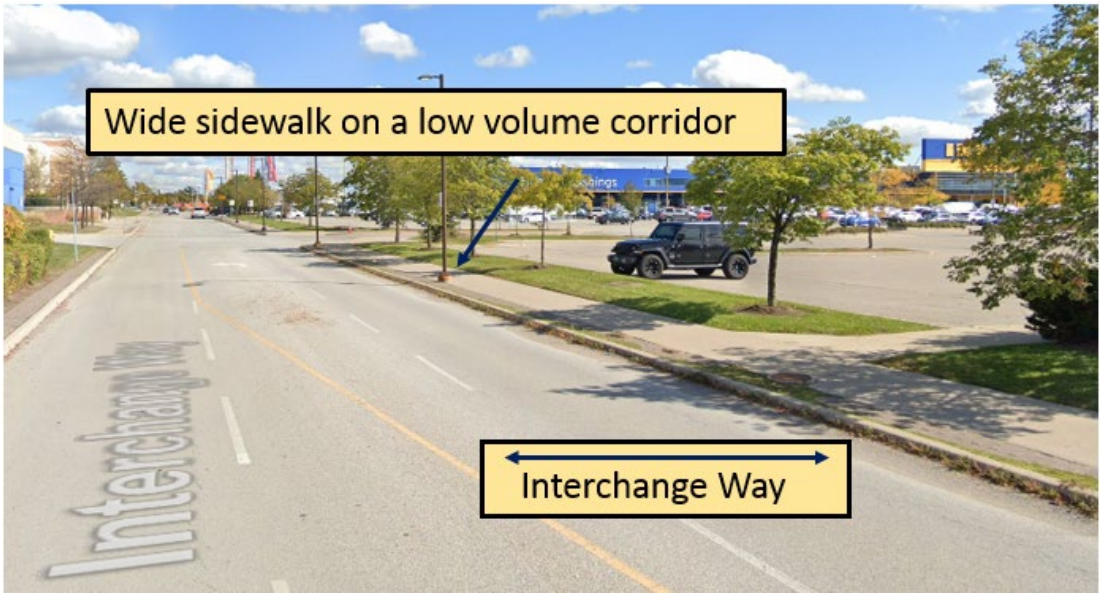
Table 3-5. Pedestrian Segment LOS Considerations

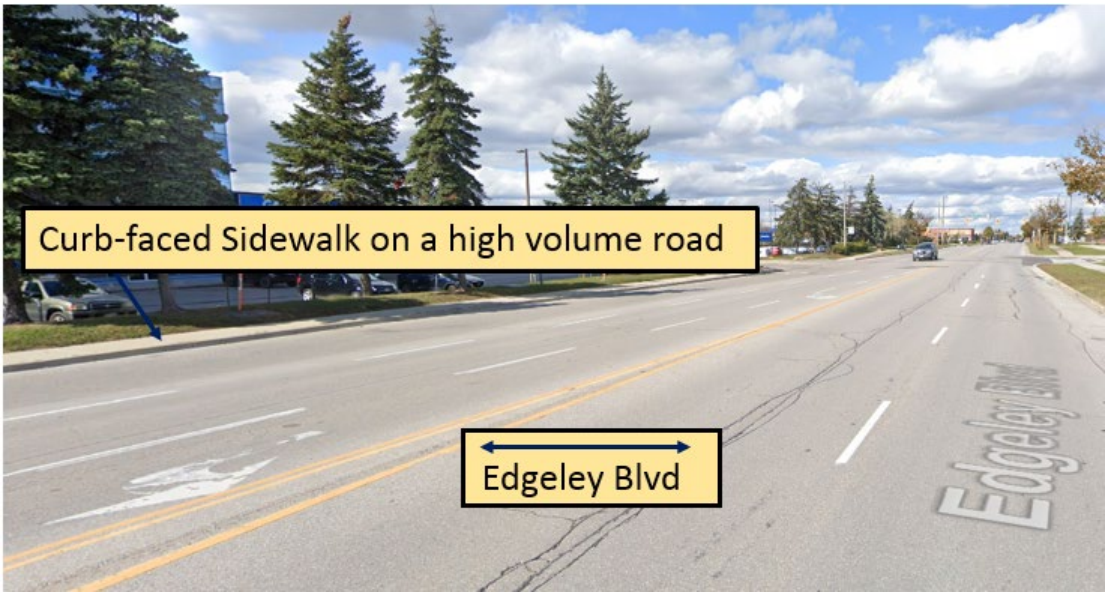
Sidewalk Width	Is the sidewalk wide enough (1.5 metres) to meet Provincial accessibility standards?
Separation	Is the pedestrian facility horizontally separated from travel lanes (for example, vegetation zone, on-street parking, asphalt maintenance strip, bicycle lane)?
Vehicular Volumes	Is this a high-volume road with Average Daily Curb Lane Traffic Volumes greater than 3000?
Operating Speed	Are the operating speed limits lower (30-50 km/h) or higher (≥60 km/h)?

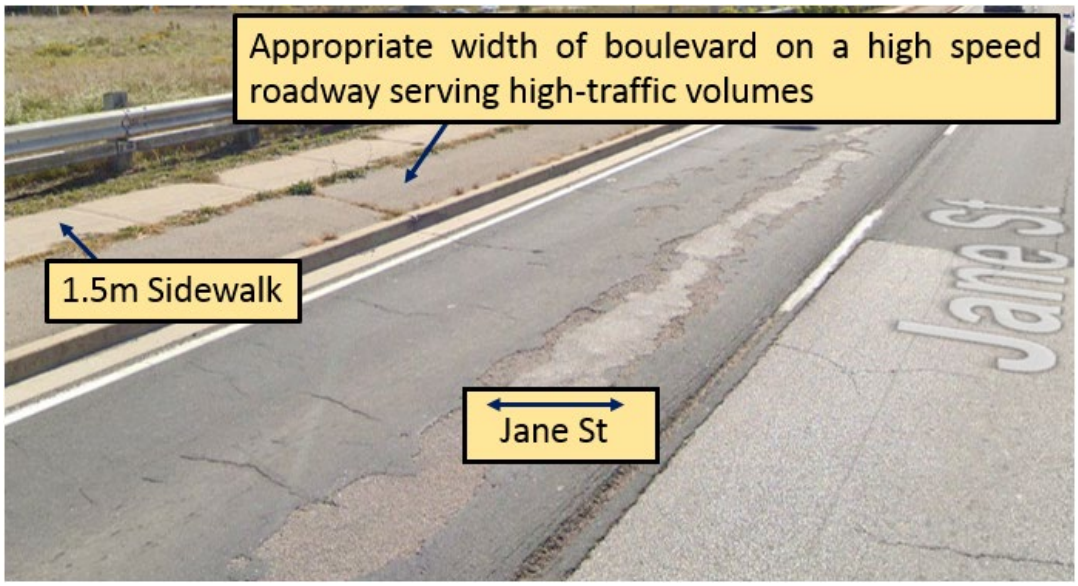
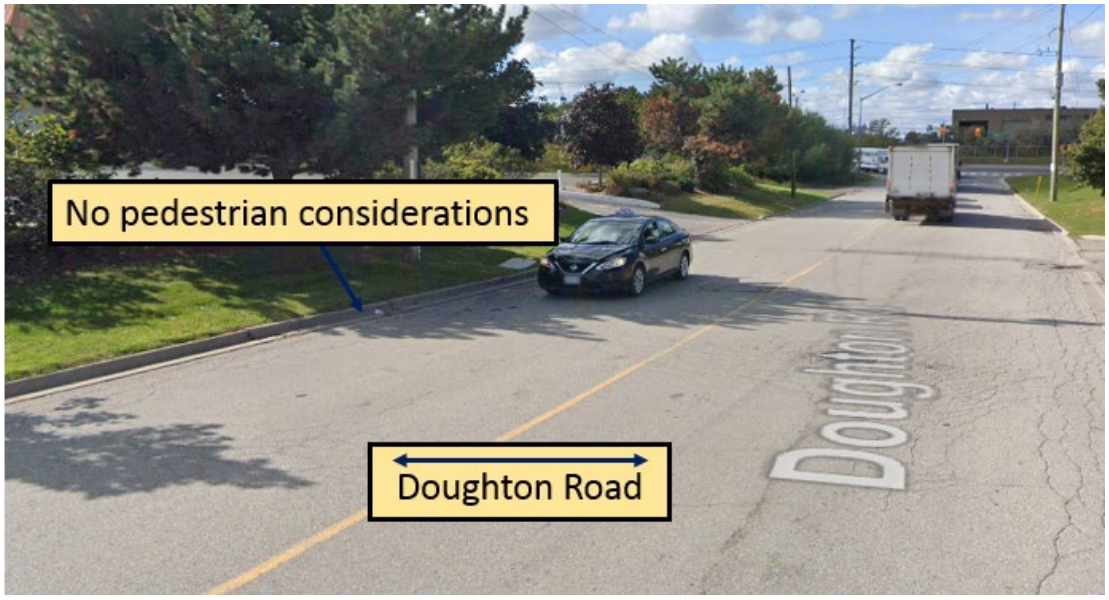
Table 3-6. Pedestrian Exposure to Traffic LOS Considerations

Crossing Distance	If the crossing has multiple lanes, is there any island refuge for safe crossing?
Corner Radius	Is the turning radius for vehicles wide (typically indicating an environment that is suited for movement of goods and vehicular flow as opposed to pedestrian safety)?
Channelized Right	Is the channelized right a smart channel (channel intersecting street at an angle of 70° or greater) or conventional right turn channel?
Potential Conflicts	If the conflicting left and right turning movements are allowed, what is a type of conflicting movement – for example, Protected, Permissive, Protective/Permissive, etc.?
Right turn on Red (RTOR); Leading Pedestrian Interval (LPI)	Is RTOR allowed or prohibited at certain times; Is LPI allowed for minimizing the conflicts between pedestrians and vehicles? A sample calculation is shown in **Appendix A**.
Crosswalk Treatment	Is the crosswalk raised, coloured or textured, which could increase the visibility for approaching vehicles?

Table 3-7. Illustrations of LOS for Pedestrians

LOS	Example
A	
B	

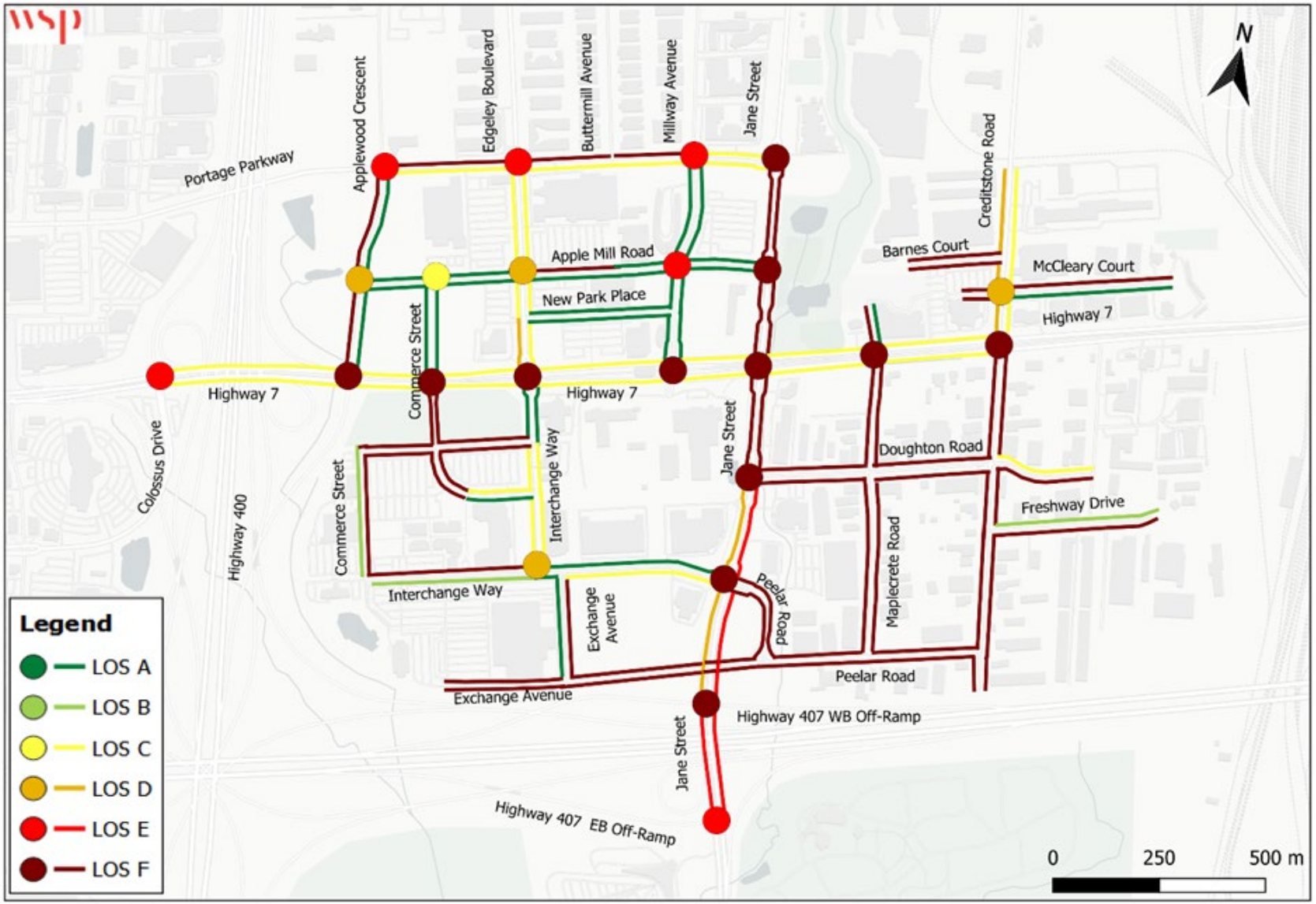
LOS	Example
C	
D	

LOS	Example
E	
F	

3.6.2 Existing (2020) Pedestrian Conditions

The existing (2020) pedestrian level of service analysis results for the VMC Study Area are presented in **Figure 3-19**. A summary of the segment PLOS results for the east-west and north-south corridors, respectively, and the intersection PLOS results are provided in **Appendix A**.

Figure 3-19. Existing (2020) Pedestrian Level of Service



Within the VMC Study Area, most of the sidewalks are easy to navigate, due to the adequate width of sidewalks separated from vehicular traffic by a buffer or a boulevard and have PLOS “D” or better. As presented in **Figure 3-19**, the improvements along Highway 7 have eased the level of stress for pedestrians, which has resulted in a segment PLOS “C” along the roadway in the VMC Study Area. However, the arterial roadways, which include Jane Street north of Highway 7 and Creditstone Road south of Highway 7, experience segment PLOS “F” due to the lack of pedestrian infrastructure and facilities, as well as high traffic volumes and a higher operating speed of 60 km/h.

Furthermore, the majority of segments on Jane Street, south of Highway 7, have a number of “stressors” for pedestrians, for example, the relatively narrow sidewalks and boulevards that are not wide enough in relation to the high-volume of traffic / operating speeds. Additionally, some of the collector and local roads have an existing segment PLOS “F” due to the absence of facilities for pedestrians, as presented in .

The overall pedestrian conditions at various intersections along Highway 7 and Jane Street are at PLOS “F”, mainly due to the wide crossing of these roads, for example, Highway 7 has an eight-lane cross-section (three vehicular through lanes in each direction and two designated bus lanes). Additionally, pedestrians are experiencing higher average delays because of insufficient effective walk time. Therefore, the signalized intersections located within the Study Area have PLOS “E” or “F”, except for the few intersections located along Apple Mill Road, Interchange Way and McCleary Court, which all have existing intersection PLOS “D” or “C”.

3.7 Bicycle Level of Service

3.7.1 Bicycle Level of Service Criteria

The Bicycle Level of Service (BLOS) was evaluated for the VMC Study Area intersections and segments. The basic criteria applied to measure the BLOS is similar to the criteria used for the PLOS analysis, such as facility type and cycling-specific facilities that can improve the level of stress for cyclists at the intersection and is outlined below.

Segment BLOS considers the type of facility, number of travel lanes, vehicular operating speeds, and parking characteristics. It also considers the blockage of bike lanes by commercial deliveries, and median refuge width at unsignalized crossings.

Intersection BLOS specifically identifies left turn cycling infrastructure, such as a bike box and the number of lanes crossed, and the right turn characteristics, such as the length of turning lanes and the turning speeds.

Table 3-8 and **Table 3-9** indicate the inputs for the segment and intersection BLOS, respectively, while examples of how these criteria were applied to the VMC Study Area network are provided in **Table 3-10.** The details of the methodology, including an example showing the calculations for the segment and intersection BLOS are provided in **Appendix B**.

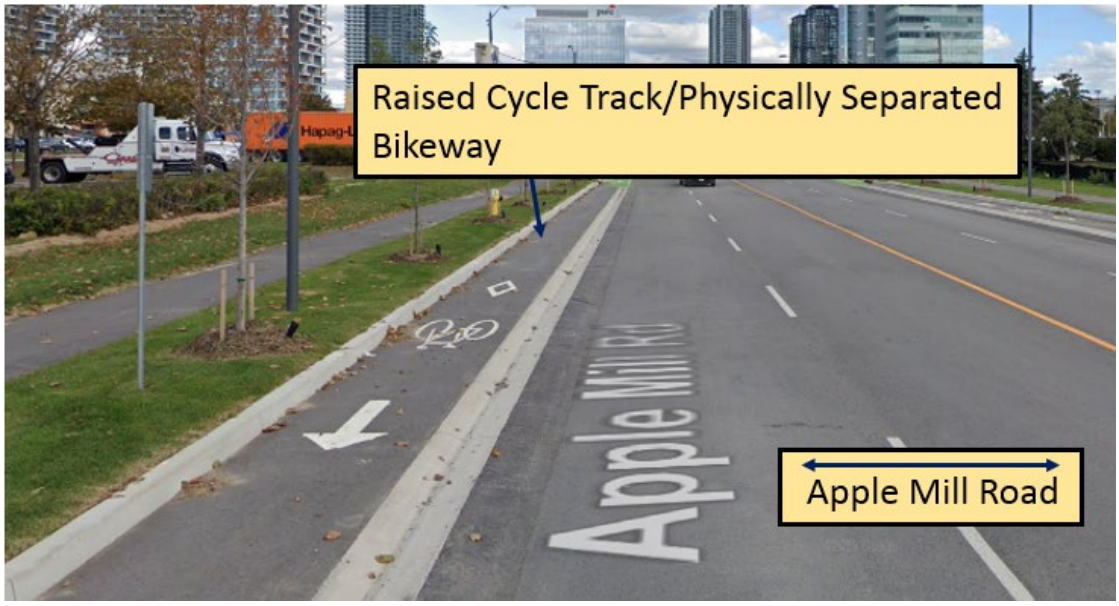
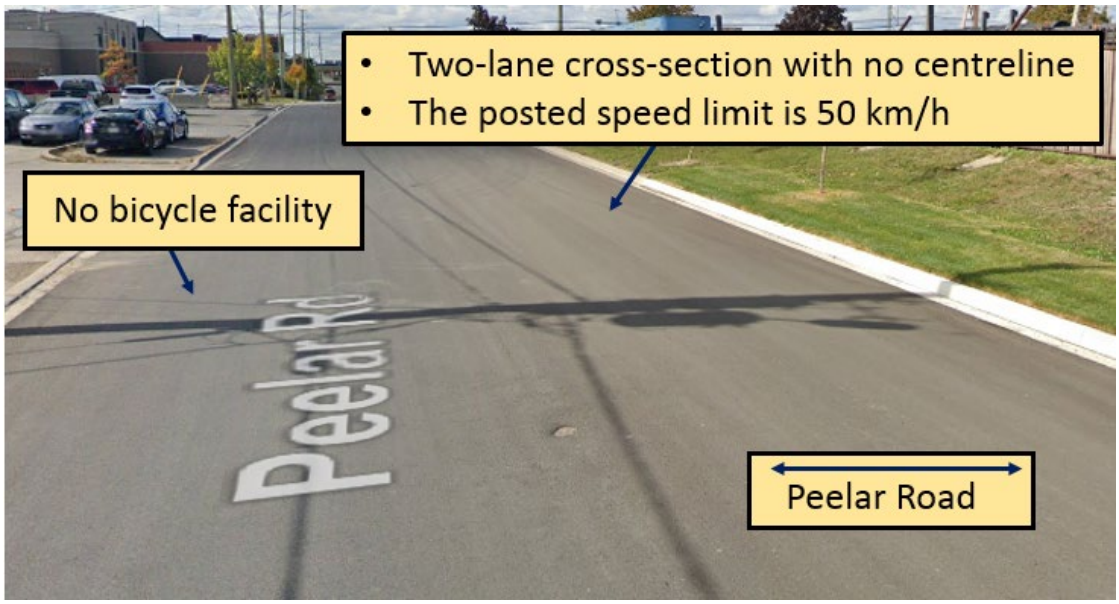
Table 3-8. Bicycle Segment LOS Consideration

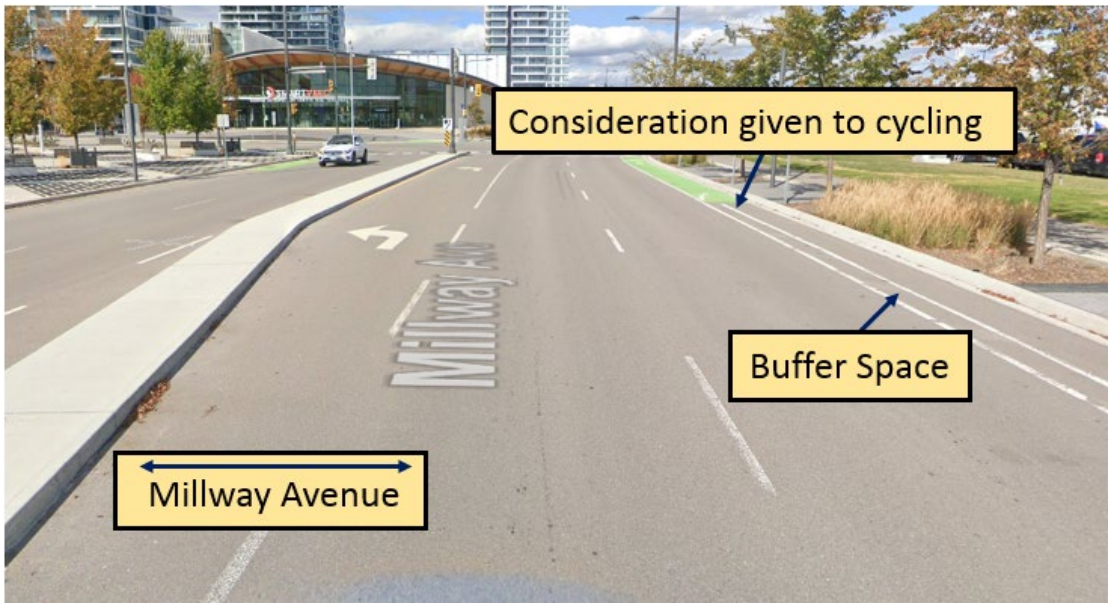
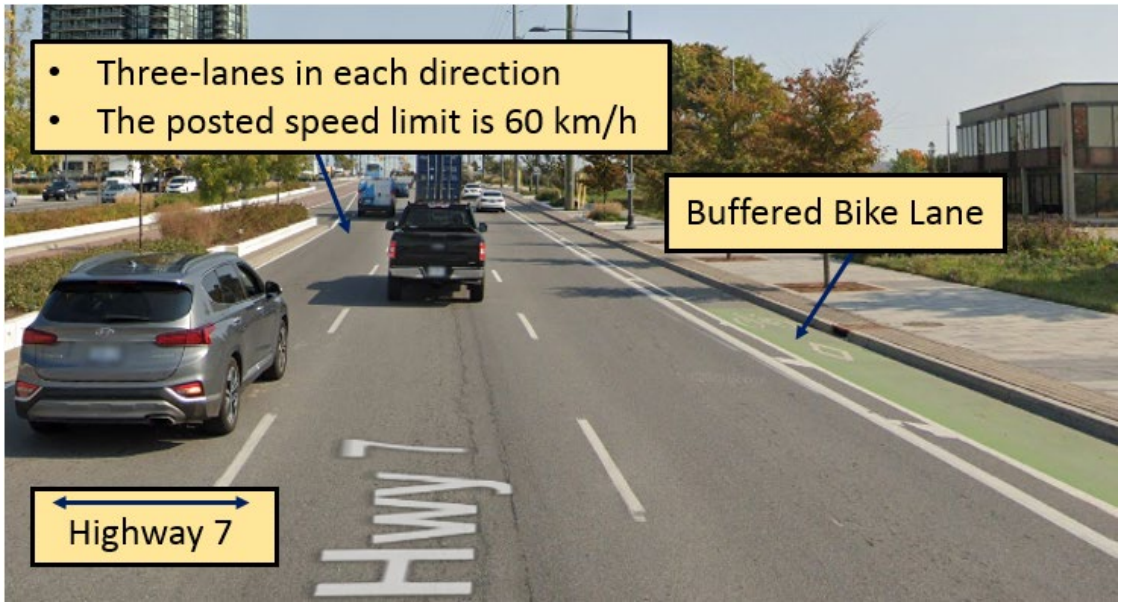
Conflicts with Right Turning Vehicles	– On an approach to an intersection, is the cycling facility to the right of the vehicular turning lane, which could enhance bicycle visibility and reduce the conflicts? – If the facility is located left of right turning lane (pocket bike lane), does it cross the turning lane?
Left Turn Impediments	– Does the intersection have consideration for left turning bicycles (two-stage bicycle box)?

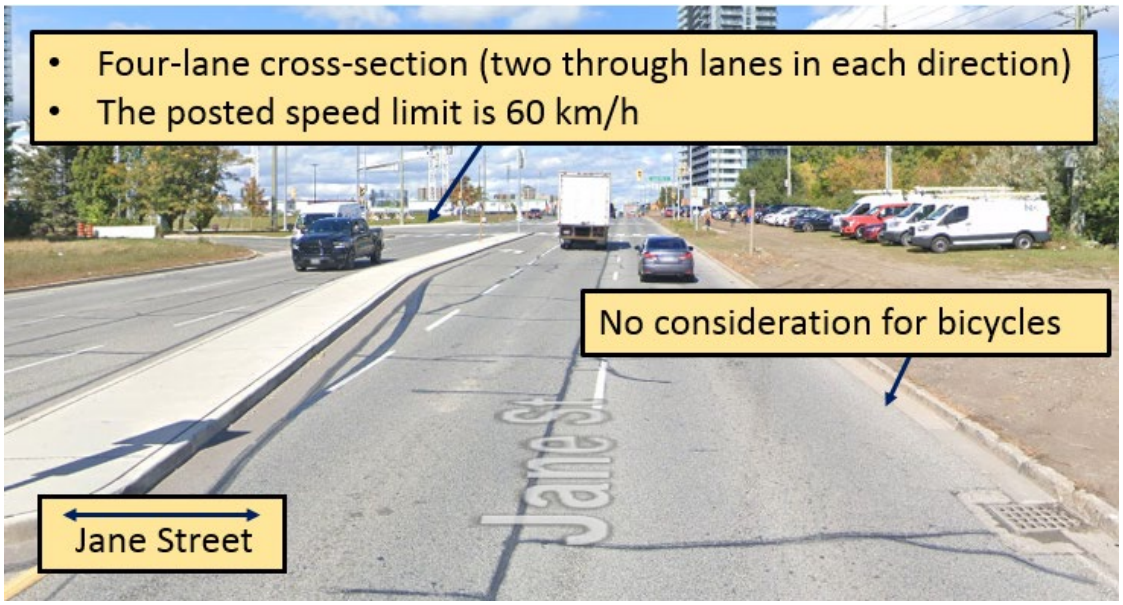
Table 3-9. Bicycle Intersection LOS Considerations

Facility Characteristics	– Is the facility physically separated including cycle tracks, protected bike lanes and multi-use path? – Does the facility have a painted buffer? – Is there parking besides bike lane or the facility is curbside bike lane? – Is the facility appropriately signed?
Street Dimensions and Vehicular Speeds	– How many vehicle lanes are there? – Are the operating speed limits lower (30-50 km/h) or higher (≥60 km/h)?
Cycling Facility Blockage	– Is there an abundance of conflict points (parking driveways or commercial access driveways)?
Unsignalized Crossings	– If the crossing side has median refuge, is this appropriate for bicycle storage (≥ 1.8 metres wide)? – Is the crossing side wide (≥ 6 lanes) or narrow (≤ 3 lanes), and what are the operating speeds on side street? A sample calculation is shown in **Appendix B**.

Table 3-10. Illustrations of LOS for Bicycles

LOS	Example
A	
B	

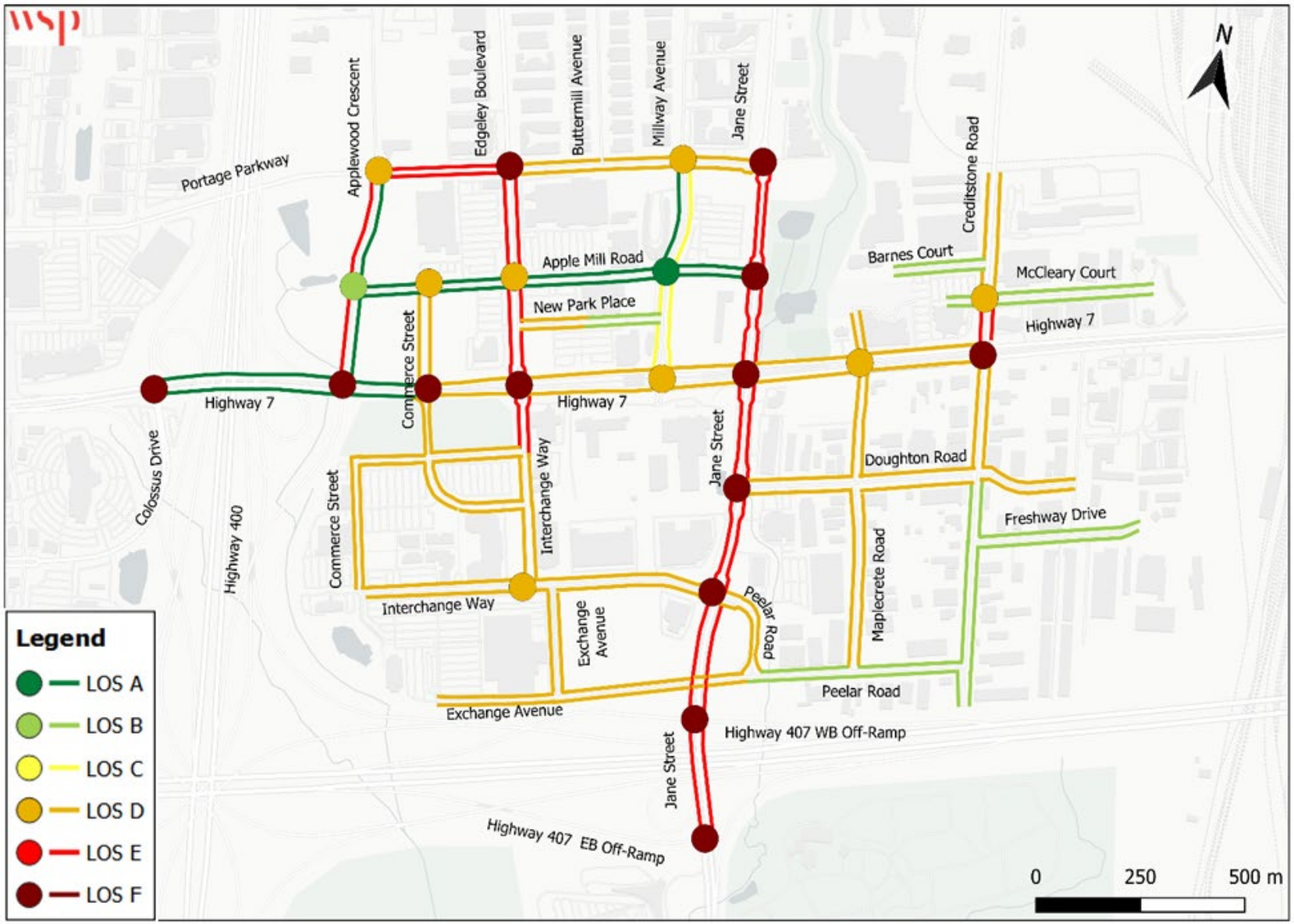
LOS	Example
C	
D	

LOS	Example
E	
F	

3.7.2 Existing (2020) Bicycle Conditions

The existing (2020) bicycle level of service analysis results for the VMC Study Area are presented in **Figure 3-20**. A summary of the segment BLOS results for the east-west and north-south corridors, respectively, and the intersection BLOS results are provided in **Appendix B**.

Figure 3-20. Existing (2019) Bicycle Level of Service



The overall existing environment is unfavourable for cyclists within the VMC Study Area due to limited separated cycling facilities for all ages and abilities. There are Study Area segments that have an existing BLOS "D" or better due to some dedicated facilities or lower vehicular volume, two lane roads. For example, eastbound and westbound segments on Peelar Road, which have no cycling facilities, experience BLOS "B" because of the existing two-lane cross-section with no centreline, as presented in **Table 3-10**. The segments that experience BLOS "E" include:

- Eastbound and westbound on Portage Parkway between Applewood Crescent and Edgeley Boulevard;
- Southbound on Applewood Crescent between Portage Parkway and Highway 7;
- Northbound and southbound on Edgeley Boulevard between Portage Parkway and Commerce Street, and along Jane Street within the Study Area; and
- Creditstone Road on both sides between McCleary Court and Highway 7.

As presented in **Figure 3-20**, the level of stress for cyclists is relatively high at the intersections along Highway 7 and Jane Street, and at the Portage Parkway intersection with Edgeley Boulevard. These intersections have an existing BLOS "F" due to the potential conflicts of bicycles with right-turning vehicles or lack of specific cycling infrastructure at the intersections, for example bicycle boxes.

3.8 Road Network - Existing (2019) Traffic Conditions

The existing road network for the VMC TMP Study Area is presented in **Figure 3-21** and the number of lanes in the existing road network is illustrated in **Figure 3-22**. A description for the key roadways and corridors within the Study Area is provided below.

Highway 7 (Y.R. 7) is an east-west Regional Arterial corridor with a six-lane cross-section. The segment of Highway 7 under consideration for this TMP runs from the west of Highway 400 to the east of Creditstone Road. The Viva bus rapid transit (BRT) currently runs along the median lane from west of Ansley Grove Road to east of the VMC. Due to the median BRT lane, the Highway 7 intersections operate with 'protected-only' phases for the eastbound-left and westbound-left movements. The posted speed limit on Highway 7 is 60 km/h throughout the VMC Study Area.

Jane Street (Y.R. 55) is a north-south Regional Arterial corridor with a four-lane cross-section. The segment of Jane Street under consideration for this TMP runs from Portage Parkway to the north and 407ETR to the south. It runs parallel to Highway 400 and

provides a connection to 407ETR, via a Parclo A2-Diamond interchange. The posted speed limit on Jane Street is 60km/h throughout the VMC Study Area.

Creditstone Road is a north-south Municipal Minor Arterial corridor with a two-lane cross-section, servicing the employment areas east of Jane Street. The segment of Creditstone Road under consideration for this TMP runs from Portage Parkway to the north and *407ETR* to the south. The posted speed limit is 50km/h throughout the VMC Study Area.

Edgeley Boulevard is a north-south Municipal Major Collector corridor with a four-lane cross-section. The segment of Edgeley Boulevard under consideration for this TMP runs parallel to Highway 400 and Jane Street, from Portage Parkway to Highway 7, providing connections to the employment areas between Langstaff Road and Highway 7. The posted speed limit is 50 km/h throughout the VMC Study Area.

Interchange Way is a Municipal Major Collector corridor with a two-lane cross-section, running north-south from Highway 7 connecting east-west from Commerce Street to Jane Street. The posted speed limit is 50 km/h throughout the VMC Study Area. A proposed extension of Interchange Way to Creditstone Road will be considered under the EA Study.

Portage Parkway is an east-west Municipal Major Collector corridor with a four-lane cross-section from west of Highway 7 to Edgeley Boulevard, and a two-lane cross-section from Edgeley Boulevard to Jane Street, providing an alternative route for crossing Highway 400, north of Highway 7. The current Portage Parkway overpass has a highly elevated structure due to the short span. The posted speed limit is 50 km/h throughout the VMC Study Area.

Millway Avenue is a north-south Municipal Special Collector that extends from Portage Parkway to the north to Highway 7 to the south, with a four-lane cross-section (two-lane cross-section north of Portage Parkway). The posted speed limit is 40 km/h throughout the VMC Study Area. A proposed extension of Millway Avenue to Interchange Way will be considered under the EA Study.

Other Municipal roads within the VMC Study Area include Applewood Crescent, Apple Mill Road, Buttermill Avenue, Commerce Street, Doughton Road, Maplecrete Road, Peelar Road and Exchange Avenue.

Figure 3-21. Existing Road Network Road Hierarchy

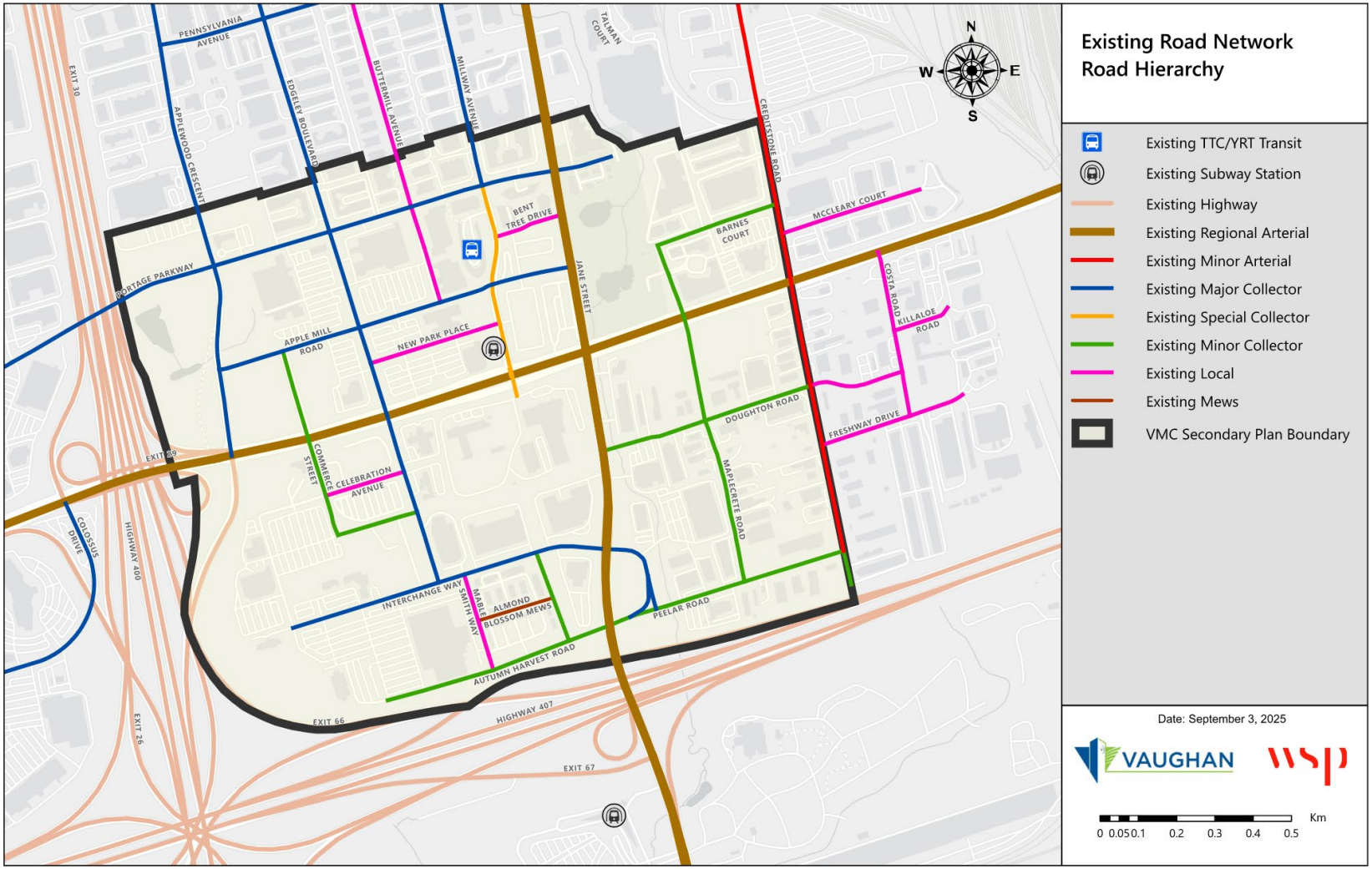
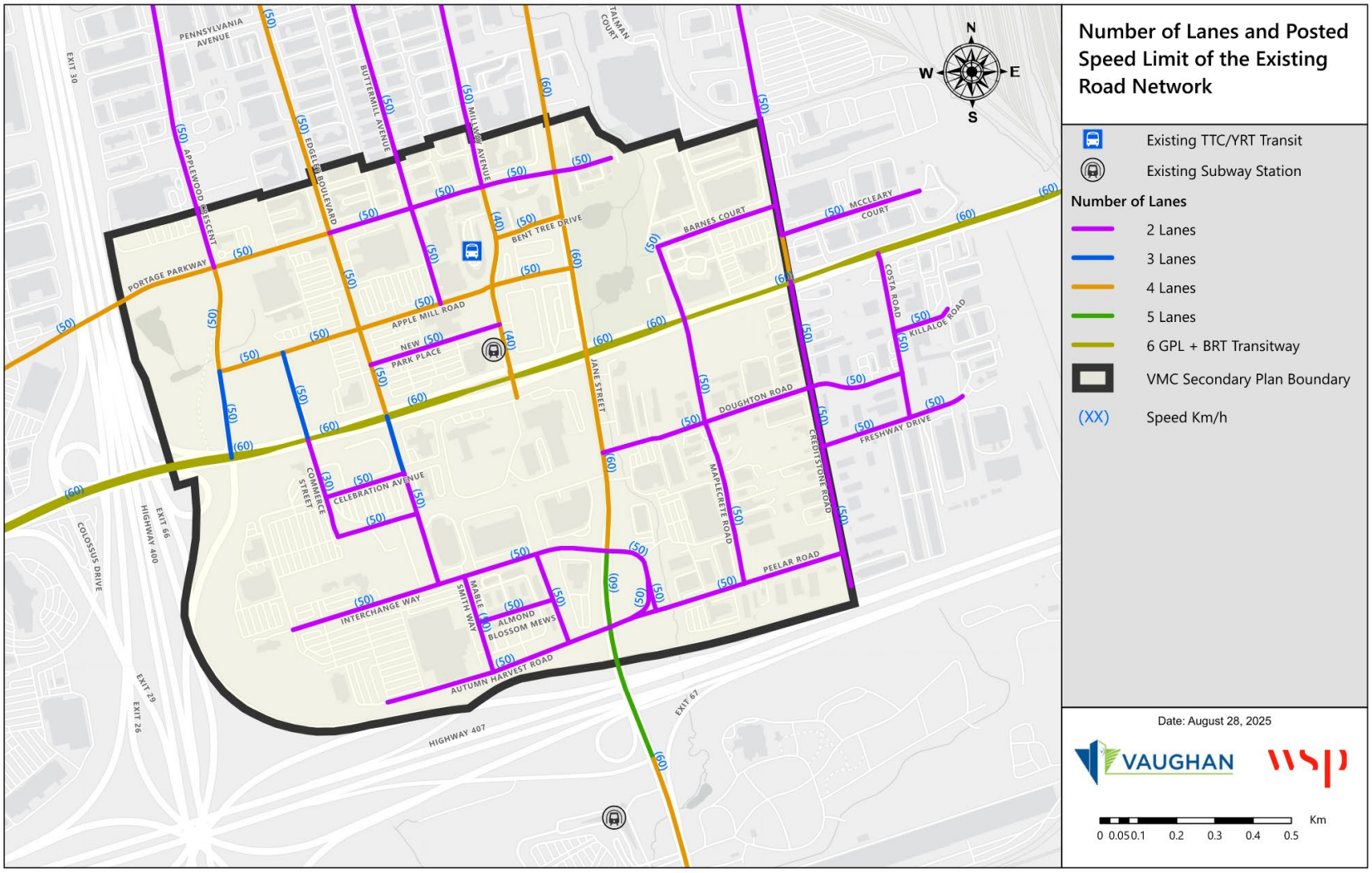


Figure 3-22. Number of Lanes and Posted Speed Limit of the Existing Road Network



3.8.1 Traffic Data Collection

Turning Movement Counts (TMCs) and Automatic Traffic Recorder (ATR) Counts for the VMC Study Area were provided by York Region for the Regional road intersections, by the City of Vaughan for major collector and minor collector roads, and by MTO and *407ETR* for the ramp terminal intersections. Additional TMCs were collected by WSP in June 2020 and October 2020 for the intersections where TMCs were not available. A summary of the data collection dates for each Study Area intersection is provided in **Appendix C**.

To assess the potential impact of COVID-19 on the travel demand during the weekday peak hours, and to estimate traffic demand for the intersections prior to COVID-19 conditions. Additional TMCs were collected on typical weekdays in October 2020 (dates are shown in **Appendix C**) for the following eight key intersections:

1. Highway 7 and Ansley Grove Road;
2. Highway 7 and Weston Road;
3. Highway 7 and Highway 400 SB Off-Ramp;
4. Weston Road and Chrislea Road;
5. Weston Road and Colossus Drive;
6. Jane Street and Portage Parkway;
7. Jane Street and Interchange Way / Peelar Road; and
8. Creditstone Road and McCleary Court.

The existing (2019/2020) traffic counts were reviewed and adjusted as follows:

1. The 2019 and 2020 traffic counts were reviewed by corridor/direction, and demand adjustment factors were calculated based on the total approaching vehicle volumes at the eight key intersections, before and after the COVID-19 impacts. Traffic counts were adjusted for both the VMC and Weston 7 Study Area. The adjustment factors for the VMC Study Area are shown in **Table 3-11**.

Table 3-11. Demand Adjustment Factors

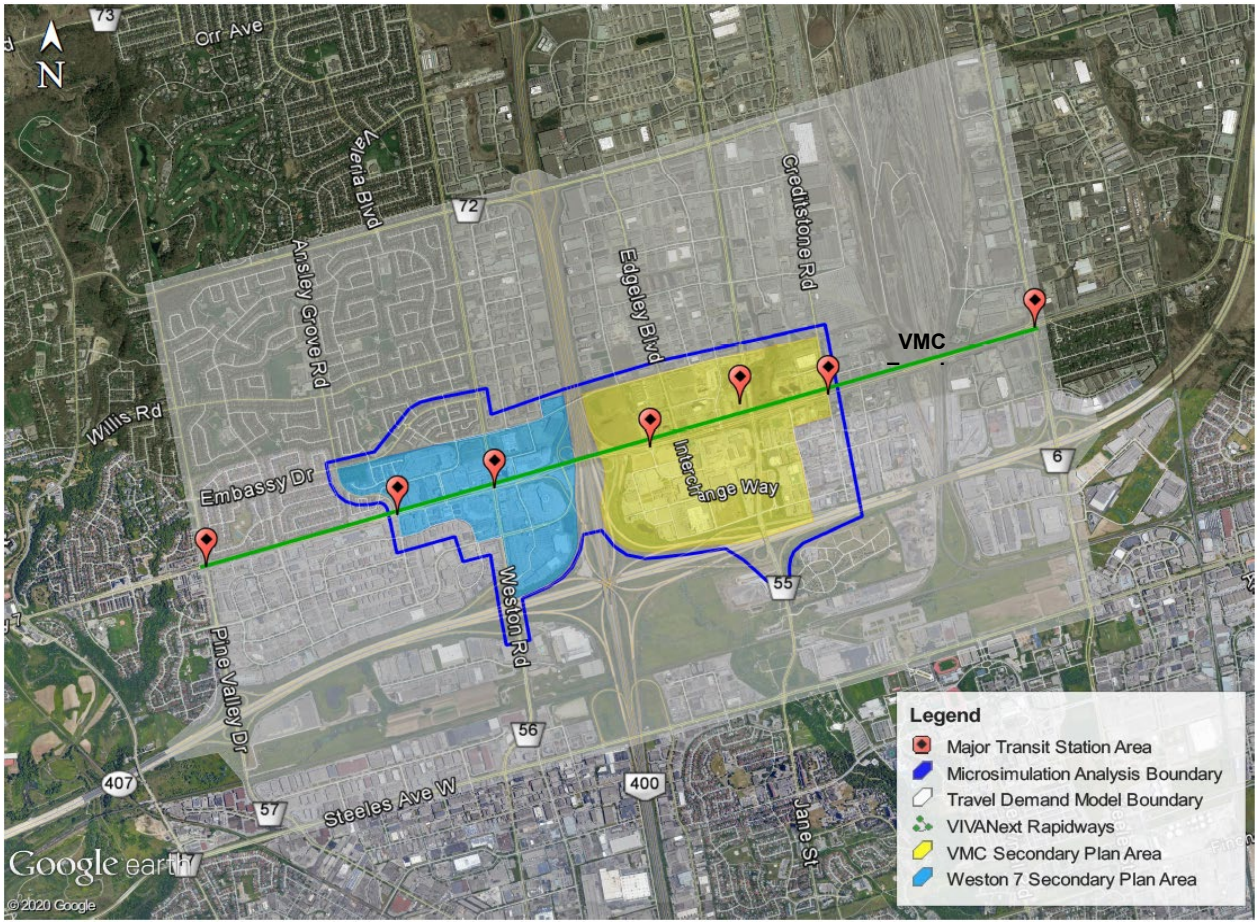
Intersection	AM Factor	PM Factor
Jane St and Portage Pkwy	1.31	1.04
Jane St and Interchange Way/ Peelar Rd	1.71	1.25
Creditstone Rd and McCleary Ct	1.86	1.51
Hwy 7 and Jane St	1.21	1.04

2. The demand adjustment factors were applied to the 2020 traffic counts to reflect thepre-COVID-19 conditions;
3. The traffic volumes were adjusted in both the VMC Study Area and Weston 7 Study Area, based on the controlling counts, to ensure consistency and reasonability of traffic flows along the corridors and in-between adjacent intersections.

3.8.2 Traffic Model Development and Calibration

An *Aimsun*-based micro-simulation model was developed for both the Weston 7 TMP andthe VMC TMP Update Study Areas. The existing traffic conditions analysis will be reported and documents in a separate Weston 7 TMP Existing Conditions Report. The traffic model boundaries are presented in **Figure 3-23**.

Figure 3-23. VMC TMP Update and Weston 7 TMP Traffic Analysis Model Boundaries



Aimsun is a fully integrated traffic modelling program that incorporates macroscopic functionalities with a mesoscopic and microscopic traffic simulation. It facilitates a detailed assessment of traffic operations for different road network configuration and intersections, combined with dynamic traffic route choice assignment options related to the local road network inclusive of the Study Area. The Aimsun model for this study builds on information and data extracted from the York Region Traffic Demand Forecasting (YRTDF) subarea model. The model development incorporated a wide range of input data, including:

— Transportation Network - posted speed limits, number of lanes, intersection lane configurations, priority rules/conflict area, transit lanes (for Viva, BRT), etc.;
— Driving Behavior - desire speed distribution, car following and lane changing parameters;

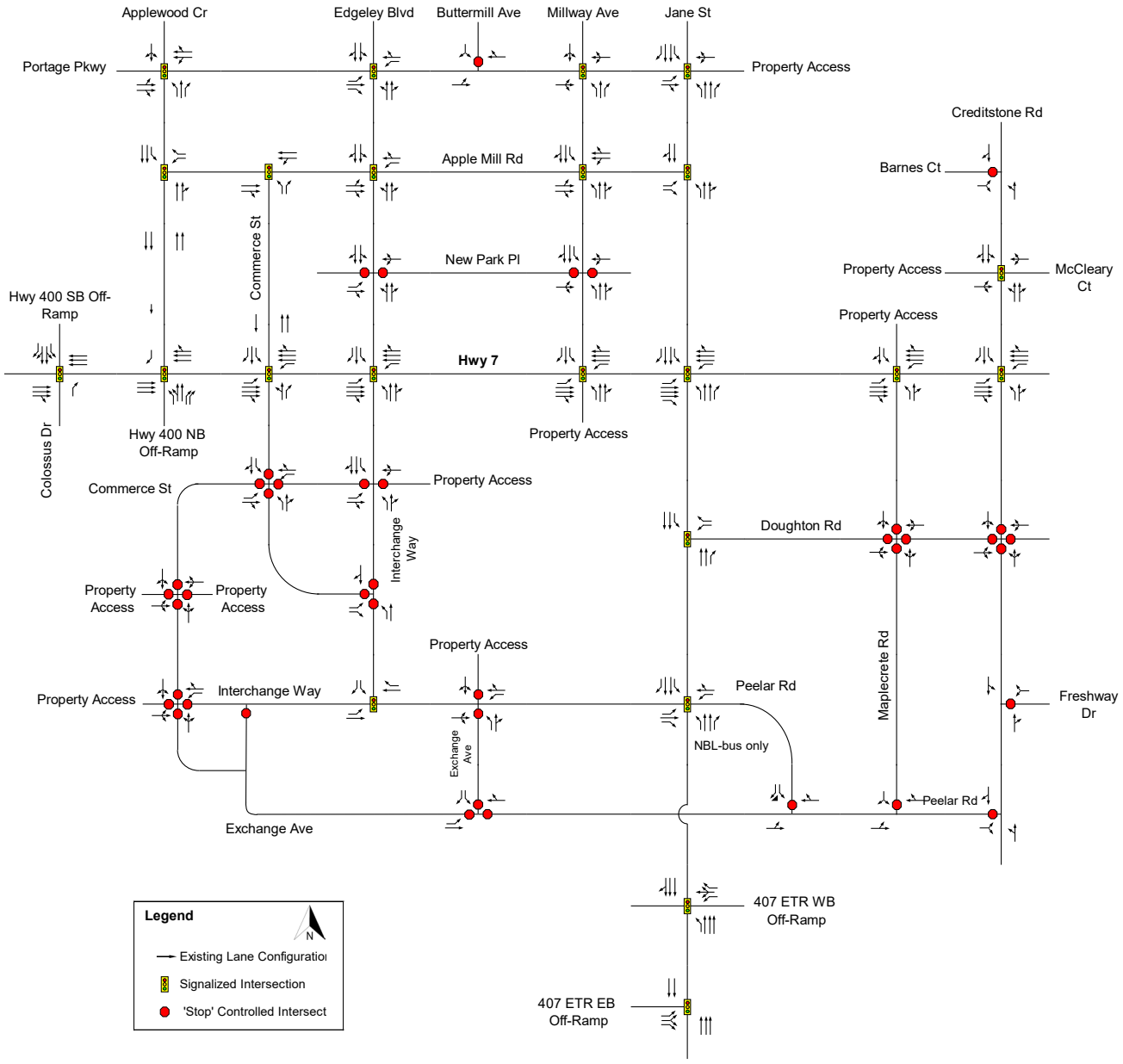
- Traffic Controls - ‘Stop’ / ‘Yield’ signs, traffic signals, placement of ‘Stop’ bar, detector placement, signal timing plans, turning permissions/restrictions, etc.;
- Travel Demand Inputs (i.e. based on YRTDF model forecast) - traffic volumes, origin-destination pattern, mode share, transit routes and schedules, proportion of commercial vehicles – small/medium and heavy vehicles, variation in demand during peak periods, and
- Calibration Data - traffic counts, field observations of queue lengths at major intersections(including highway ramp terminals) during peak periods, travel time data. Field observations were conducted for the VMC Study Area in September 2020.

The Aimsun model was calibrated and validated to pre-covid existing traffic demands, travel time, and traffic operating speeds to closely represent the observed traffic conditions. The trip correction matrices, derived from the existing traffic modelling (i.e., the differences betweenthe initial trip matrices derived from the Region’s travel demand model and the trip matricesfollowing matrix adjustment) were used for the future traffic demand correction. Details for the development and calibration of the Aimsun micro-simulation model are provided in **Appendix D**.

3.8.3 Existing (2019) Intersection Lane Configuration

The existing intersection lane configuration and intersection control type for the VMC Study Area is presented in **Figure 3-24**.There is a total of 22 signalized intersections and 15 stop- controlled intersections. The intersection lane configurations for the Weston 7 Study Area will be documented in a separate Weston 7 TMP.

Figure 3-24. Existing VMC Intersection Lane Configuration



3.8.4 Existing (2019) Traffic Volumes

Figure 3-25 and **Figure 3-26** present the morning and afternoon peak-hour existing traffic volumes representing a typical weekday condition in 2019 for the VMC Study Area. Existing traffic volumes for the Weston 7 Study Area will be documented in a separate Weston 7 TMP. The following morning and afternoon 3-hour peak periods and 1-hour peak hours are:

- Morning Peak Period – 07:00 am – 10:00 am
- Morning Peak Hour – 08:00 am – 09:00 am
- Afternoon Peak Period – 03:00 pm – 06:00 pm
- Afternoon Peak Hour – 05:00 pm – 06:00 pm

Figure 3-25. Existing VMC Morning Peak Hour Traffic Volumes

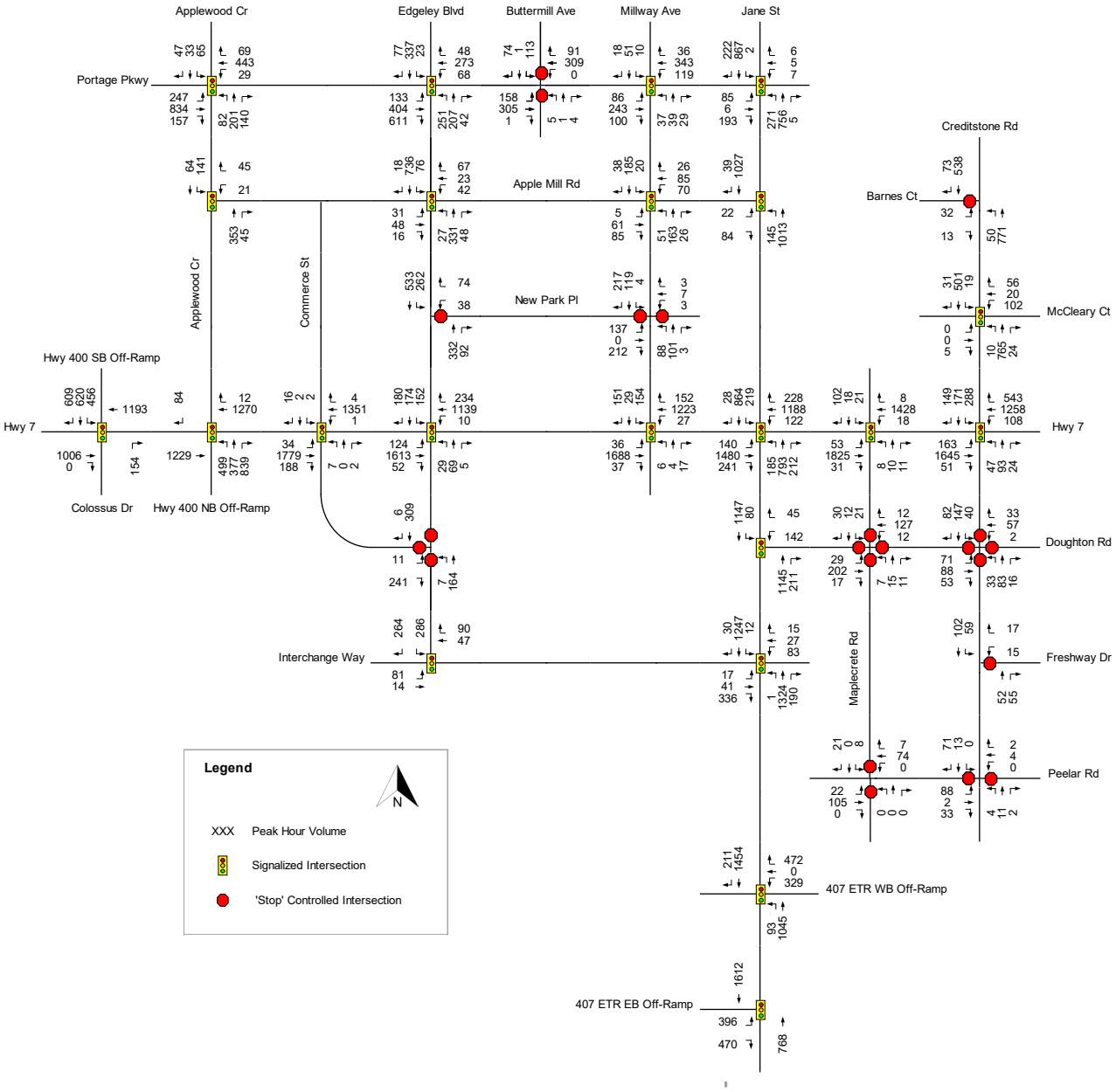
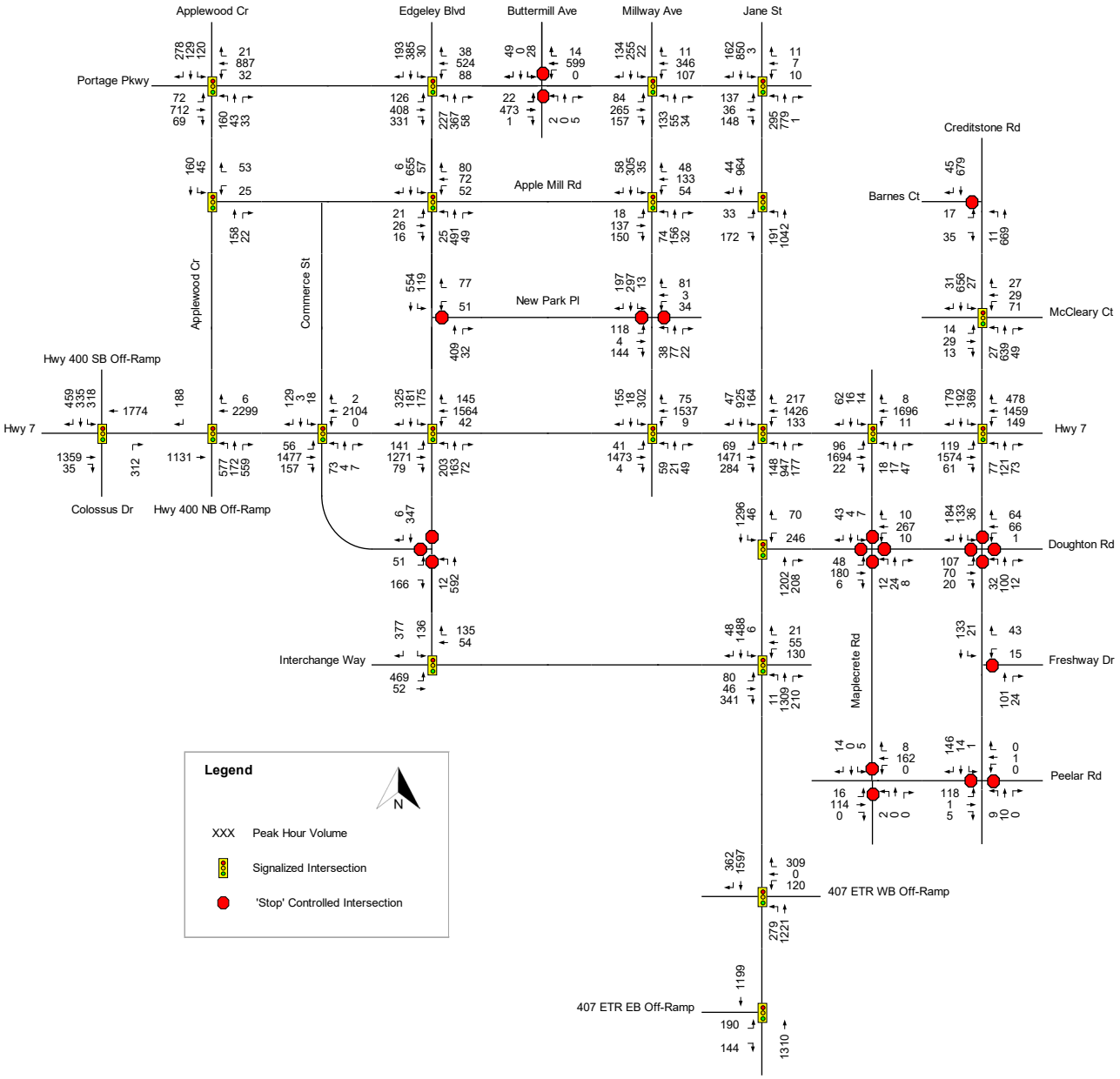


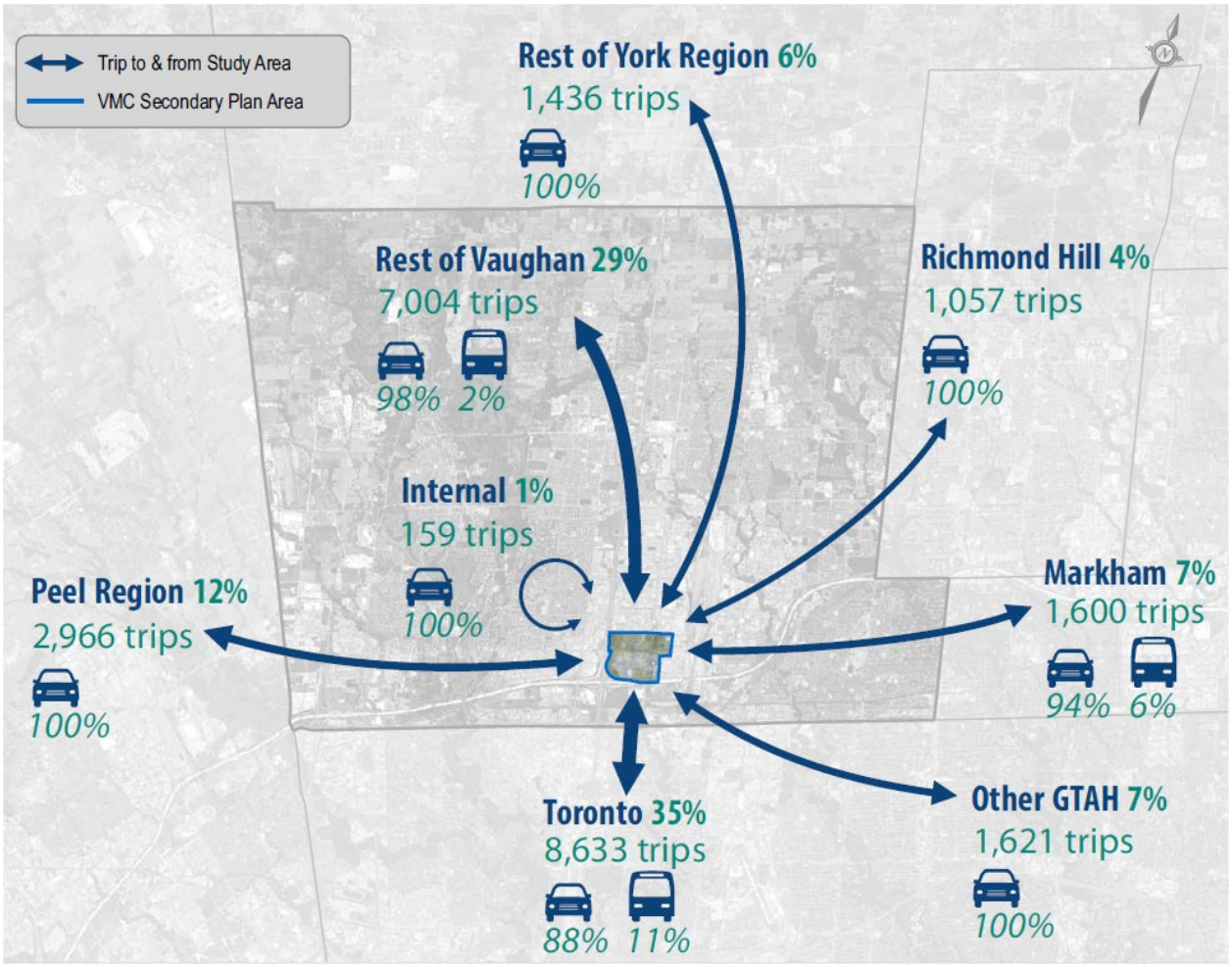
Figure 3-26. Existing VMC Afternoon Peak Hour Traffic Volumes



3.8.5 Existing Travel Characteristics

The existing travel characteristics of the VMC Study Area were reviewed using the 2016 Transportation Tomorrow Survey (TTS) data, which is the most recent data currently available. Daily traffic demands, trip distributions (i.e., origin-destination patterns) and modal shares (auto, transit and active transportation) were retrieved from the 2016 TTS data for four Traffic Analysis Zones (TAZs) within the VMC Study Area, as presented in **Figure 3-27**. Residential and commercial trips are included. It is noted that in future, trip patterns may change due to growth and changes in the VMC and Weston 7, as well as surrounding areas; modelling of travel patterns will need to take this into account.

Figure 3-27. 2016 Daily Trips and Modal Shares



Most of the daily trips are traveling to/from the City of Toronto, at 35%, followed by the City of Vaughan, at about 30%. Approximately 11% of the trips between the VMC Study Area and Toronto are transit trips; however, the transit modal share is 2% for the trips travelling between the VMC Study Area and the rest of Vaughan.

About 7% daily trips are observed between the VMC Study Area and City of Markham. Potentially contributed by the Highway 7 VIVA transit line, as 6% of these trips are using transit. Other VMC trips are auto trips (i.e., 100% auto modal share), travelling from/to Richmond Hill, the rest of York Region, Peel Region, and other GTHA area, accounting for 4%, 6%, 12%, and 7% of the total daily trips, respectively.

3.8.6 Existing (2019) Intersection Operation Analysis

An evaluation of the existing operations for the intersections within the VMC Study Area was performed using the calibrated Aimsun micro-simulation model. The intersection operational analysis was assessed based on average vehicular delays, level of service (LOS) and queuing conditions. **Table 3-12** summarizes the LOS criteria for signalised and stop-controlled intersections.

Table 3-12. Intersection Level of Service Criteria

Level of Service	Average Delay Per Vehicle (seconds)		Traffic Operation
	Signalized Intersections	Stop-controlled Intersections	
A	≤ 10	≤ 10	Acceptable Operation
B	> 10 and ≤ 20	> 10 and ≤ 15	
C	> 20 and ≤ 35	> 15 and ≤ 25	
D	> 35 and ≤ 55	> 25 and ≤ 35	
E	> 55 and ≤ 80	> 35 and ≤ 50	Marginally Acceptable – Occasional Queuing
F	> 80	> 50	Unacceptable – Persistent Queueing

LOS is a qualitative measure that describes operational conditions within a traffic stream. The Highway Capacity Manual (HCM) defines six levels of service, LOS ‘A’ through LOS

'F'. LOS 'A' represents the lower average delay, while LOS 'F' represents the higher average delay. The highest possible rating is LOS 'A', under which the average total delay for a movement, approach or intersection is less than 10 seconds per vehicle. When the average delay exceeds 50 seconds at unsignalized intersections, or 80 seconds at signalized intersections, the movement is classified as LOS 'F'. LOS 'E' is the point at which remedial measures are considered, depending on the nature and extent of the delays. Average vehicle delays between LOS 'A' and LOS 'D' are generally considered as an acceptable level of service for signalized intersections in urban areas.

Summaries of the weekday morning and afternoon peak hour intersection operations, within the VMC Study Area, are provided in **Table 3-13** and **Table 3-14**, respectively (based on Aimsun model). The analysis results were extracted from the Aimsun model outputs and present the overall intersection delays and LOS, as well as the delays, LOS and 95th percentile vehicular queue lengths for the critical movements (i.e., movements operating at LOS E or F). These critical movements indicate operational issues resulting in long delays and potential congestion. A complete breakdown of delays, LOS and 95th percentile queue lengths by intersection for all turning movements in each peak hour is provided in **Appendix A**.

Table 3-13. Intersection LOS Summary and Critical Movements - Morning Peak Hour

Intersection	Control Type	Intersection		Critical Movements[1]				
		Delay	LOS	Movement	V/C Ratio	Delay	LOS	95th Queue
Highway 7 and Highway 400 SB Off-Ramp	Signalized	52s	D	NBR	0.95	78s	E	66m
				SBL	0.90	66s	E	197m
				SBT	1.01	94s	F	197m
				SBR	0.39	64s	E	198m
Highway 7 and Highway 400 NB Off-Ramp	Signalized	36s	D	SBR	0.98	395s	F	150m
Highway 7 and Commerce Street	Signalized	24s	C	EBL	0.36	107s	F	37m
				WBL	0.01	82s	F	15m
				NBL	0.18	61s	E	27m

Intersection	Control Type	Intersection		Critical Movements[1]				
		Delay	LOS	Movement	V/C Ratio	Delay	LOS	95th Queue
				NBT	0.18	67s	E	18m
				SBL	0.03	58s	E	7m
				SBT	0.03	57s	E	7m
Highway 7 and Edgeley Boulevard	Signalized	57s	E	EBL	0.77	259s	F	163m
				WBL	0.15	90s	F	11m
				NBL	0.21	57s	E	35m
				NBT	0.29	63s	E	28m
				SBT	0.73	60s	E	91m
Highway 7 and Millway Avenue	Signalized	71s	E	EBL	0.35	96s	F	28m
				EBT	0.64	86s	F	238m
				EBR	0.64	96s	F	244m
				WBL	0.30	82s	F	21m
				NBL	0.08	64s	E	19m
				NBT	0.11	58s	E	8m
				SBL	0.75	273s	F	89m
				SBT	0.11	128s	F	46m
Highway 7 and Jane Street	Signalized	85s	F	EBL	1.08	94s	F	55m
				EBT	1.07	80s	E	157m
				EBR	0.46	64s	E	99m
				WBL	1.01	141s	F	94m
				WBT	1.24	96s	F	212m
				WBR	1.24	113s	F	213m
				NBL	1.55	244s	F	163m
				NBT	1.00	87s	F	174m

Intersection	Control Type	Intersection		Critical Movements[1]				
		Delay	LOS	Movement	V/C Ratio	Delay	LOS	95th Queue
				SBL	2.17	66s	E	96m
Highway 7 and Maplecrete Road	Signalized	28s	C	EBL	0.50	74s	E	34m
				WBL	0.23	88s	F	23m
				NBL	0.35	98s	F	21m
				NBT	0.33	66s	E	25m
				SBL	0.22	72s	E	22m
				SBT	0.57	69s	E	36m
Highway 7 and Creditstone Road	Signalized	66s	E	EBL	0.95	333s	F	185m
				EBR	0.85	59s	E	179m
				WBL	0.75	126s	F	94m
				WBR	0.96	73s	E	215m
				NBL	0.65	97s	F	43m
				NBT	0.71	90s	F	180m
				NBR	0.71	83s	F	90m
				SBL	0.94	73s	E	89m
Jane Street and Portage Parkway	Signalized	16s	B	WBT	0.10	80s	E	11m
Jane Street and Apple Mill Road	Signalized	7s	A	EBL	0.31	73s	E	20m
Jane Street and Doughton Road	Signalized	13s	B	WBL	0.81	70s	E	80m
Jane Street and Interchange Way	Signalized	13s	B	EBL	0.10	65s	E	25m
				EBT	0.16	63s	E	7m
				WBL	0.53	67	E	42m

Intersection	Control Type	Intersection		Critical Movements[1]				
		Delay	LOS	Movement	V/C Ratio	Delay	LOS	95th Queue
Jane Street and Highway 407 WB Off-Ramp	Signalized	23s	C	-	-	-	-	-
Jane Street and Highway 407 EB Off-Ramp	Signalized	17s	B	-	-	-	-	-
Portage Parkway and Applewood Crescent	Signalized	25s	C	-	-	-	-	-
Portage Parkway and Edgeley Boulevard	Signalized	26s	C	NBL	0.56	103	F	99m
Portage Parkway and Buttermill Avenue	Stop-Controlled	14s	B	SBL	1.37	38s	E	77m
Portage Parkway and Millway Avenue	Signalized	36s	D	EBL	0.48	72s	E	148m
				EBT	0.48	68s	E	148m
				EBR	0.48	63s	E	148m
Apple Mill Road and Applewood Crescent	Signalized	6s	A	-	-	-	-	-
Apple Mill Road and Commerce Street	Signalized	7s	A	-	-	-	-	-
Apple Mill Road and Edgeley Boulevard	Signalized	12s	B	-	-	-	-	-
Apple Mill Road and Millway Avenue	Signalized	20s	B	-	-	-	-	-
New Park Place and Edgeley Boulevard	Stop-Controlled	10s	A	WBL	0.52	44s	E	41m
				WBT	0.52	38s	E	44m
		28s	D	EBL	0.74	67s	F	97m

Intersection	Control Type	Intersection		Critical Movements[1]				
		Delay	LOS	Movement	V/C Ratio	Delay	LOS	95th Queue
New Park Place and Millway Avenue	Stop-Controlled			EBT	0.74	60s	F	97m
				EBR	0.74	65s	F	97m
				WBL	0.05	46s	E	22m
Interchange Way and Commerce Street (North)	Stop-Controlled	3s	A	-	-	-	-	-
Interchange Way and Commerce Street (South)	Stop-Controlled	22s	C	-	-	-	-	-
Interchange Way and Interchange Way	Signalized	10s	A	-	-	-	-	-
Interchange Way and Exchange Way	Stop-Controlled	5s	A	-	-	-	-	-
Commerce Street and Commerce Street	Stop-Controlled	11s	B	-	-	-	-	-
Exchange Avenue and Exchange Avenue	Stop-Controlled	10s	A	-	-	-	-	-
Exchange Avenue and Peelar Road	Stop-Controlled	4s	A	-	-	-	-	-
Creditstone Road and Barnes Court	Stop-Controlled	18s	C	EBL	0.60	48s	E	34m
Creditstone Road and McCleary Court	Signalized	23s	C	-	-	-	-	-
Creditstone Road and Doughton Road	Stop-Controlled	19s	C	-	-	-	-	-
Creditstone Road and Freshway Drive	Stop-Controlled	1s	A	-	-	-	-	-

Intersection	Control Type	Intersection		Critical Movements[1]				
		Delay	LOS	Movement	V/C Ratio	Delay	LOS	95th Queue
Maplecrete Road and Doughton Road	Stop-Controlled	12s	B	-	-	-	-	-
Highway 7 and Highway 400 SB Off-Ramp	Signalized	52s	D	NBR		78s	E	66m
				SBL		66s	E	197m
				SBT		94s	F	197m
				SBR		64s	E	198m

[1] Critical Movement at LOS E or F

Figure 3-28 illustrates the intersection performance in terms of overall delay for the morning peak hour. The intersections along Highway 7 (particularly Jane Street) illustrate one of the key traffic constraints which the TMP must come to grips with – the funnelling of east/west traffic through one central corridor which is the sole continuous arterial across the Study Area and which also provides access to Highway 400, a major north/south highway. The remainder of the minor streets have a much lower level of intersection delay.

During the morning peak hour, all the VMC Study Area intersections operate at an acceptable overall LOS D or better, with the exception of Highway 7 intersections at Edgeley Boulevard, Millway Avenue, Jane Street, and Creditstone Road. These intersections operate at LOS E and/or F, with an overall vehicular delay of 57 to 85 seconds.

Critical movements that operate at LOS E or F are generally observed for left turning movements at major intersections with long cycle length (160 to 180 seconds) and high through volumes. For the intersections on the Highway 7 segment with the median BRT lane (e.g., at Jane Street intersection), the eastbound and westbound left-turning movements operate with a 'protected-only' phase, which causes heavy delays and long queues for other intersection approaches.

For the Highway 7 and Jane Street intersection, heavy eastbound and westbound traffic combined with delays on the left-turning movements result in poor operations at this intersection, with a LOS F. Average vehicular delays of up to 244 seconds for the

northbound left movement and 95th percentile queues of up to 213 metres for the westbound right are observed at this intersection.

Figure 3-29 illustrates the simulated 95th percentile queues projected by Aimsun, for the morning peak hour. The bars on the figure illustrate locations where the queue extends to the upstream intersection (the software does not permit the full extent of the queue to be projected). These are locations that are of concern with respect to current operations, in that queues may be backing up to block the upstream intersections. Looking to the future horizons, this suggests emphasis should be placed on creating a fine-grained street network which supports active modes of transport, to minimize the need for vehicular trips.

Figure 3-28. Existing VMC Intersection Delay - Morning Peak Hour

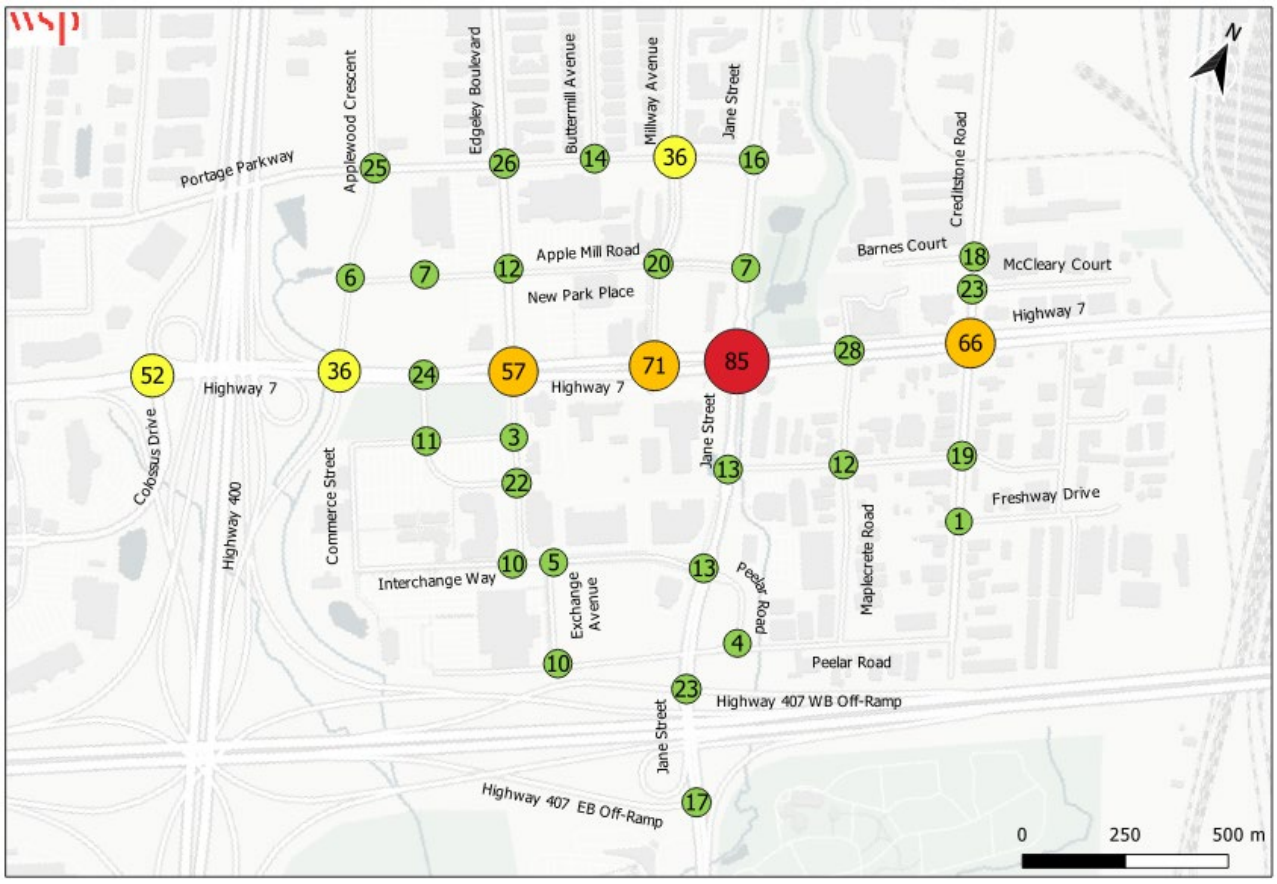


Figure 3-29. Existing 95th Percentile Queue Lengths - Morning Peak Hour

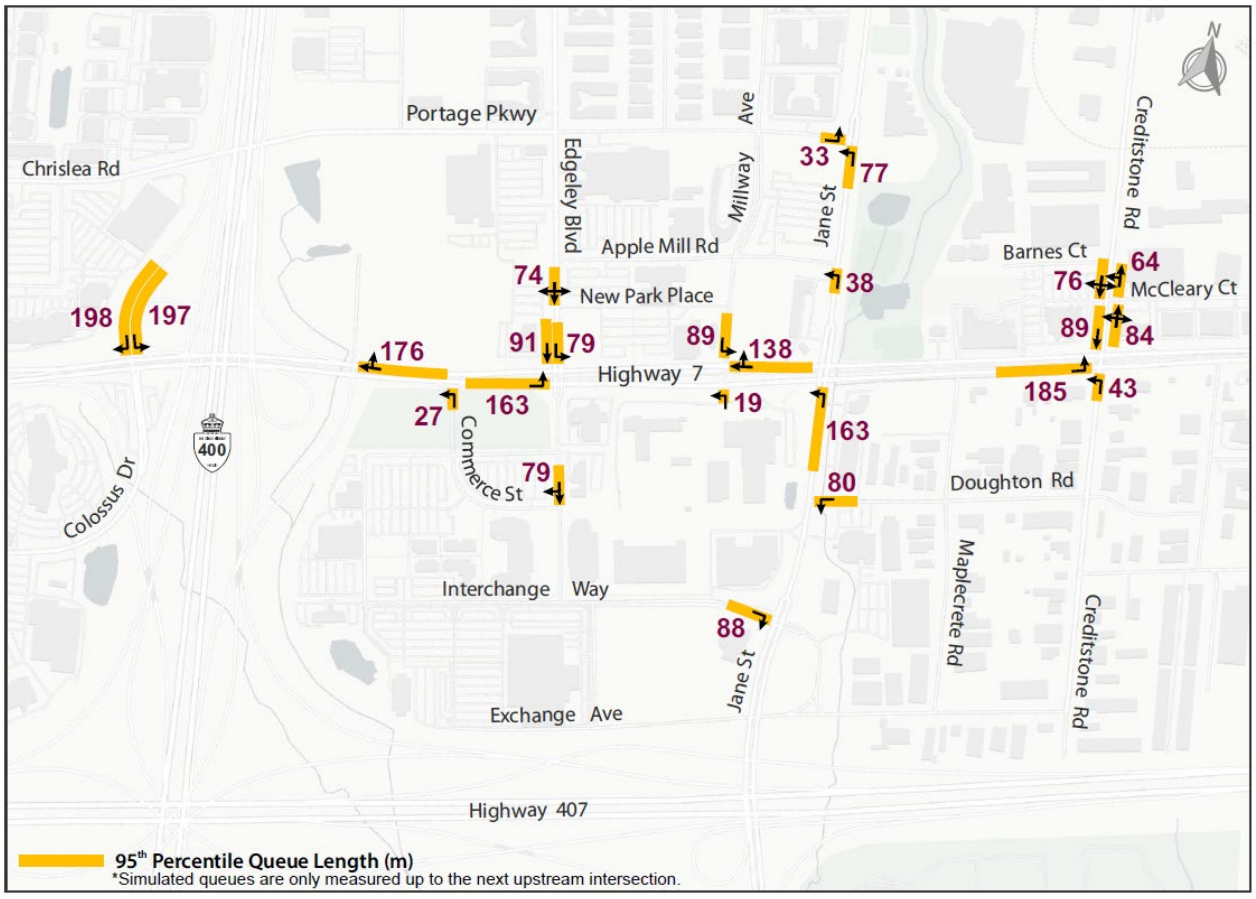


Table 3-14. VMC Intersection LOS Summary and Critical Movements - Afternoon Peak Hour

Intersection	Control Type	Intersection		Critical Movements[1]				
		Delay	LOS	Movement	V/C Ratio	Delay	LOS	95th Queue
Highway 7 and Highway 400 SB Off-Ramp	Signalized	79s	E	NBR	1.86	978s	F	411m
Highway 7 and Highway 400 NB Off-Ramp	Signalized	58s	E	SBR	1.25	799s	F	194m
	Signalized	32s	C	EBL	0.52	88s	F	22m

Intersection	Control Type	Intersection		Critical Movements[1]				
		Delay	LOS	Movement	V/C Ratio	Delay	LOS	95th Queue
Highway 7 and Commerce Street				WBL	-	107s	F	7m
				NBL	0.72	59s	E	98m
				NBT	0.72	60s	E	38m
				SBL	0.25	57s	E	20m
				SBT	0.02	64s	E	10m
Highway 7 and Edgeley Boulevard	Signalized	57s	E	EBL	0.85	136s	F	106m
				WBL	0.39	87s	F	38m
				WBT	0.98	66s	E	154m
				WBR	0.98	79s	E	149m
				NBL	0.77	61s	E	58m
				NBT	0.48	62s	E	36m
				SBL	0.60	60s	E	83m
				SBT	0.73	74s	E	91m
Highway 7 and Millway Avenue	Signalized	69s	E	EBL	0.41	94s	F	33m
				EBT	0.62	74s	E	212m
				EBR	0.62	68s	E	214m
				WBL	0.18	107s	F	15m
				NBL	0.27	71s	E	52m
				SBL	1.04	168s	F	112m
				SBT	0.05	119s	F	55m
Highway 7 and Jane Street	Signalized	81s	F	EBL	0.65	100s	F	8m
				EBT	1.10	72s	E	158s
				WBL	1.04	151s	F	96m
				WBT	1.20	88s	F	215m

Intersection	Control Type	Intersection		Critical Movements[1]				
		Delay	LOS	Movement	V/C Ratio	Delay	LOS	95th Queue
				WBR	1.20	100s	F	213m
				NBL	1.02	196s	F	126m
				NBT	1.03	81s	F	189m
				SBL	1.29	193s	F	141m
Highway 7 and Maplecrete Road	Signalized	25s	C	EBL	0.62	93s	F	53m
				WBL	0.13	93s	F	21m
				NBL	0.32	100s	F	47m
				NBT	0.51	72s	E	100m
				SBL	0.17	62s	E	13m
				SBT	0.48	66s	E	27m
Highway 7 and Creditstone Road	Signalized	66s	E	EBL	0.88	182s	F	115m
				EBR	0.88	59s	E	163m
				WBL	0.90	146s	F	107m
				WBT	1.06	63s	E	249m
				WBR	1.06	79s	E	269m
				NBL	0.60	95s	F	52m
				NBT	0.86	95s	F	168m
				NBR	0.86	72s	E	91m
				SBL	1.20	74s	E	96m
				SBT	0.35	57s	E	82m
Jane Street and Portage Parkway	Signalized	17s	B	WBL	0.08	64s	E	6m
				WBT	0.14	56s	E	37m
Jane Street and Apple Mill Road	Signalized	9s	A	EBL	0.27	98s	F	7m

Intersection	Control Type	Intersection		Critical Movements[1]				
		Delay	LOS	Movement	V/C Ratio	Delay	LOS	95th Queue
Jane Street and Doughton Road	Signalized	16s	B	WBL	0.89	91s	F	117m
Jane Street and Interchange Way	Signalized	16s	B	EBL	0.37	63s	E	37m
				EBT	0.16	68s	E	9m
				WBL	0.75	67s	E	81m
Jane Street and Highway 407 WB Off-Ramp	Signalized	38s	D	NBL	0.63	178s	F	175m
Jane Street and Highway 407 EB Off-Ramp	Signalized	10s	A	-	-	-	-	-
Portage Parkway and Applewood Crescent	Signalized	16s	B	-	-	-	-	-
Portage Parkway and Edgeley Boulevard	Signalized	31s	C	EBL	1.26	73s	E	48m
				WBT	0.92	72s	E	183m
				WBR	0.92	78s	E	183m
Portage Parkway and Buttermill Avenue	Stop-Controlled	25s	C	SBL	0.29	79s	F	123m
				SBR	0.29	75s	F	123m
Portage Parkway and Millway Avenue	Signalized	64s	E	EBL	0.69	67s	E	148m
				EBT	0.69	68s	E	148m
				EBR	0.69	67s	E	148m
				NBL	0.71	76s	E	29m
				SBL	0.78	89s	F	184m
				SBT	0.78	93s	F	184m
				SBR	0.78	84s	F	184m

Intersection	Control Type	Intersection		Critical Movements[1]				
		Delay	LOS	Movement	V/C Ratio	Delay	LOS	95th Queue
Apple Mill Road and Applewood Crescent	Signalized	65s	E	WBL	0.14	237s	F	87m
Apple Mill Road and Commerce Street	Signalized	6s	A	-	-	-	-	-
Apple Mill Road and Edgeley Boulevard	Signalized	14s	B	-	-	-	-	-
Apple Mill Road and Millway Avenue	Signalized	49s	D	WBL	0.55	86s	F	27m
				SBT	0.23	95s	F	114m
				SBR	0.23	81s	F	108m
New Park Place and Edgeley Boulevard	Stop-Controlled	8s	A	-	-	-	-	-
New Park Place and Millway Avenue	Stop-Controlled	111s	F	EBL	0.64	238s	F	160m
				EBT	0.64	275s	F	160m
				EBR	0.64	265s	F	160m
				WBL	0.20	153s	F	52m
				WBT	0.20	216s	F	52m
				WBR	0.20	147s	F	52m
				SBL	0.01	51s	F	13m
				SBT	0.20	77s	F	57m
				SBR	0.20	42s	E	52m
Interchange Way and Commerce Street (North)	Stop-Controlled	7s	A	-	-	-	-	
Interchange Way and Commerce Street (South)	Stop-Controlled	25s	C	-	-	-	-	-

Intersection	Control Type	Intersection		Critical Movements[1]				
		Delay	LOS	Movement	V/C Ratio	Delay	LOS	95th Queue
Interchange Way and Interchange Way	Signalized	20s	B	-	-	-	-	-
Interchange Way and Exchange Way	Stop-Controlled	4s	A	-	-	-	-	-
Commerce Street and Commerce Street	Stop-Controlled	9s	A	-	-	-	-	-
Exchange Avenue and Exchange Avenue	Stop-Controlled	10s	A	-	-	-	-	-
Exchange Avenue and Peelar Road	Stop-Controlled	4s	A	-	-	-	-	-
Creditstone Road and Barnes Court	Stop-Controlled	16s	C	-	-	-	-	-
Creditstone Road and McCleary Court	Signalized	20s	B	-	-	-	-	-
Creditstone Road and Doughton Road	Stop-Controlled	15s	B	-	-	-	-	-
Creditstone Road and Freshway Drive	Stop-Controlled	2s	A	-	-	-	-	-
Maplecrete Road and Doughton Road	Stop-Controlled	12s	B	-	-	-	-	-

[1] Critical Movement at LOS E or F

Figure 3-30 illustrates the intersection performance in terms of overall delay for the afternoon peak hour. This presents a similar pattern to the morning peak hour, although with a worsening of conditions generally. Again, the intersections along Highway 7 (particularly Jane Street) illustrate one of the key traffic constraints which the TMP must come to grips with – the funnelling of east/west traffic through one central corridor which is the sole continuous arterial across the Study Area.

Heavy delays and congestion were observed in both directions along Highway 7 approaching Jane Street. The persistent eastbound queuing between Millway Avenue and Jane Street (intersection distance of approximately 150 metres) prevents vehicles entering Highway 7 from Millway Avenue, causing queues to back-up and high delays for the southbound traffic on Millway Avenue.

The high average vehicular delays (LOS E) at Highway 400 off-ramp terminals are mainly attributed to the local street network. Colossus Drive opposing to the southbound off-ramp and Applewood Crescent opposing to the northbound off-ramp both currently operate with a prohibited right-turn-on-red phase during both peak hours, which causes significant high delays and long queues at the ramp terminals.

Figure 3-31 illustrates the simulated 95th percentile queues projected by Aimsun, for the afternoon peak hour. The bars on the figure illustrate locations where the queue extends to the upstream intersection (the software does not permit the full extent of the queue to be projected). The number of areas of concern, and the specific locations, are similar to the morning peak hour conditions. These are locations that are of concern with respect to current operations, in that queues may be backing up to block the upstream intersections.

Figure 3-30. Existing VMC Intersection Delay - Afternoon Peak Hour

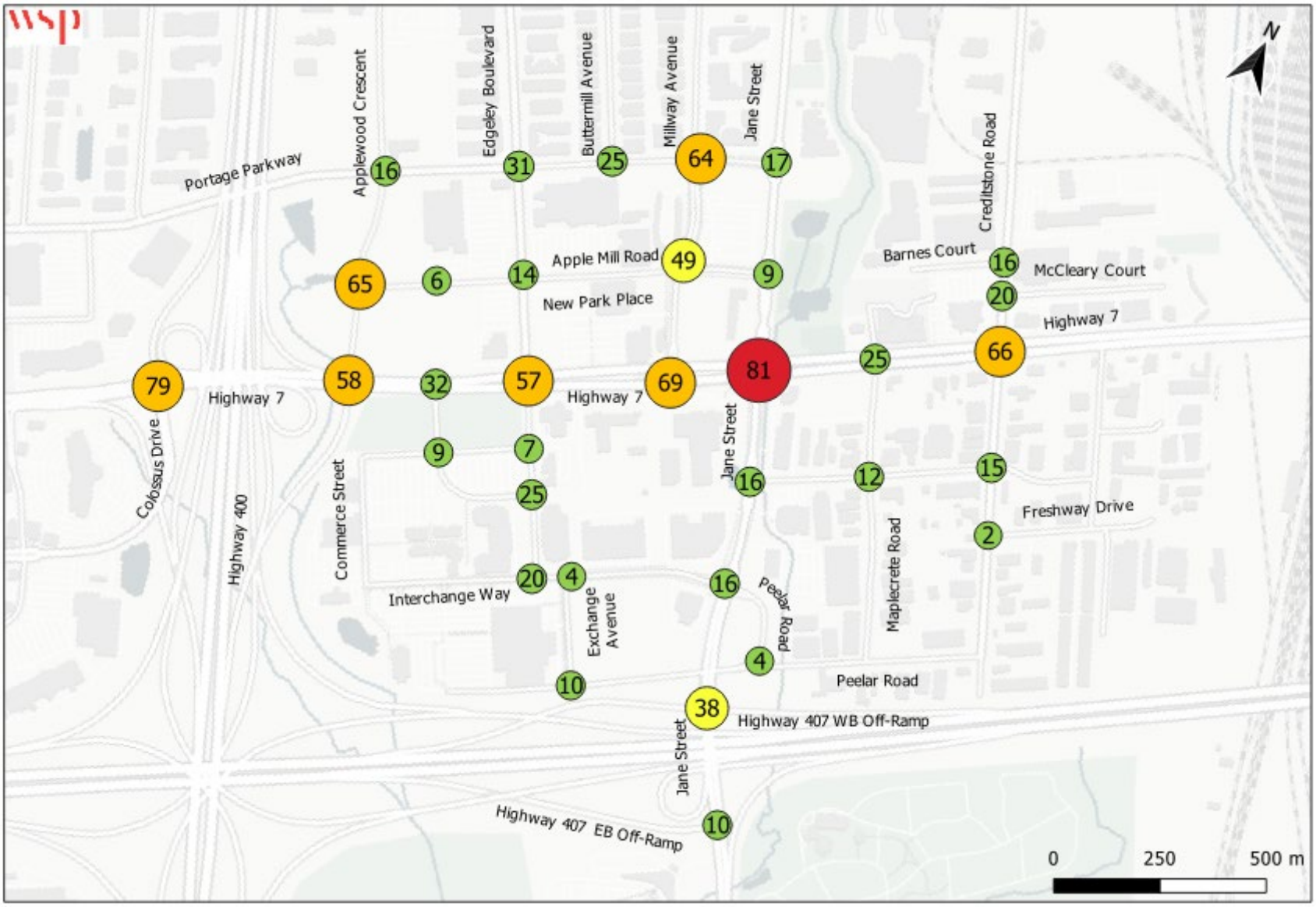
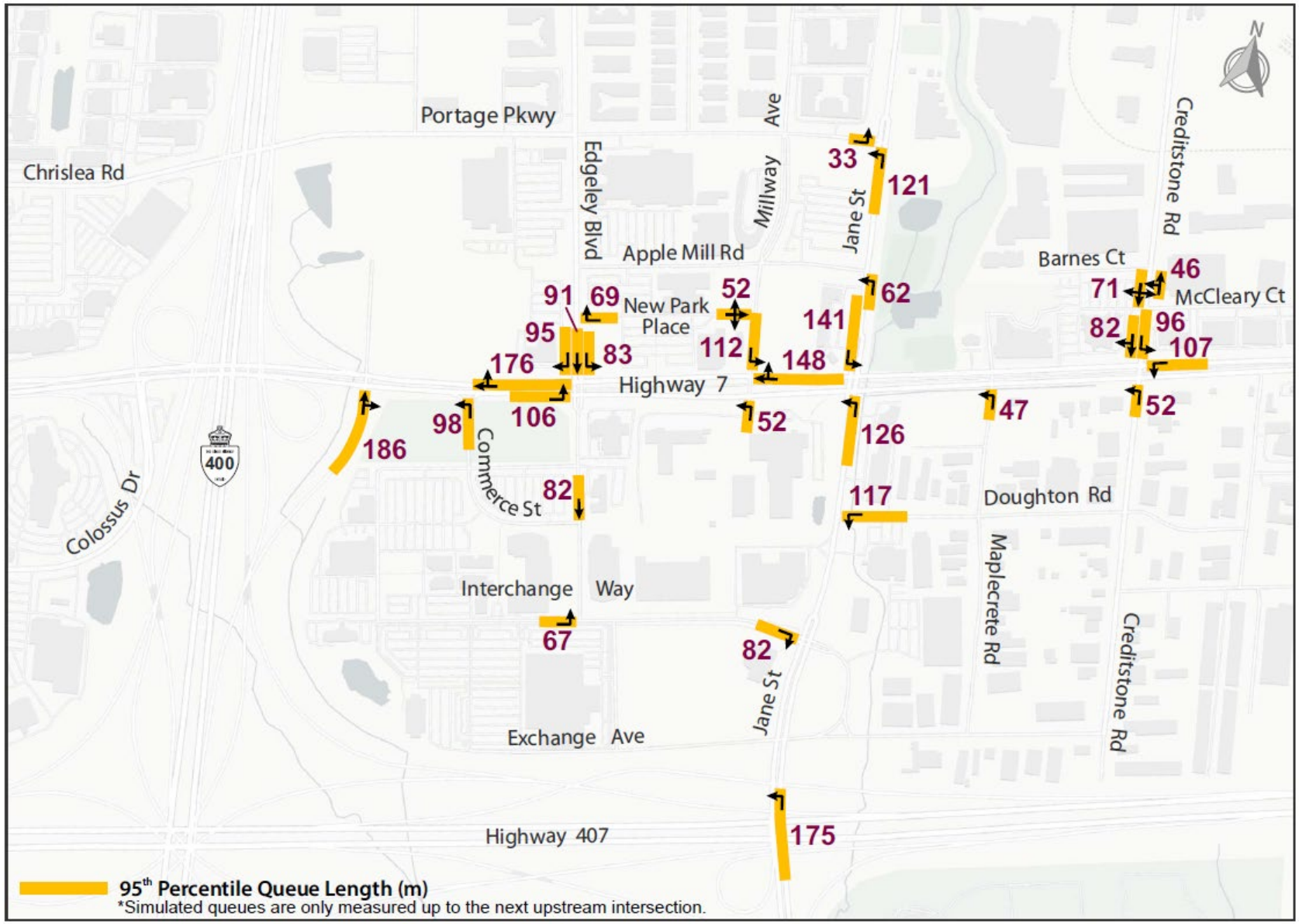


Figure 3-31. Existing 95th Percentile Lengths - Afternoon Peak Hour



3.9 Truck Routes around VMC Area

The key truck routes servicing the VMC area run along Jane Street and Highway 7. These roads are connected to the 400-series highways, linking them to goods movement corridors across the Greater Golden Horseshoe (GGH). Highway 7 forms part of the Strategic Goods Movement Network identified by the Ontario Ministry of Transportation.

Several City roads can service local neighborhoods with delivery from local markets. Examples of such roads include Portage Parkway and Colossus Drive, both of which generally run east-west within Vaughan. VMC planning documents, including the in-effect Secondary Plan, seek to leverage Portage Parkway, as well as Creditstone Road and Applewood Road, to divert truck traffic away from Highway 7 and Jane Street.

Considering VMC's proximity to the 400-series highways and Highway 7, it is important to recognize the impacts of truck movements for factors such as noise pollution, traffic congestion, and road safety. **Section 4.4** provides further detail regarding the existing strategies and future opportunities.

4 Opportunities and Constraints to Meeting Growth Targets

4.1 Vision Statement

A Vision was developed for the VMC TMP using input from City staff and existing local policies and plans. The Vision is as follows:

"The vision of the VMC TMP is to accommodate mobility needs, supportive policies, and a phasing strategy to 2051 with a focus on street connectivity, accessibility and support for multi-modal mobility, and integration of TDM (for example, walking, cycling, micromobility, transit, ride share) with parking management. The TMP will enhance the sustainable and multi-modal transportation system with a network that supports all users and all modes of transportation. The transportation system will be accessible and promote connectivity, leveraging existing rapid transit infrastructure and service within and to and from the broader area."

The vision for VMC's transportation future integrates the following four key principles:

The VMC TMP will identify long-term strategies, policies, and infrastructure needs to support population and employment growth to 2051.

4.2 Active Transportation

Active transportation modes bring many exciting opportunities to the VMC. Already, there are multiple biking and walking facilities in the area including sidewalks, cycle tracks, pedestrian priority street and trails in the area. As VMC densifies, active transportation can become a dependable and attractive option to travel within and throughout VMC. **Subsection 4.2.1** presents opportunities in active transportation, and recommends innovation found from reviewing other municipalities' similar active transportation projects. Constraints in implementing initiatives to promote active transportation are recorded in **Subsection 4.2.2**.

Key Challenge: Lack of all ages and abilities pedestrian and cycling facilities that create a fine grid network.

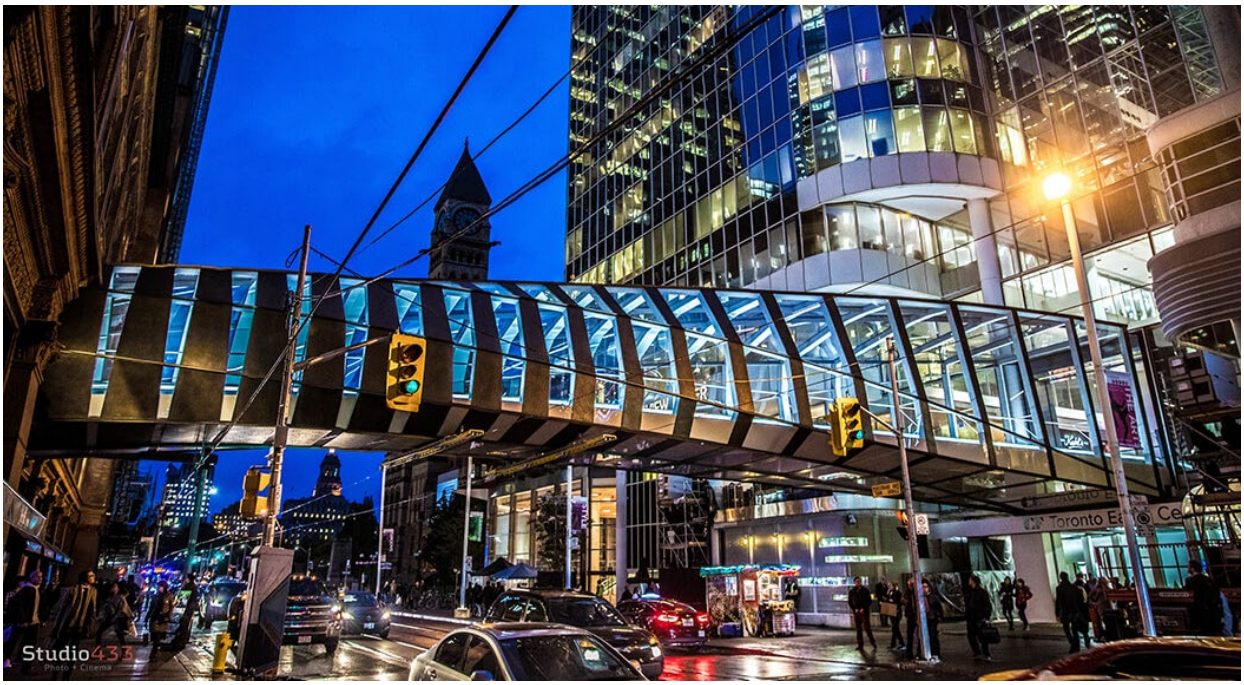
4.2.1 Opportunities

Pedestrian Over/underpasses

Pedestrian over/underpasses create pedestrian crossings free from conflict points between vehicles and pedestrians. In major arterial crossings, pedestrian over/underpasses should be considered to improve pedestrian safety, offer pedestrian weather protection, shorten walking distances, and attract people to walk within and through the VMC.

One opportunity where a pedestrian over/underpass is desirable is over Highway 7 at Jane Street on the west side of the intersection. Since pedestrians must cross up to 10 lanes of traffic to access the other side of the street, a pedestrian over/underpass would eliminate pedestrian timing from the signal and improve the walkability of these large intersections. Furthermore, the VIVA rapid transit line on Highway 7 can also benefit from pedestrian over/underpasses, as pedestrians can be protected from vehicle movements to access the transit stop. By constructing pedestrian over/underpasses at key intersections, pedestrian movement and safety are promoted. **Figure 4-1** showcases pedestrian overpass examples in Toronto that could act a as a precedent for the VMC Study Area.

Figure 4-1. Examples of Pedestrian Overpass



Source: Eaton Centre Bridge, Cadillac Fairview, 2017

Source: Milliken GO rail overpass, Metrolinx, 2023

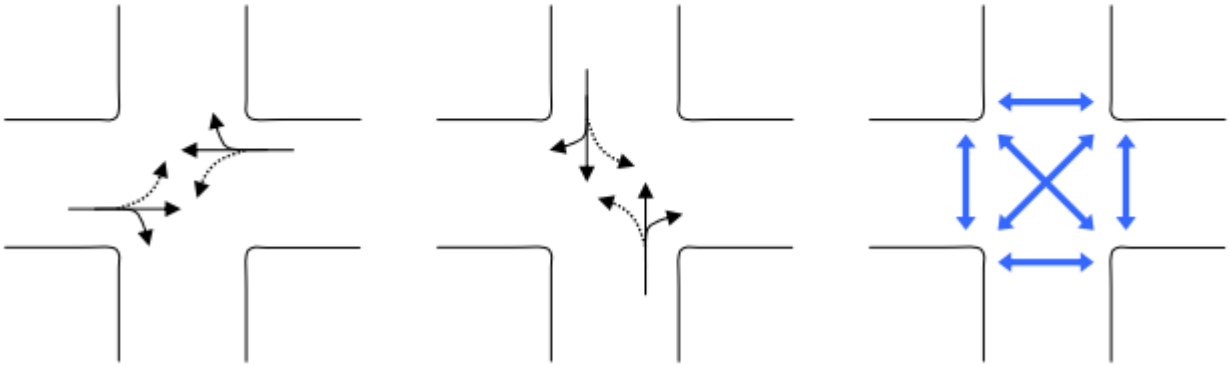
Scramble Crossings

Scramble Crossings, also known as exclusive pedestrian phases or pedestrian criss-crosses, improve pedestrian safety at signalized intersections by allowing pedestrians to cross the intersection in any direction without the risk of conflicting vehicle turns. The pedestrian phase at intersections with scramble crossings enables diagonal movement across the intersection while all vehicular traffic is halted.

There are three types of scramble crossings observed in a North American context, with examples from Toronto and Calgary shown below. The type of crossing implemented is based on pedestrian safety, the volume of pedestrians, existing sidewalk configurations, and pedestrian storage space:

- **Type A** denotes a conventional crossing in the east-west and north-south directions as well as diagonal crossings during an exclusive pedestrian phase. The following two phases involve the display of ”Do Not Walk” signals in all four directions and green light for vehicles, indicating the end of the pedestrian phase and oncoming vehicular movement in the north-south and east-west directions. The Type A pedestrian crisscross was adopted in Calgary at two select intersections in the downtown area.

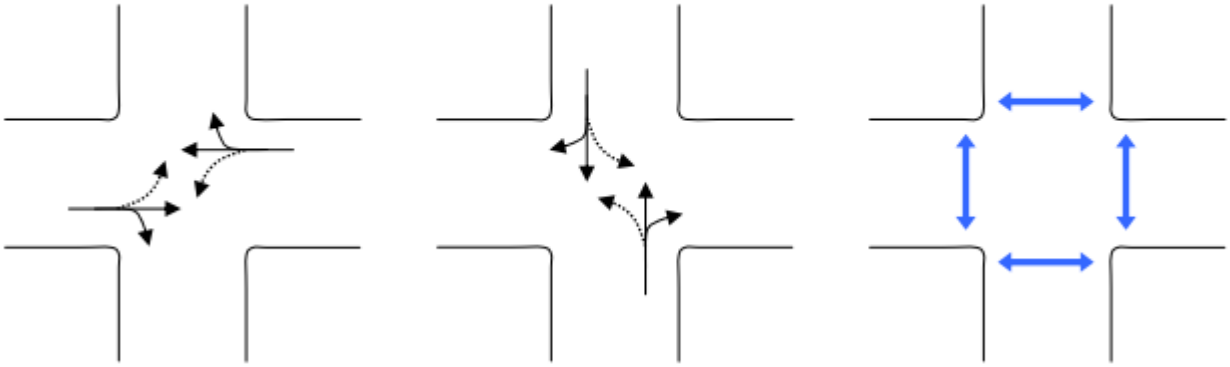
> Type A: Pedestrians are provided with exclusive access to a signalized intersection by allowing conventional (north-south & east-west) as well as diagonal crossing across the intersection while vehicular traffic is stopped on all approaches. After the pedestrians cross, vehicle traffic in one direction will get a green light, while all four pedestrian signals will show the “Do Not Walk” signal. Finally, in the third phase traffic in the other direction will be given a green light with the pedestrian signals still showing “Do Not Walk”.



Source: A Tale of Two Cities, City of Toronto and City of Calgary, 2017

- **Type B** refers to a signalized intersection with no diagonal pedestrian crossings. During the exclusive pedestrian phase, pedestrians may only cross parallel to the roadways while vehicles are stopped.

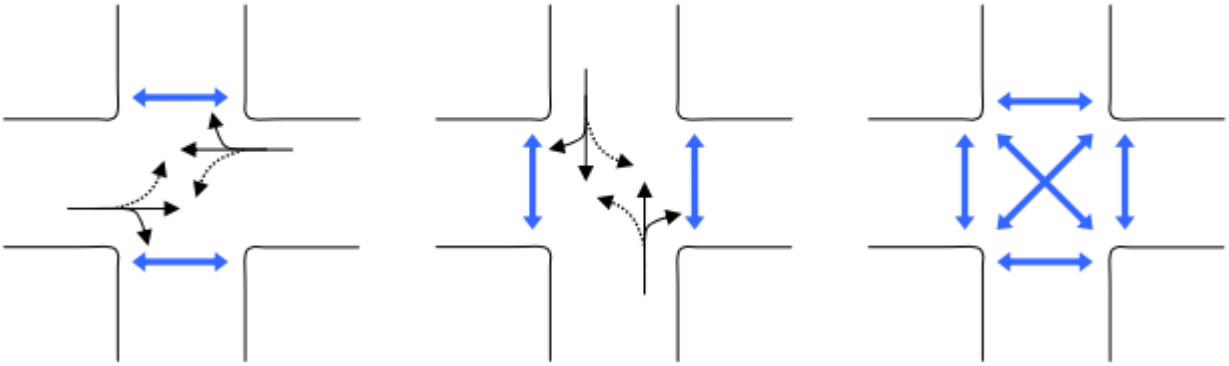
Type B: Pedestrians are not allowed to cross diagonally; they are only allowed to cross parallel to the roadways while vehicular traffic is stopped.



Source: A Tale of Two Cities, City of Toronto and City of Calgary, 2017

- **Type C** scramble crossings are similar to Type A, however, following the exclusive pedestrian phase, pedestrians may continue crossing parallel to vehicular traffic in a conventional fashion. The Type C crossing was adopted at a select location in downtown Toronto due to concerns over pedestrian spillover onto the roadways.

Type C: Type C is similar to type A except that pedestrians are also allowed to cross concurrent with parallel traffic on the vehicle green.



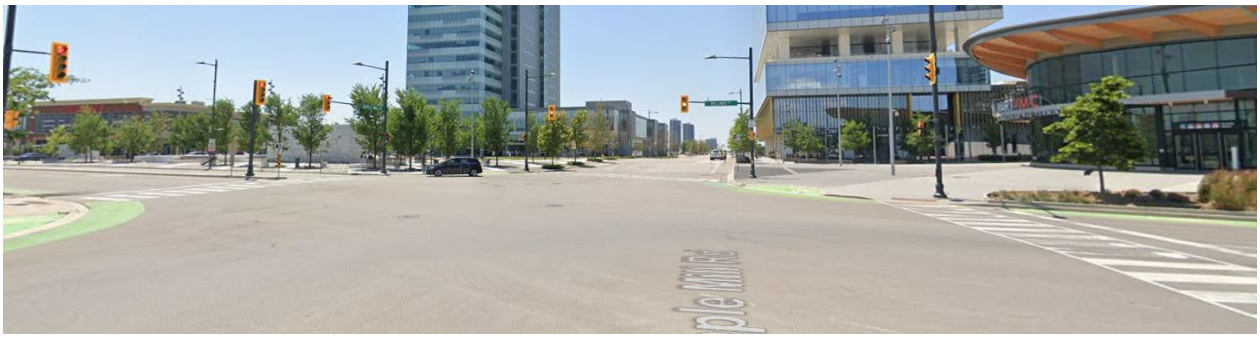
Source: A Tale of Two Cities, City of Toronto and City of Calgary, 2017

The criteria for candidate intersections to implement scramble crossings may vary from city to city. The following conditions from Toronto's requirements may be evaluated on their own or in combination:

- High pedestrian volumes exceeding 3,000 pedestrians per hour during an 8-hour period
- Moderate pedestrian volumes exceeding 2,000 pedestrians per hour during an 8-hour period
- High turning vehicle volumes greater than 35% of total vehicular approach volume
- High concentration of pedestrian-vehicle collisions where pedestrians had the right-of-way over a 3-year period
- At least 15% of pedestrians desire to cross diagonally
- Unusual intersection geometry (5+ legs) that inhibits normal pedestrian crossing operations

The following intersections within the VMC Study Area may be opportunities to prioritize pedestrian safety through the installation of scramble crossings:

- Millway Avenue and Apple Mill Road: The intersection experiences high pedestrian volumes due to its proximity to the Smart VMC Bus Terminal and the YMCA community centre. A diagonal crossing would provide pedestrians access to the commuter parking lot, ensuring a safe connection to transit and the Piazzetta Sentimento Park. The considerable width of the sidewalks would ensure adequate pedestrian storage space.



- Highway 7 and Millway Avenue: A high pedestrian area with proximity to the VMC subway station and the Viva bus terminus that may benefit from diagonal movement across the intersection.

— Commerce Street and Highway 7: Following future development, the area has the potential to be attractive to pedestrians, creating the need for diagonal crossings.

Bike and/or E-bike/E-scooter Share

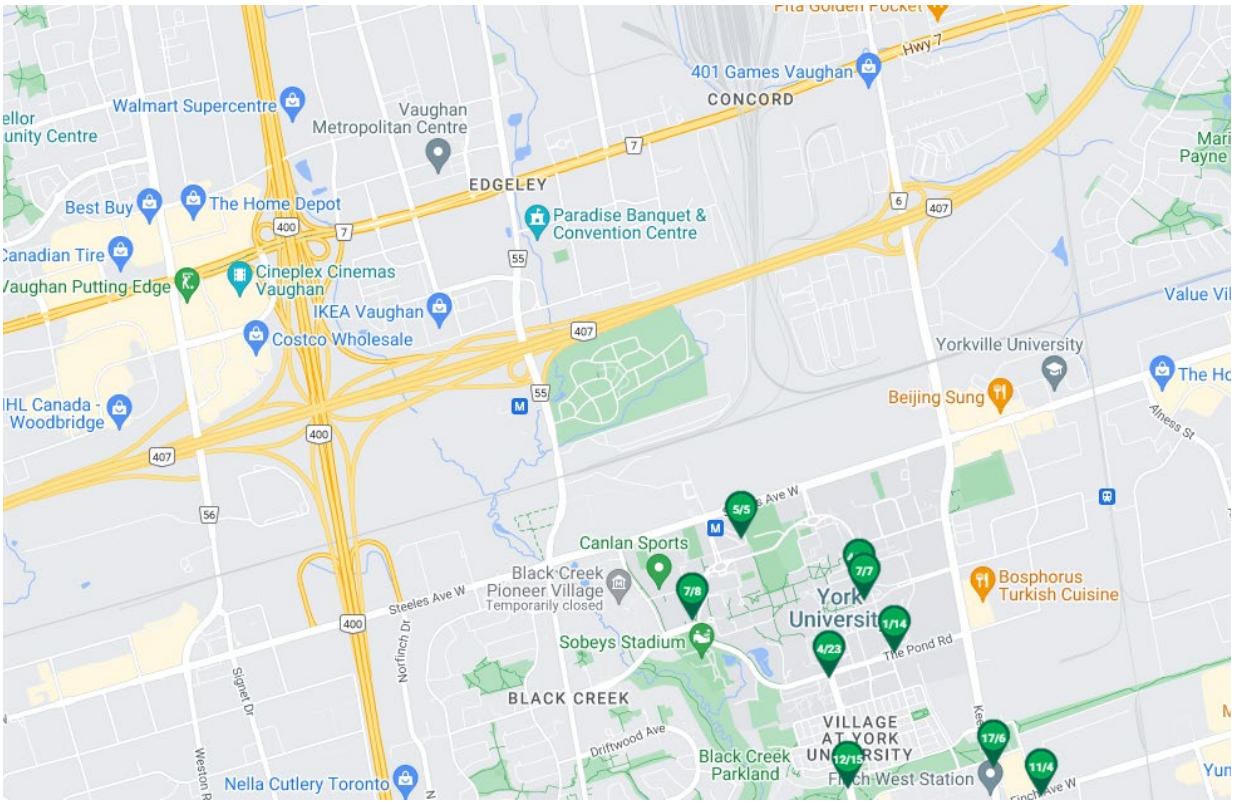
Bike and/or e-bike/e-scooter share encourages those without bikes, or those with little previous biking experience to consider biking as a mode of travel. An example of a shared mobility system is Bike Share Toronto, where bikes are parked on designated spaces along collector and local streets for riders to pick up and drop off bikes (shown in **Figure 4-2**).

Figure 4-2. Bike Share Station in Toronto

Source: Bike Share Toronto

Bike Share Toronto is available seven days a week for 24 hours with 9,000+ bikes and over 700 stations spanning across Toronto's cycling network. The infrastructure is supplemented by an interactive map that shows the location, availability of bikes, e-bikes, and docks at each bike station (shown in **Figure 4-3**). Furthermore, there is a mobile app where riders can easily locate the nearest bike stations and utilize contact-less pay for rental bikes.

Figure 4-3. System Map for Bike Share Toronto



Source: Bike Share Toronto

Source: Bike Share Toronto

VMC can greatly benefit from a bike share and/or e-bike/e-scooter program since active transportation is one of the main priorities for network movements. By implementing a shared mobility program at VMC it could offer many opportunities for bike share users including:

— **Saving Money**: annual membership options to meet riders' needs for less costs.
— **Saving Time**: biking is a fast method to get around the city.
— **Having Fun**: commuting by bike is generally enjoyable.

— **Getting Exercise**: biking is a great form of exercise and helps reduce stress and improves health.
— **Going Green**: by shifting vehicular trips to cycling, it reduces carbon emissions and air pollutants.

Bike Parking

Common challenges to active transportation include rain, darkness, snowy, and icy conditions, personal safety concerns, and the potential for bicycle theft. Secure bike parking near major transit stations can motivate transit users to utilize cycling as a first and last mile solution and help alleviate concerns of bicycle theft. Shelter bike parking with security can entice riders to park their bikes more regularly. Furthermore, revenue can be generated by providing hourly, daily, or weekly bike parking spots for transit riders. Parking fees could be integrated to the PRESTO system for a seamless transition from biking to transit. Revenue-generating bike parking options near major transit stations include secure bike lockers, covered bike shelters, and enclosed bike rooms.

Examples of bike parking at major transit stations include reserved bike parking rooms at Rutherford GO located on the Barrie Line as well as other select GO train stations, shown in **Figure 4-4**. These bike parking facilities are sheltered, open 24 hours, 7 days a week, and require a key fob or code to access the bike room. A reserved bike parking space costs $50 per year including HST for a minimum of 1 year. Currently, users pay for the reserved bike space by credit card. It would be an opportunity to integrate Presto cards as a payment method when renting a bike parking space similar to how Translink in Vancouver has the Compass card that can be used to pay for bike parking room rentals. Bike parking rooms could potentially be provided at proposed micromobility hubs in VMC, for example at New Park Place or Commerce Way and Apple Mill Road. Bike parking rooms should be supplemented by an adequate biking network around the transit station and are subject to further business case studies for VMC.

Figure 4-4. Example of reserved bike parking rooms at Metrolinx GO Stations

Source: Metrolinx

4.2.2 Constraints

While VMC does provide an exciting opportunity to create a well-connected active transportation network, certain constraints can restrain this process. The subsections below discuss the constraints presented by the current conditions, as well as the foreseeable constraints during project implementation.

Disconnected Existing Pedestrian and Cycling Network

Several roadways, such as Millway Avenue and Applewood Crescent, have been reconstructed and include pedestrian and cycling facilities in their right-of-way. The active transportation network in certain quadrants within the VMC is therefore growing. However, in the south-east quadrant, the existing land use is still predominantly industrial, and sidewalks and cycling facilities are not present in most of the roadways.

Some lands are privately owned which limits the ability to build active transportation facilities and complete pedestrian linkages.

Figure 4-5 and **Figure 4-6** outline missing active transportation links and where improvements are needed to ensure the ultimate active transportation network is well connected. These disconnected networks can deter cyclists and pedestrians from utilizing these facilities.

Figure 4-5. Disconnected/Absent Pedestrian Links in the Existing Active Transportation Network

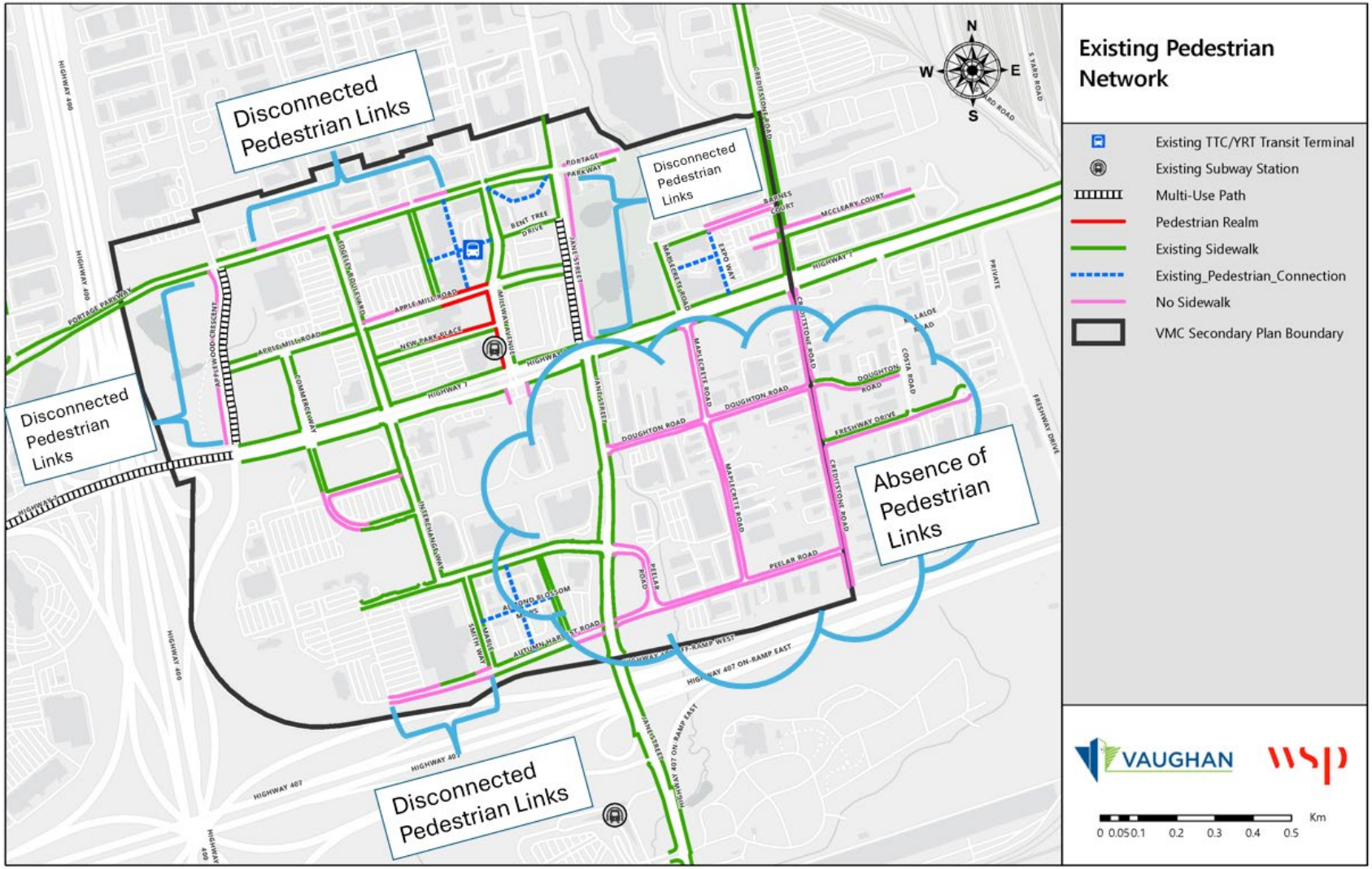
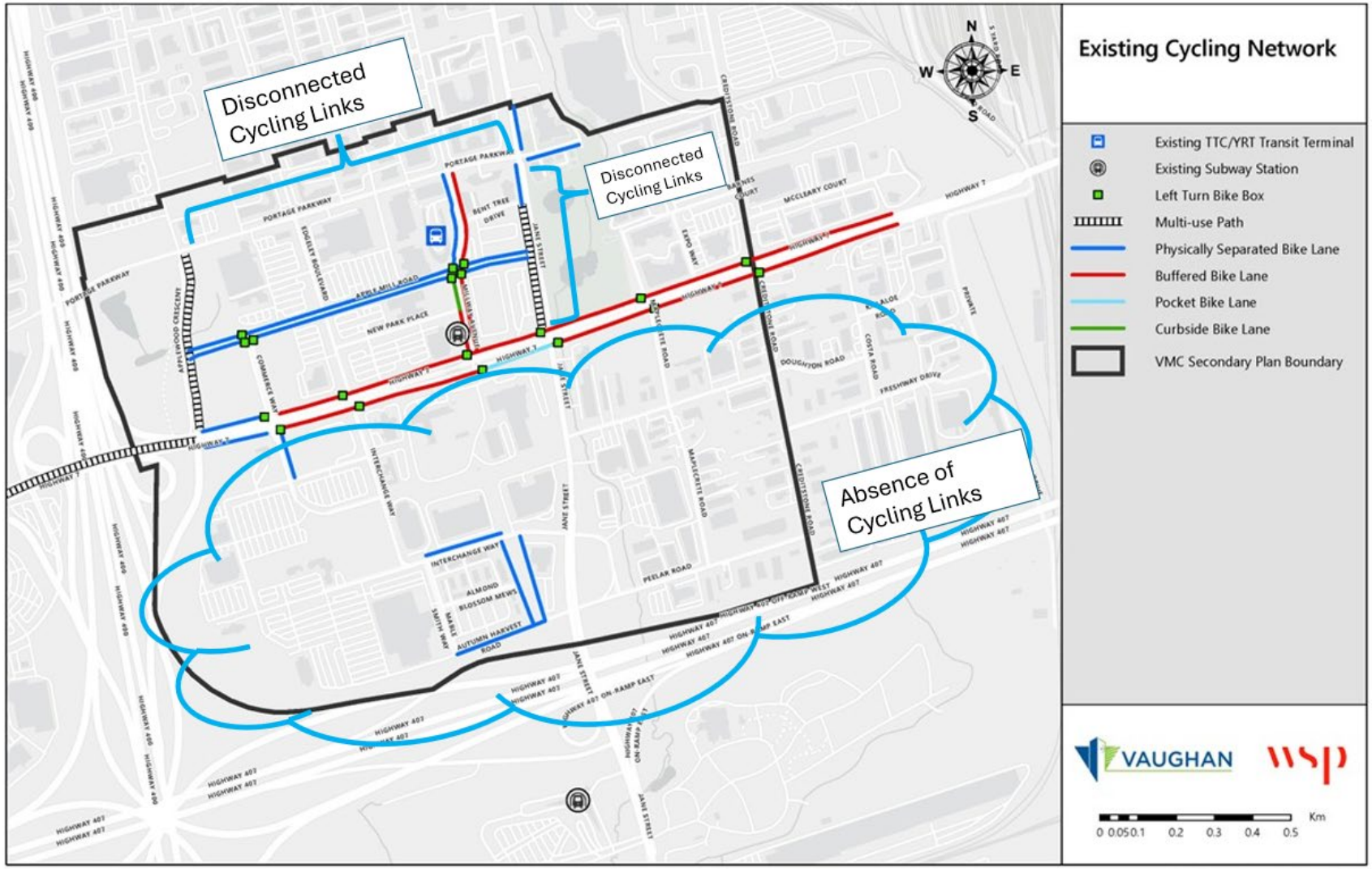


Figure 4-6. Disconnected/ Absent Cycling Links in the Existing Active Transportation Network



4.3 Transit

Transit in VMC can connect riders to downtown Toronto by TTC Line 1, from the terminal VMC station. This can attract many visitors and future residents to the Study Area. **Sections 4.3.1** and **4.3.2** present opportunities and constraints of the existing and potential transit network.

Key Challenge: The existing mode share of transit is low within the VMC Study Area.

4.3.1 Opportunities

Transit Circulator

A transit circulator route is suitable for VMC due to its high residential density, its proximity to the TTC subway station, and its neighbouring secondary plan area – Weston 7. These three factors lead to a favourable business case to install a transit circulator in VMC and Weston 7. The transit circulator is designed for the following reasons:

- To create a transit circulator that integrates the Weston 7 and VMC Study Areas, tying the two areas effectively together and allowing movement between these two areas without the use of a personal vehicle.
- To provide an additional option for travel to and from schools.
- To connect to higher order transit at the VMC Station (subway and multiple bus systems) and 407 / Jane station (subway and GO Bus).
- To broaden coverage and to help cover as much area as possible.
- To connect the circulator with as many bus stops as feasible.

Even in mixed traffic lanes, the transit circulator offers value as it provides convenient on and off access to all of the major destinations in not only VMC but also Weston 7, reducing the need for a car and reducing the need for parking to travel within this area. The circulator acts as a first and last kilometre solution to access higher order transit such as the subway, connects residential areas to schools, and connects offices to retail. It has the potential to be the most convenient way to travel within the joint VMC / Weston 7 study areas.

Underground Concourse and Barrier Free Pedestrian Access to Transit

- An underground concourse from the YMCA community centre to the TTC subway station and the YRT bus terminal will enhance pedestrian access to two transit hubs. The provision of alternate connections between locations that encounter high pedestrian volumes will improve pedestrian safety and mobility by reducing foot traffic on roadways and ensuring barrier-free connectivity. The underground concourse is planned to be extended to the south side of Highway 7.

Toronto's PATH system is a classical example of an underground concourse, complete with barrier-free access to transit and over 30 km of retail, entertainment and other services. The separation from vehicular traffic reduces motor-vehicle associated risks and ensures pedestrians have access to a network of attractive destinations.

Higher-Order Transit Along Highway 407

The Ministry of Transportation (MTO) is undertaking a planning and preliminary design study for the 23 km central segment of the 407 Transitway along Highway 407 through York Region, stretching from east of Highway 400 to Kennedy Road. The 407 Transitway is intended to be a bus rapid transit (BRT) and has the potential to be converted to light rail transit (LRT) in the future. The transitway is planned to be constructed on a separate right-of-way that is parallel to Highway 407 from Burlington to Highway 35/115, which includes stations, parking, and access connections.

Connecting the GGH: A Transportation Plan for the Greater Golden Horseshoe identifies a proposed higher-order transit link providing east-west access across the GTHA from Burlington to Oshawa. Its proposed route follows the 407 Transitway.

Micromobility Hub

A micromobility hub is a designated area where shared small vehicles, such as e-scooters and e-bikes, are provided to support short distance travel, including first and last mile trips. Micromobility hubs can be strategically placed at the following locations to better integrate them in specific neighbourhoods. These locations allow e-bike charging to be available close to residential areas. Micromobility hubs are proposed at:

— New Park Place and Commerce Street;

- Apple Mill Road and Millway Avenue;
- Expo Way and Barnes Court;
- Between Commerce Way and Interchange Way;
- Freshway Drive and Maplecrete Road.

Subway Extension North to Cortellucci Vaughan Hospital

There is potential to expand the TTC Line 1 subway from VMC north to the Cortellucci Vaughan Hospital. The subway extension may provide a solution to traffic congestion in the area while improving connectivity in the city. The subway extension would provide VMC and surrounding residents with a reliable transit link to key destinations including the hospital, Canada's Wonderland, and Vaughan Mills Secondary Plan area. By offering residents with an alternative to driving, the subway extension could be beneficial in alleviating congestion on roads and enhance accessibility to attractions.

4.3.2 Constraints

Integration with Existing Systems

York Region Transit, Toronto Transit Commission, and Brampton Transit are all transit authorities that operate within the VMC Study Area. Integrating new transit infrastructure with the existing transit services may require collaboration and consensus among the various transit authorities to ensure seamless connectivity and efficient transfer options for commuters. Implementation of the transit circulator may raise concerns over fares and how to appropriately integrate fare structures among the different transit agencies to simplify the commuting experience for transit customers.

In 2024, the Ministry of Transportation and Metrolinx implemented the One Fare program that provides free transfers between transit agencies in the GTHA. Service integration discussions are ongoing.

Funding and Staffing Resources

Securing the necessary funding needed for big transit projects such as the transit circulator or the extension of the TTC Line 1 subway may pose challenges. The cost of constructing new transit infrastructure and hiring appropriate staff needed to operate transit can be substantial and could require collaboration between various levels of government and transit authorities.

4.4 Roads and Goods Movement

Opportunities and constraints identified for the road network are mainly centred around high average vehicular delays, funneling of traffic through a single central corridor (Highway 7), as well as intersection delays on Hwy 7 and Jane St.

Key Challenge: The amount of traffic generated by recent existing development causes major delays and queue spills, which is expected to substantially increase as a result of future development.

4.4.1 Opportunities

Truck Bypass

A truck bypass is intended to be completed to divert trucks travelling through the VMC away from Highway 7 and Jane Street. This could significantly reduce congestion within the VMC while providing safety benefits for active transportation users. The bypass would consist of linking Creditstone Road and Portage Parkway, as well as extending Interchange Way from Jane Street to Creditstone Road.

4.4.2 Constraints

Vehicle Delays

High vehicle demand within and across the VMC's road network has led to delays and queues, as highlighted in **Figure 4-7** and **Figure 4-8**. In particular, delays occur:

- Along Highway 7, with many intersections at LOS E or W7 caused by the funneling of east/west traffic through one central corridor that is the sole continuous arterial across the Study Area and also provides access to Highway 400, a major north/south highway. The highest delays and longest queues occur at the Highway 7 and Jane Street intersection, on the northbound left turn movement (196 seconds delay with a 126-metre queue in the PM peak).
- At Highway 400 off-ramps (LOS E), due to turning movements into / out of the VMC which operate with a prohibited right-turn-on-red phase.
- For southbound traffic on Millway Avenue, as the intersection of Highway 7 and Millway Avenue causes large queues to form.

While these constraints directly affect vehicles, they can also have impacts on active transportation users. For example, a long vehicular queue at an intersection can obstruct and delay pedestrian crossings.

Highway 400 Crossing and Connection Opportunities

There are limited opportunities to cross and connect to Highway 400, which places additional stress on the operation of the Highway 7 and Portage Parkway overpasses.

High Truck Volumes

A large concentration of industrial development within the VMC, as well as major inter-regional goods movement routes connecting to Highway 400 and 407, have led to large truck volumes across the Study Area. This is particularly pronounced along Highway 7 as it is the fastest direct connection to Highway 400. These truck volumes add to the already high vehicle traffic along Highway 7, causing heavy congestion and long intersection delays. VMC planning documents, including the Secondary Plan, identify the intent to move truck traffic away from Highway 7 onto the Creditstone-Portage-Applewood Bypass.

Truck traffic also creates safety concerns for active transportation users.

Figure 4-7. Existing VMC Intersection Delay – Afternoon Peak Hour

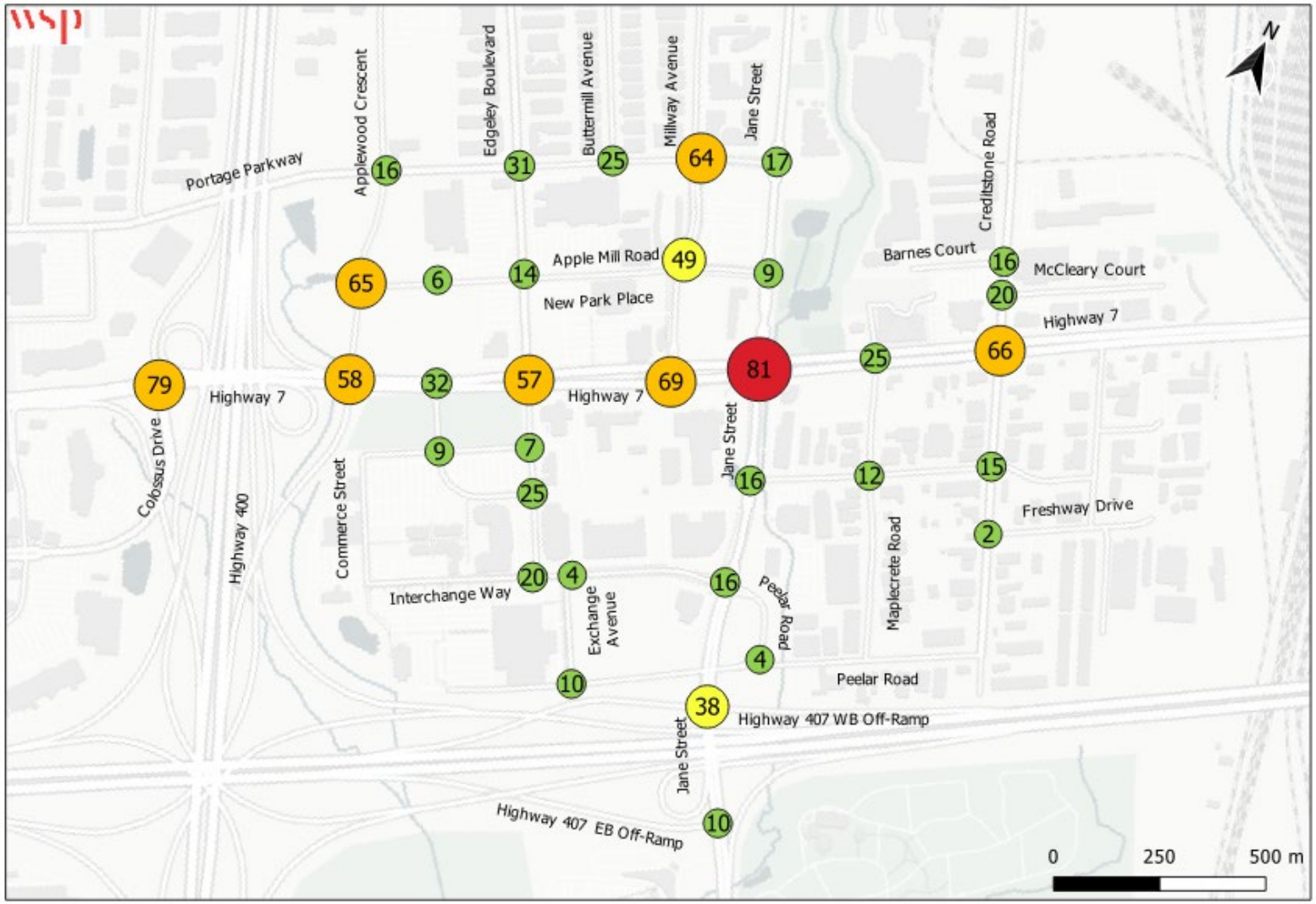
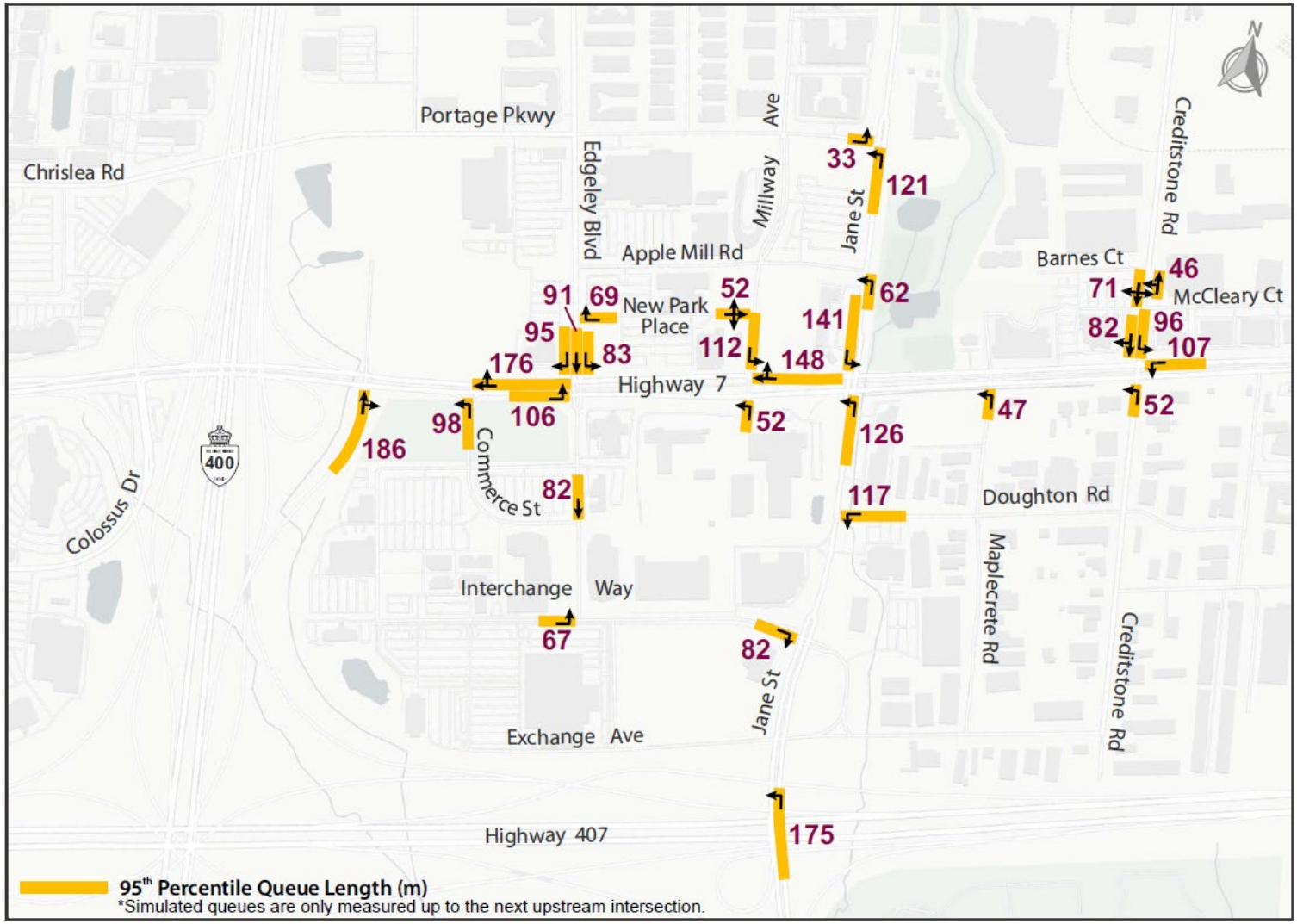


Figure 4-8. Existing 95th Percentile Queue Lengths - Afternoon Peak Hour



5 Stakeholder and Public Engagement

Engagement with technical agencies, stakeholders and the public are one of the core components of the TMP and is part of the MCEA process. A comprehensive consultation and engagement program was designed, developed, and implemented to help inform the VMC TMP.

Phase 1 of the consultation plan focused on identifying opportunities and constraints related to transportation in the VMC, as well as gathering input on transportation trends and preferences in the Study Area. The feedback received helped inform the baseline conditions and set the direction for recommended network improvements. Phase 2 of the consultation program sought to obtain feedback on the draft multi-modal recommended transportation network.

5.1 Who was Consulted?

The consultation and engagement program was designed with the intention of exchanging ideas with the following key audiences:

- **Technical Advisory Committee**: representatives from federal and provincial ministries including the Ministry of Transportation, regional transit agencies, Toronto and Region Conservation Authority (TRCA), City subject matter experts, 407 ETR, and utility companies who share and have interests in the Study Area's right-of-way and transportation-related assets.
- **Landowners Group**: property owners, business owners, and developers within the Study Area.
- **Public**: property owners within and adjacent to the Study Area, community associations within the Study Area, local VMC residents, general public.
- **Indigenous Peoples**: First Nations, Métis, and Inuit people and organizations.
- **City Staff**: City Staff responsible for the implementation, execution, monitoring, assessment, and reporting of the TMP.
- **Council**: Councillors responsible for endorsement and oversight such as the VMC Sub-Committee of Council.

5.2 Public Consultation Round 1 - Consultation Summary

The Round 1 Public Engagement activities provided the Project Team with an extensive understanding of existing conditions and potential opportunities for improving active transportation, transit, and the road network in the VMC Study Area. Various ideas and common themes emerged from the consultation that were used to guide the development of the TMP and set the direction for priorities in the VMC Study Area.

Public Information Centre (PIC) #1 slides are shown in **Appendix G**. The Survey Monkey and Have Your Survey (HYS) were launched and made available on the City's website on February 2, 2023, and February 9, 2023, respectively. The surveys closed on March 24, 2023. The survey results and PIC #1 summary report can be found in **Appendix G**.

Key themes emerging from the first round of consultations are summarized below.

Active Transportation

- Cycle tracks (not bike lanes) along all major roadways (and collectors);
- Wide sidewalks (more than what is being built in neighbourhoods now);
- YMCA Community Centre: Underground connection from YMCA Community Centre to TTC subway and YRT bus terminal;
- Improved delineation of existing cycle lanes. Perhaps flexible posts/cordons to help stop traffic casually passing over them.
    - The Hwy 7/Jane junction is still off-putting for cyclists, especially east-bound where the [painted] cycle lane crosses the right-turn lane. There is only a short span for a lot of traffic to get into their lanes; This part of the corridor needs to be re-evaluated to consider pedestrians and cyclists, especially in the evening when there is minimal visibility for road users.

- Better protected bike lanes/cycle tracks with physical barriers to cars, improved winter clean-up, and enhanced drop-off zones.
  o Many cars tend to park over existing bike lanes because it is just a painted road, and it is a convenient area for drop-off/pick-up (in front of the station). A lot of snow this winter was left on the bike lanes, rendering them unusable. However, this also needs to be in conjunction with the rest of the City because the bike lanes only begin within the surrounding VMC area. If bike lanes do not exist outside of the VMC boundary, people are unlikely to use the bike lanes within as well. As the population of the City grows, bikes will become an important alternative mode of transportation for getting around the City.

- Unless there is very dense pedestrian traffic, a mixed-use wide trail is good for both pedestrians and cyclists.

Transit Connections

- Small shuttle service to aid in convenient mobility between the various developments in the area and transportation hubs.
- Connect to Barrie GO Train line at Highway 7

    - The Viva BRT on Highway 7 should connect with the Barrie GO rail line on Highway 7. It does not have to be a full station. Just a minimal transfer stop.
    - This would give easy and fast access to VMC to anyone on the GO line.

- Create a drop-off zone at the Vaughan Metropolitan subway station similar to the drop-off zones at the Finch and Sheppard West subway stations.
    - Improved drop-off at VMC subway station.
- Remove YRT bus stops from Highway 7 road and move to the middle bus lane.
    - Highway 7 backups around the VMC whenever the YRT bus makes a stop in the middle of the live traffic lane. Meanwhile, a specific bus lane was created in the middle of Highway 7, which is only used by Zoom and Viva buses. It does not make sense.
- Improvement within VMC and with other municipalities & Toronto.

Places Tool Summary of Comment

- Add a sidewalk in the middle of Highway 7 from the Viva stop at Commerce to the path continuing over Hwy 400. It would make it easier to walk in the area instead of waiting for multiple traffic lights at Applewood.
- Ban stopping on Highway 7 for subway drop-offs since it blocks the bike lane.
- Add a pedestrian traffic signal at Apple Mill Road and Buttermill Avenue, instead of having to walk to Millway Avenue or Edgeley Boulevard to cross the road.
- Edgeley Boulevard should be widened to have a centre left-turn lane from Highway 7 to Portage Parkway. It is a major road for traffic north of VMC that always gets backed up from left-turn traffic at the intersections.
- There should be new transit stops along Edgeley Boulevard and Interchange Way so that the new approved and proposed development sites will be more connected for residents and visitors to move around. The existing transit infrastructure along Highway 7 would be a bit far to get to by walking. Provide adequate shelter at the transit stop and ease of access through wayfinding techniques and pathways from buildings to transit stops.
- Create a passenger drop-off zone like the drop-off zones at the Finch and Sheppard West subway stations, as the current passenger drop-off is not optimal.

- Difficult to access due to traffic on Highway 7.
  - The area is very congested during the day. Need some alternative routes to move the traffic. Can Portage Parkway be extended east to Creditstone Road similar to how Interchange Way/Peelar Access Road is getting extended?
  - Consider widening Apple Mill Road to provide an alternative route from Highway 7. Since Highway 7 becomes highly congested during rush hour.
- The Walmart moved to a more inconvenient location to walk to, and there is barely any transit to get there, as well as a longer walk.
  - Potential for a grocery, superstore, and Shoppers Drug Mart in the area.

5.3 Public Consultation Round 3 - Consultation Summary

Round 2 of public consultation and engagement activities was conducted in association with Millway Avenue and Interchange Way EAs and are documented separately. Round 3 public engagement returned to the Transportation Master Plan and incorporated feedback provided the Project Team with recommendations on active transportation, transit, roads and supportive transportation policies for the VMC Study Area. Various comments were received that encompass key themes that were used in finalizing the recommendations for the transportation network. Preliminary recommendations were presented to different groups of stakeholders, including the Technical Advisory Committee (TAC), Landowners Group (LOG), Elected Officials, Ratepayer Association, the public, and interested parties who provided feedback or requested for further consideration for specific areas.

A digital survey was launched and made available on the City's website from January 30, 2025, through to February 13, 2025. The survey results and PIC #3 summary report can be found in **Appendix G.**

Key themes emerging from the third round of consultation are summarized below:

Active Transportation Network

Support for Draft Concept:

- Positive reception of cycle tracks, improved intersection protection, and the LOOP concept.
- Approval of integrated path connections and overall network connectivity, especially across highways.
- Emphasis on various transportation modes and safety considerations.
- Positive reception for micro-mobility hubs.

Suggestions:

- Improved pedestrian and cyclist access to VMC and Highway 407 Subway stations.
- Desire identified for secure bike/micromobility storage.
- Physical protection at intersections for pedestrians and cyclists.

Transit Network

Support for Draft Concept:

- Support for Transit Circulator routes and Jane Street Rapidway.
- Approval of conceptual subway line extension to Major Mackenzie.
- More dedicated bus lanes, support for Highway 7 BRT conversion to LRT, and ensuring routes are usable year-round.

Suggestions:

- Improved drop-off/pick-up areas at VMC station.
- Better integration of local transit stops along Highway 7.
- More dedicated bus lanes.
- Desire for more retail access near the subway station.

Street Network

Support for Draft Concept:

- Support for extension of Portage Parkway and Colossus Drive to manage congestion on Highway 7.
- Positive reception for general grid street layout and connectivity for future growth.

Suggestions:

- Support for advanced pedestrian/cyclist phasing at signals.
- Desire to stagger road construction to not overwhelm the community.
- Alternative routes for transport trucks and one-way local roads to improve traffic flow.

Environmental

- Impacts to TRCA's regulated area and policies on how to avoid, mitigate, restore impacts to the regulated area should be included in the Master Plan.
- Overall restoration goals for TRCA regulated area should be included in the Master Plan, including best management practices (BMPs) and standards.

6 Alternative Network Development and Assessment

This TMP was developed in accordance with the Municipal Class Environmental Assessment process. In order to meet requirements for Phase 2 of this process, the TMP must identify and evaluate various alternatives to inform the ultimate decision for a preferred future alternative transportation network. The following sections detail the approach used to identify and evaluate the alternatives. The preferred alternative identified through this process is shown in the next chapter.

Alternative network development and assessment was conducted in two stages. Stage 1 identified and evaluated a suite of regional network improvements to determine:

1. broader area improvements necessary for a functional network;
2. the maximum threshold population and employment that can be accommodated at VMC from a traffic and transportation lens.

Once the above were determined, Stage 2 network development and assessment was conducted at VMC to evaluate a range of local network options through multiple lenses to determine a preferred VMC network that prioritizes active transportation and public transit.

6.1 Stage 1 – Alternative Regional Network Development

Three regional network alternatives were identified:

Alternative R1: The existing regional transportation network.

Alternative R2: A future base network including both road and transit improvements, shown in **Figure 6-1,** which includes the following improvements:

- Bass Pro Mills extension from Highway 400 to Weston Road.
- Langstaff Road widening between Weston Road and Creditstone Road (4 to 6 lanes).
- Langstaff Road connection over the CN Rail Yard.
- Langstaff Road full interchange at Highway 400.
- City of Toronto project: Steeles Avenue widening west of Jane Street (4 to 6 lanes).
- Weston Road widening north of Steeles Avenue (4 to 6 lanes).
- Keele Street widening north of Steeles Avenue (4 to 6 lanes).
- City of Toronto project: Steeles Avenue Transit Corridor (4 mixed traffic lanes plus dedicated transitway east of Jane Street).
- Jane Street Transit Corridor (4 mixed traffic lanes plus dedicated transitway between Major Mackenzie Drive and Highway 7, 10-minute headways).

Alternative R3: A second stage network that includes the improvements of Alternative R2, shown in **Figure 6-2**, and adds the following additional capital improvements:

- Colossus Drive/Rowntree Dairy Road extension to Pine Valley Drive.
- Line 1 subway extension to Major Mackenzie with stations at Langstaff, Vaughan Mills-Rutherford, and Major Mackenzie-Wonderland-Cortellucci Hospital, replacing the Jane Street rapid transit service introduced in Alternative R2.
- Interchange Way extension from Creditstone Road to Keele Street, including a new rail crossing.
- Additional east-west flyover of Highway 400 connecting Chancellor Drive/Carlauren Road to Pennsylvania Avenue.
- Highway 7 BRT conversion to LRT.
- Free access to Highway 407 for all users between Highway 427 and Highway 404.

Figure 6-1. Alternative R2 – Future Base Network

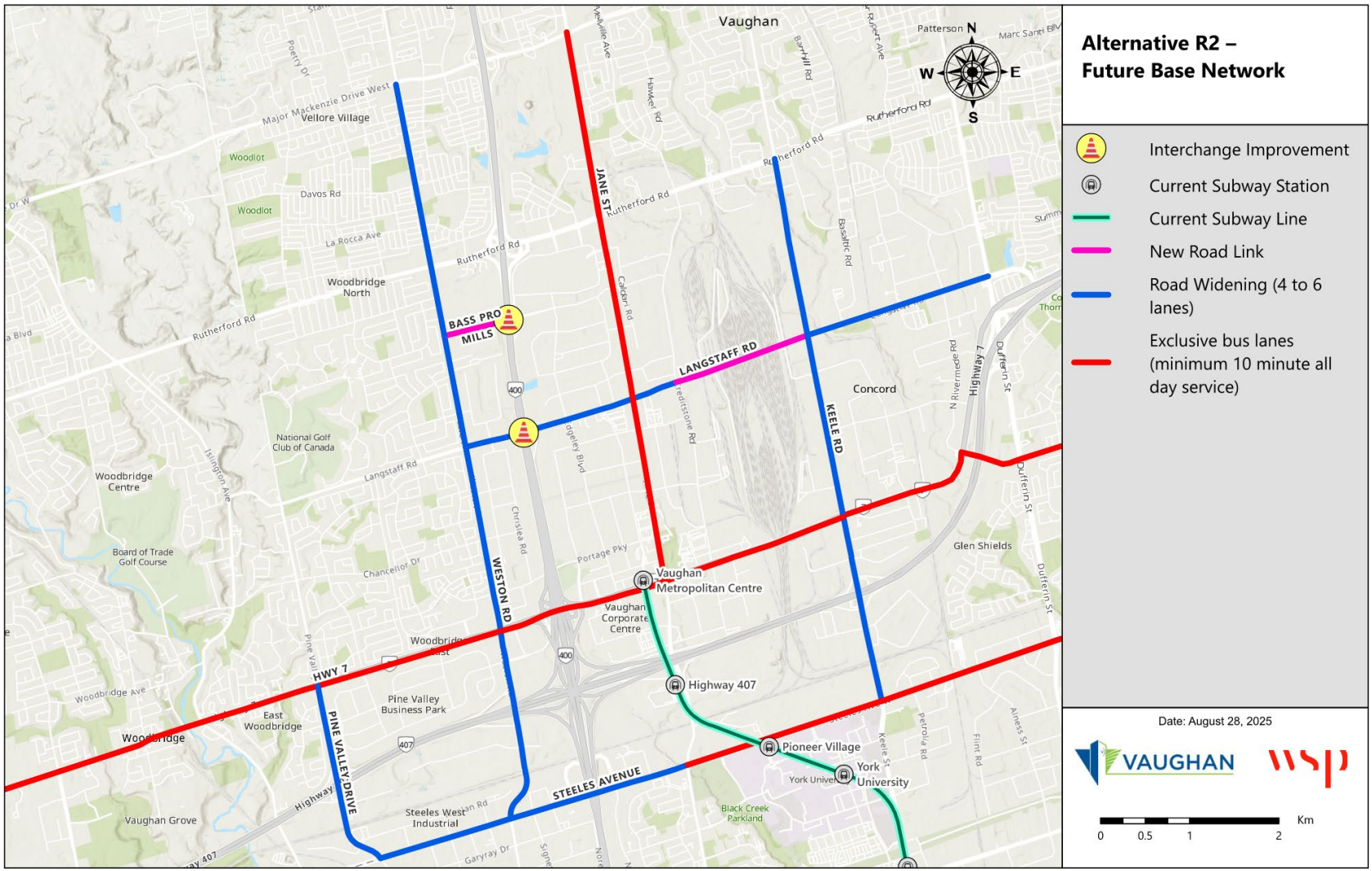
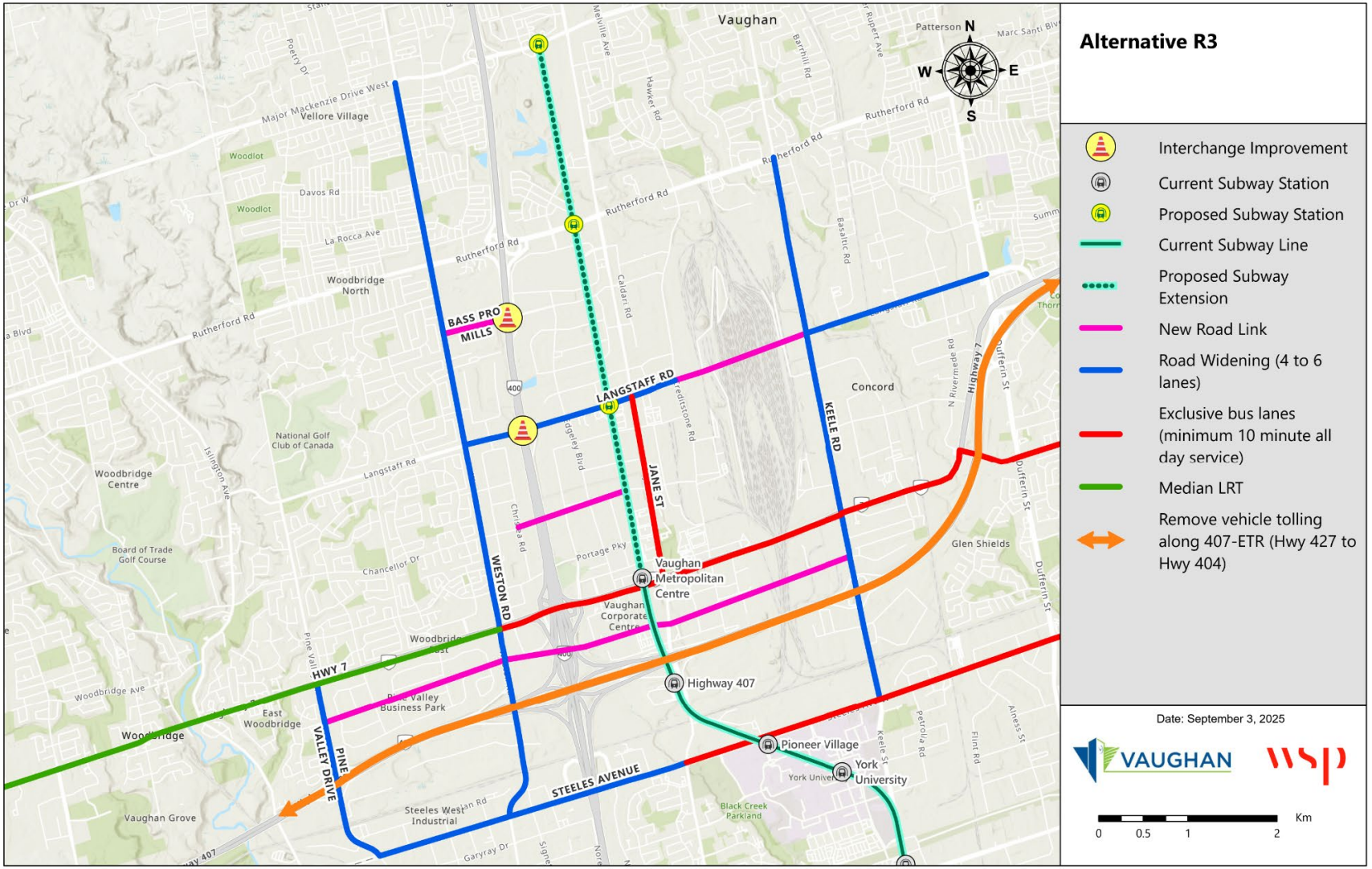


Figure 6-2. Alternative R3 – Second Stage Network



6.2 Stage 1 – Alternative Regional Networks Evaluation

The roadway-related performance of the regional network alternatives was assessed for 2041 through the York Region Travel Demand Forecasting (YRTDF) model. This assessment helped determine the regional improvements required for a functional network, as well as the maximum population and employment growth that can be accommodated within the VMC.

This section summarizes the assumptions that were included in the development of the transportation model as well as performance metrics resulting from the model.

6.2.1 Modelling Methodology

The YRTDF model was used to forecast roadway performance. The YRTDF model includes the entire Greater Toronto and Hamilton Area, was calibrated in 2014, and models only the AM peak hour.

In combination with testing the three regional network alternatives, three differing land uses were tested to help determine the maximum population and employment that can be accommodated within the VMC:

- A combined population and jobs of 42,000 for the VMC, and 25,881 for the Weston 7 Secondary Plan (not tested for Alternative R3).
- A combined population and jobs of 105,500 for the VMC, and 25,881 for the Weston 7 Secondary Plan.
- A combined population and jobs of 156,000 for the VMC, and 25,881 for the Weston 7 Secondary Plan (not tested for Alternative R1).

In addition to testing land use scenarios, Alternative R3 was also tested with and without the policy for free travel along Highway 407. This resulted in a total of 9 model runs, as identified in **Table 6-1**.

Table 6-1. Model Runs Completed to Assess Roadway Performance in 2041

Model Run	Regional Transportation Network Alternative	Land Use within VMC
1	Alternative R1 (Existing network)	42,000 combined population and jobs
2	Alternative R1 (Existing network)	105,500 combined population and jobs

Model Run	Regional Transportation Network Alternative	Land Use within VMC
3	Alternative R2 (Enhanced network improvements)	42,000 combined population and jobs
4	Alternative R2 (Enhanced network improvements)	105,500 combined population and jobs
5	Alternative R2 (Enhanced network improvements)	156,000 combined population and jobs
6	Alternative R3 (Infrastructure intensive improvements, free Highway 407)	105,500 combined population and jobs
7	Alternative R3 (Infrastructure intensive improvements, tolled Highway 407)	105,500 combined population and jobs
8	Alternative R3 (Infrastructure intensive improvements, free Highway 407)	156,000 combined population and jobs
9	Alternative R3 (Infrastructure intensive improvements, tolled Highway 407)	156,000 combined population and jobs

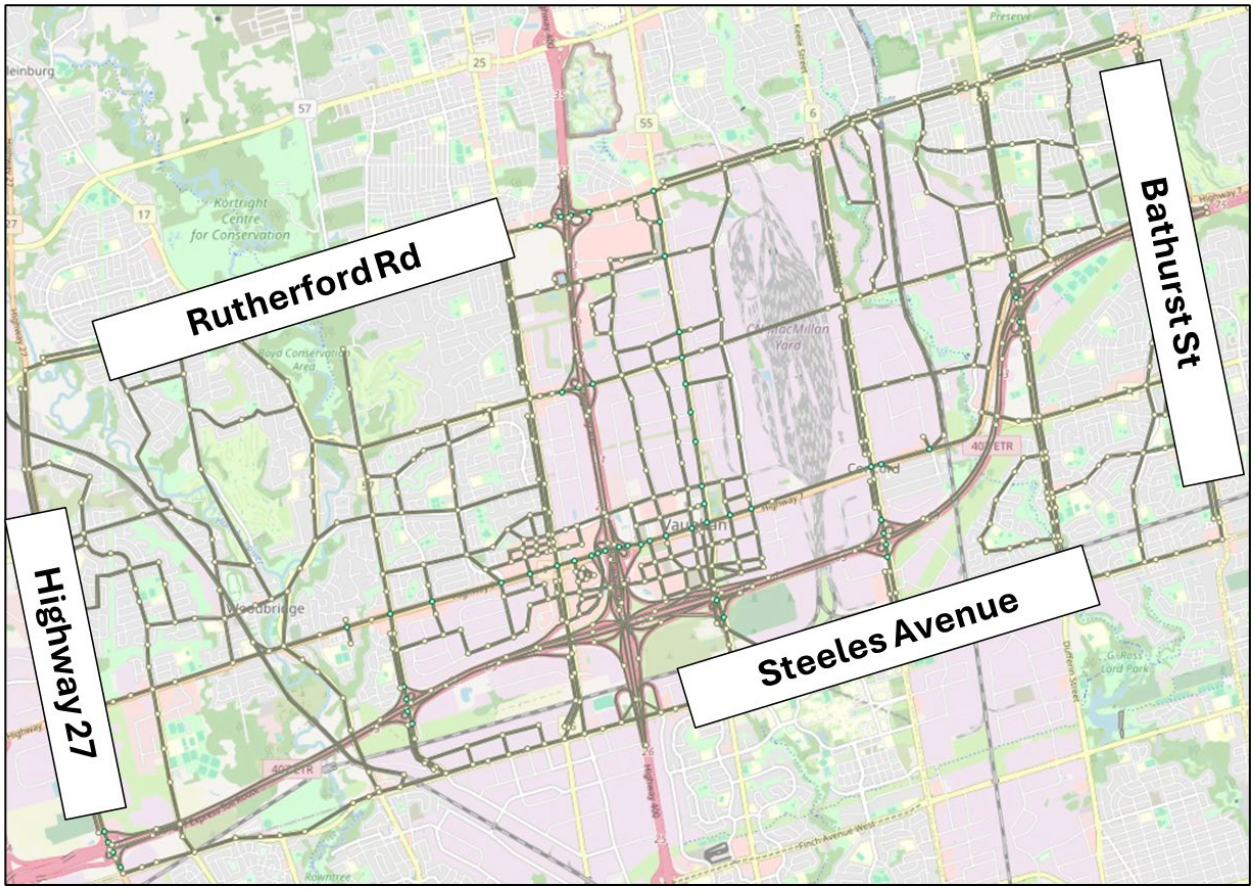
In addition to these land use and network inputs, the following assumptions were made for all the model runs:

- 60% of all households in the VMC were assumed to not have a car to reflect the proposed residential parking requirements.
- Parking costs in the VMC were assumed to be $30 per day.
- Trip generation rates in the VMC were updated for home-based work and home-based school trips, to reflect that when the model was calibrated, developments in the VMC (and thus associated trip patterns) were different than what is predicted for the future. Proxy sites were chosen from the 2016 Transportation Tomorrow Survey to identify trip generation rates.

To identify network performance for the 9 model runs and identify whether the transportation network remains operational with the proposed developments, three key model outputs were calculated for a subarea of the model bounded by Highway 27, Rutherford Road, Bathurst Street, and Steeles Avenue (as shown in **Figure 6-3**):

- Volume-to-capacity (v/c) ratios, which are a metric to assess whether the roadway is able to handle travel demand. This metric helps identify the locations where roadway capacity may be insufficient.
- Aggregate travel times across the model Study Area (vehicle hours travelled, or VHT). This measures the total time people spend travelling in the VMC and surrounding area and helps assess the overall efficiency of the different alternatives.
- Aggregated distances travelled across the model Study Area (vehicle kilometers travelled, or VKT). This measures the total distance people travel within the VMC and surrounding area, and as with the metric above, helps assess the overall efficiency of the different alternatives. Dividing VKT by VHT allows for calculating the average travel speed in a network.

Figure 6-3. The Model Study Area Used to Summarize 2041 Roadway Performance



6.2.2 Roadway Performance Evaluation Results

Vehicle hours and kilometres travelled

Vehicle kilometers and hours travelled for each model run, as well as average travel speeds, are summarized in **Table 6-2**.

The results show that, as the combined population and employment increases in the VMC, VKT and VHT increase while overall travel speeds decrease. Across all regional network alternatives, speeds drop by 0.8 km/h while going from 42,000 people and jobs to 105,500 people and jobs and decrease by another 0.3 to 0.8 km/h when assuming 156,000 people and jobs.

When comparing the different networks at the same population and employment level, Alternative R2 (the future base network) exhibits the best performance, with the highest travel speeds and lowest VKTs and VHTs. The average travel speed in Alternative R2 is approximately 5 km/h faster than in Alternative R1 (the existing network), suggesting that the network improvements included in Alternative R2 are beneficial to the VMC.

These results also highlight that the additional infrastructure intensive improvements included in Alternative R3 (the second stage network) do not appear to improve network performance; in fact, they appear to worsen it, particularly when Highway 407 is assumed to be free. With a combined 105,500 people and jobs, travel speeds in Alternative R3 are lower than those in Alternative R2 by 1.3 km/h without Highway 407 tolls and 0.2 km/h with Highway 407 tolls. The deterioration in performance in Alternative R3 is likely caused by the following:

- The extension of Interchange Way to Keele Street diverts longer-distance traffic onto Interchange Way, causing significant congestion along that corridor.
- Removing Highway 407 tolls significantly increases its attractiveness, thereby causing people who would normally use Highway 401 or other congested parallel routes to now use Highway 407. This creates a congested Highway 407 operating at low speeds and causes VKT and VHT to rise (as VKT and VHT on Highway 407 is included in the Study Area).

Table 6-2. Vehicle Kilometres and Hours Travelled, as well as Average Travel Speeds, in the Model Runs

		Alternative R1	Alternative R2	Alternative R3 without 407 tolls	Alternative R3 with 407 tolls
42k population and employment	VKT	909,200 km	903,400 km	/	/
	VHT	32,400 hours	27,500 hours	/	/
	Speed	28.1 km/h	32.9 km/h	/	/
105k population and employment	VKT	931,800 km	920,800 km	1,005,200 km	981,800 km
	VHT	34,100 hours	28,600 hours	32,600 hours	30,800 hours
	Speed	27.3 km/h	32.1 km/h	30.8 km/h	31.9 km/h
156k population and employment	VKT	/	938,200 km	1,015,000 km	944,300 km
	VHT	/	29,900 hours	33,000 hours	30,300 hours
	Speed	/	31.3 km/h	30.5 km/h	31.2 km/h

Volume to capacity ratios

Modelled volume to capacity ratios for each regional network alternative in 2041 are presented below.

Alternative R1 (The Existing Regional Network)

Volume to capacity ratios for Alternative R1 are shown in **Figure 6-4** and **Figure 6-5**, assuming a combined 42,000 and 105,500 people and jobs in the VMC, respectively.

Even with an assumed 42,000 people and jobs, the network is predicted to be nearing or over capacity along multiple links by 2041, particularly along Highway 7, Keele St, and Jane St. With higher assumed population and employment in the VMC, the network is significantly over capacity, with congestion along Highway 7, Keele St, and Jane St worsening. These results suggest that network upgrades will be necessary regardless of the future population and employment in the VMC.

Figure 6-4. V/C in Alternative R1 with 42k Combined Population and Employment

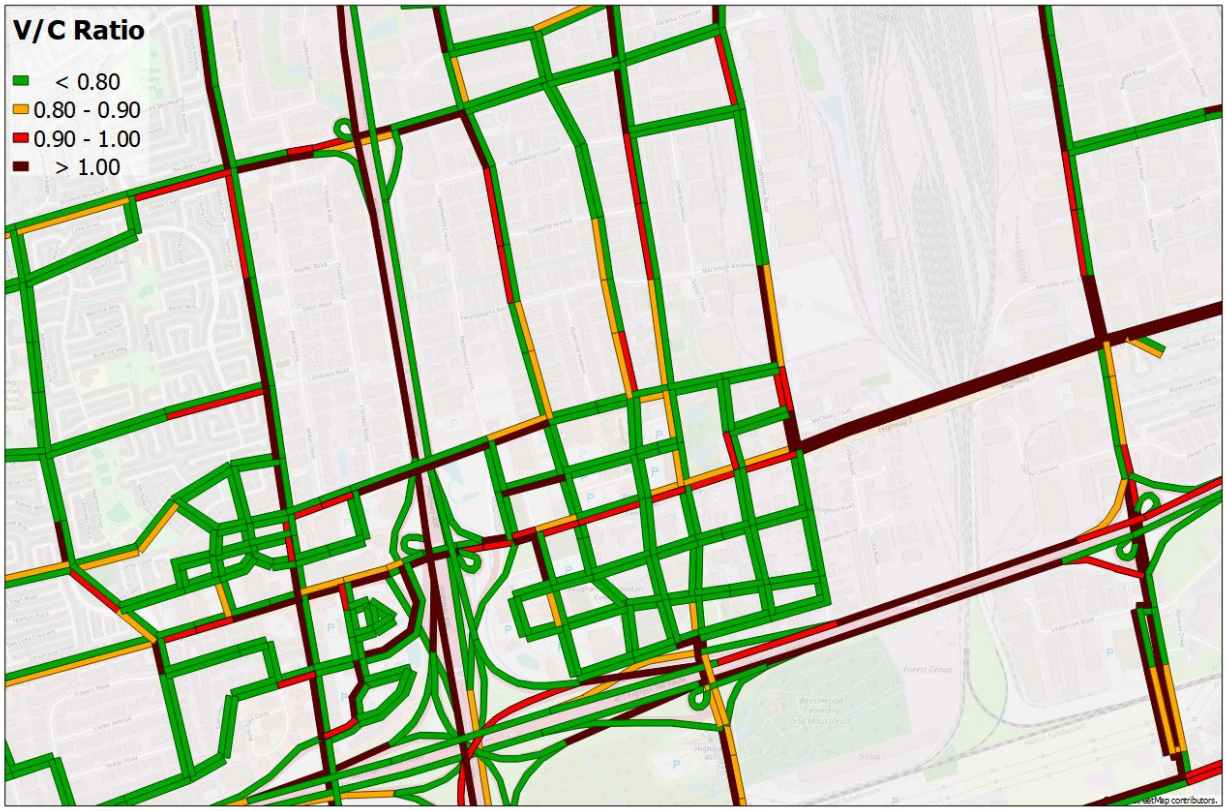
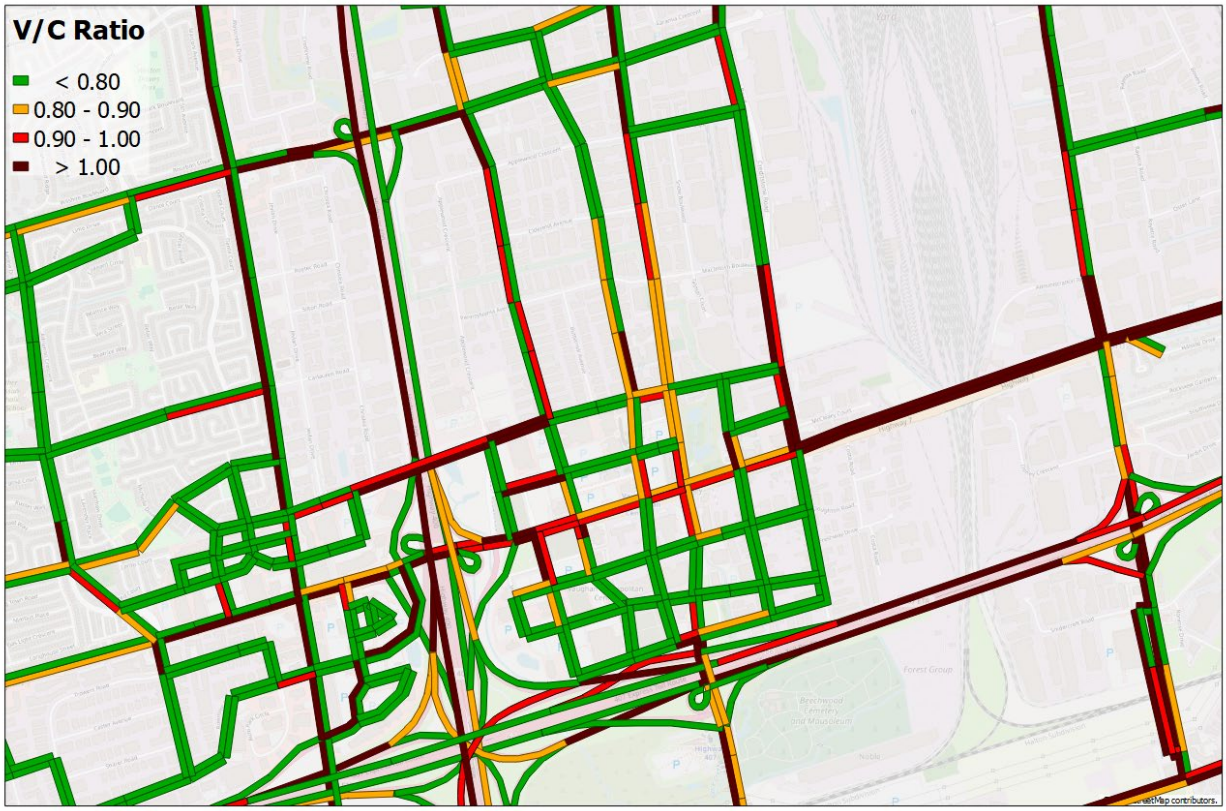


Figure 6-5. V/C in Alternative R1 with 105k Combined Population and Employment



Alternative R2 (The Future Base Network)

Volume to capacity ratios for Alternative R2 are shown in **Figure 6-6, Figure 6-7,** and **Figure 6-8**, assuming a combined 42,000, 105,500, and 156,000 people and jobs in the VMC, respectively.

When assuming 42,000 people and jobs, the regional network exhibits improvements compared to Alternative R1, including along many segments of Highway 7, due to traffic diversion towards the Langstaff Rd extension to Keele St. Congestion along Jane Street also sees a significant reduction. However, some capacity constraints persist along Highway 7, particularly between Creditstone Rd and Keele St. The Langstaff Rd extension to Keele St introduced in this alternative is also predicted to be over capacity.

At a combined 105,500 people and jobs, Alternative R2 performs worse than when assuming 42,000 people and jobs – traffic deteriorates with congestion along larger

stretches of Highway 7 and Langstaff Rd. However, congestion remains considerably lower than in Alternative R1.

With 156,000 people and jobs, v/c ratios increase further along regional roads, and start to near or exceed 1 along some local roads within the VMC as well. This suggests that this level of development creates significant traffic performance issues and cannot be accommodated by the improvements included in Alternative R2.

Figure 6-6. V/C in Alternative R2 with 42k Combined Population and Employment

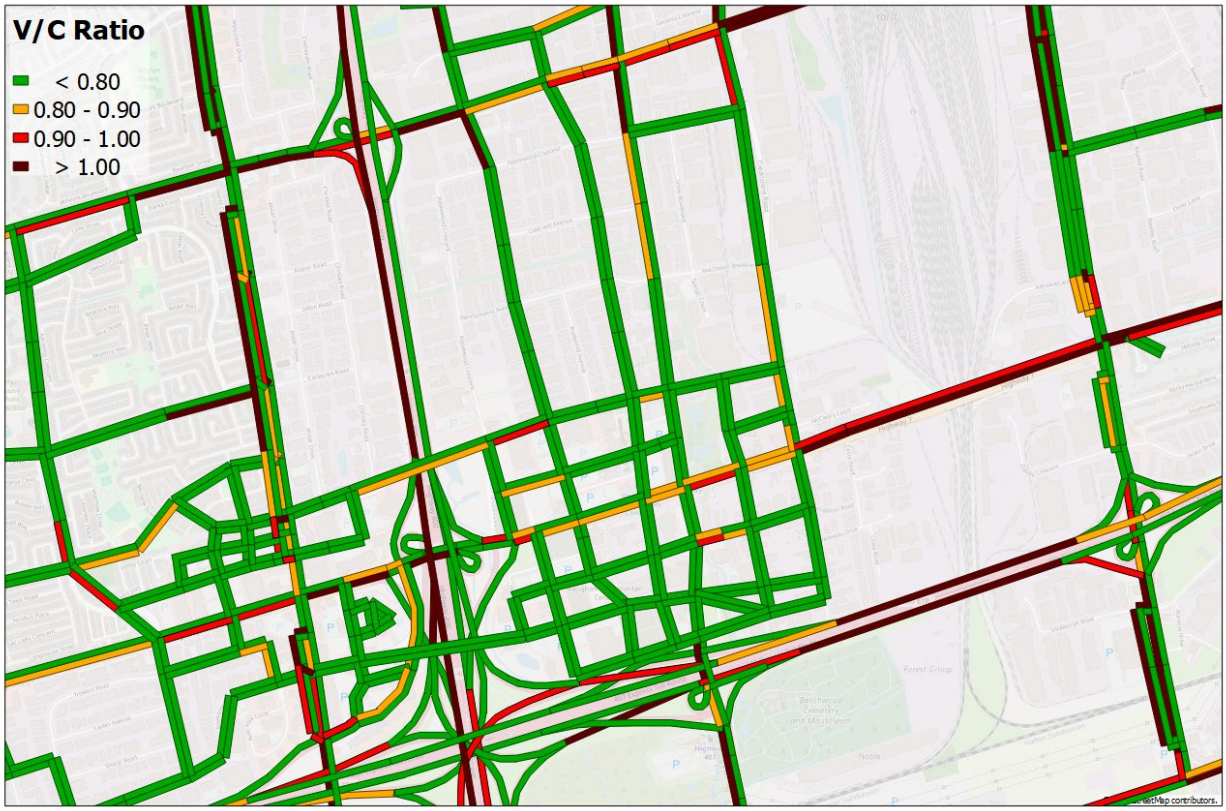


Figure 6-7. V/C in Alternative R2 with 105k Combined Population and Employment

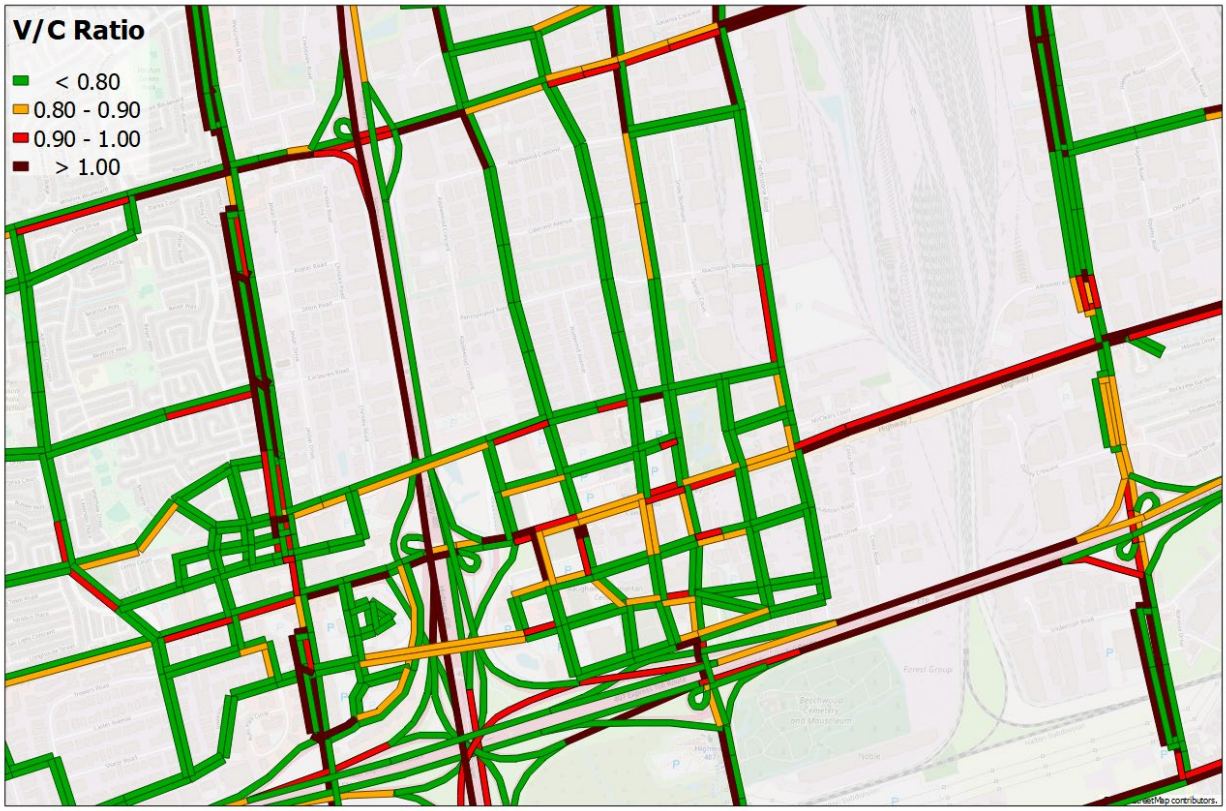
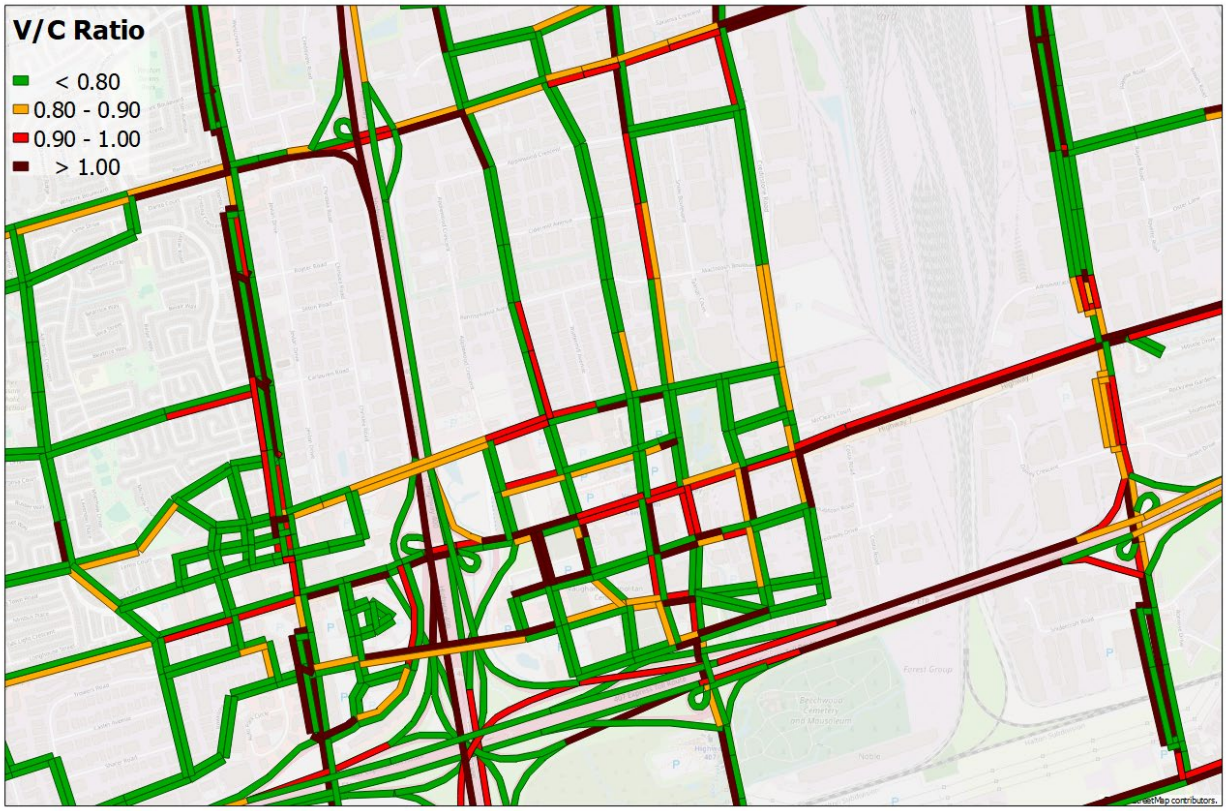


Figure 6-8. V/C in Alternative R2 with 156k Combined Population and Employment



Alternative R3 (The Second Stage Network)

Volume to capacity ratios for Alternative R3, with free travel along Highway 407, are shown in **Figure 6-9** and **Figure 6-10**, assuming a combined 105,500 and 156,000 people and jobs in the VMC, respectively.

Both model runs show worse performance than Alternative R2 at the same population and employment level. In particular, free travel along Highway 407 attracts additional traffic from parallel roads, thereby creating additional congestion along the highway. In addition, the extension of Interchange Way to Keele Street also attracts additional traffic, creating high v/c ratios along the link. While congestion is predicted to be high for both land use scenarios, more severe traffic breakdown is predicted when assuming a combined 156,000 people and jobs.

Network performance with tolls on Highway 407 is shown **Figure 6-11** and **Figure 6-12**, for a combined 105,500 and 156,000 people and jobs in the VMC, respectively. While

performance is better than when Highway 407 is assumed to be free, it is still worse than in Alternative R2. This also again highlights that network performance significantly deteriorates at a combined 156,000 people and jobs, suggesting that, from a transportation perspective, population and employment should be kept below that threshold.

Figure 6-9. V/C in Alternative R3 with 105k Combined Population and Employment and Free Highway 407

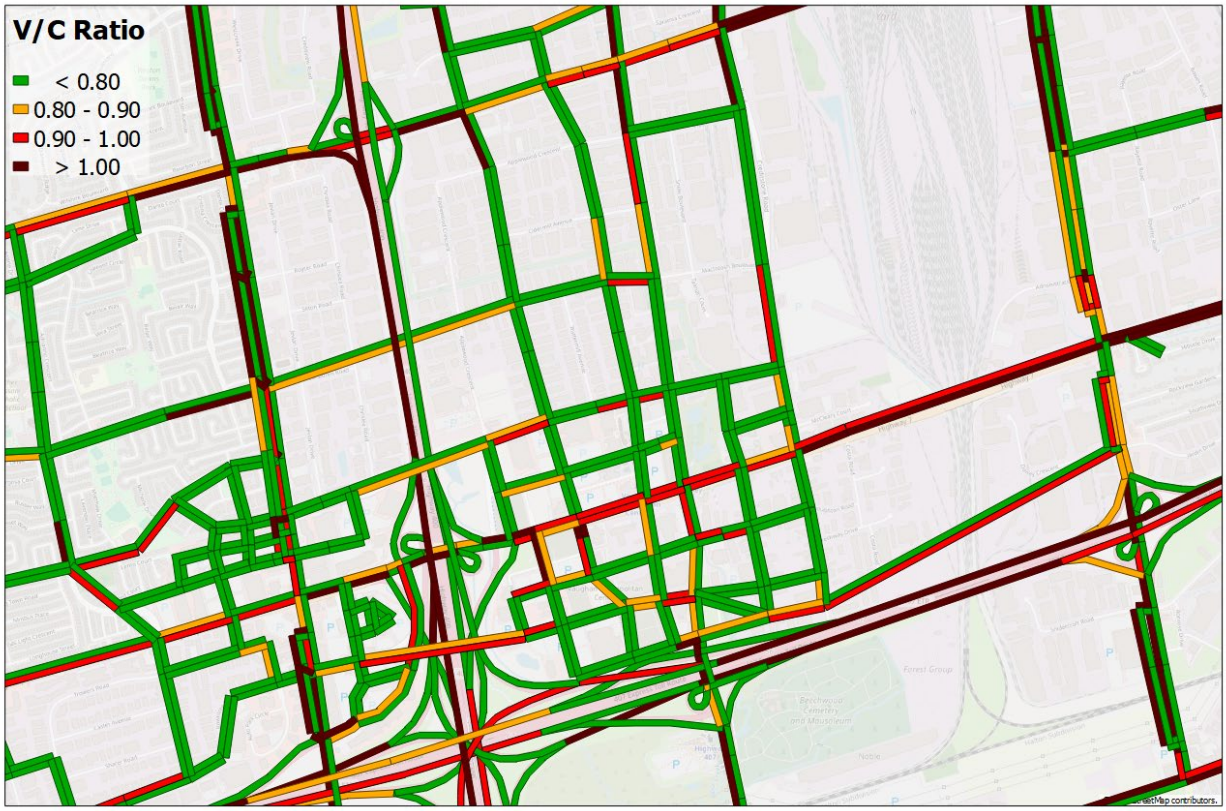


Figure 6-10. V/C in Alternative R3 with 156k Combined Population and Employment and Free Highway 407

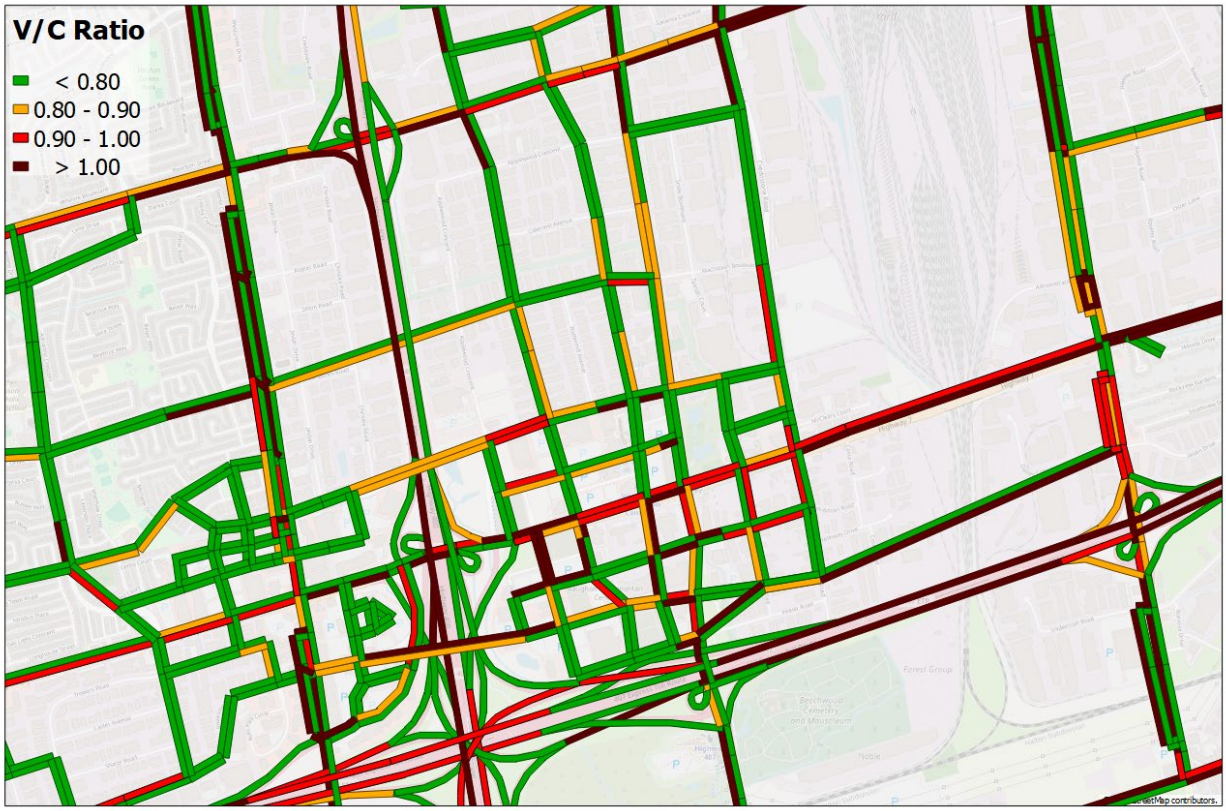


Figure 6-11. V/C in Alternative R3 with 105k Combined Population and Employment and Tolled Highway 407

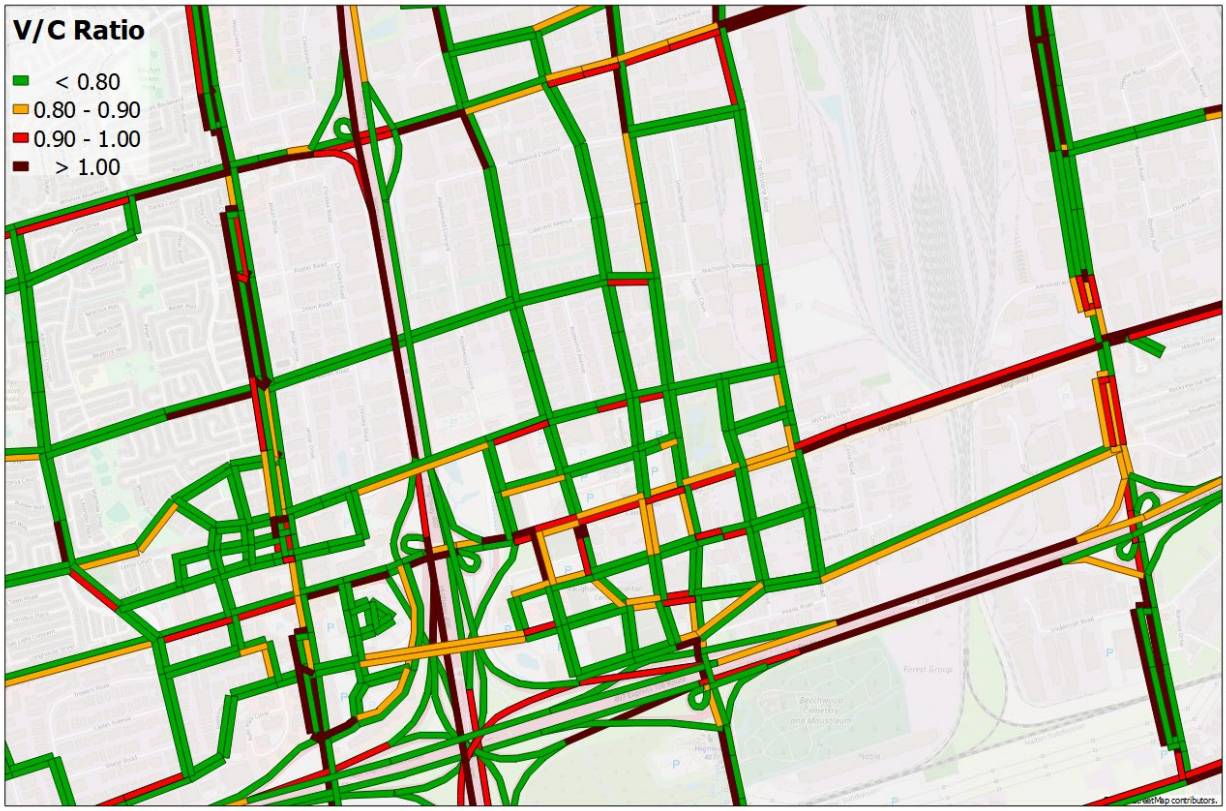
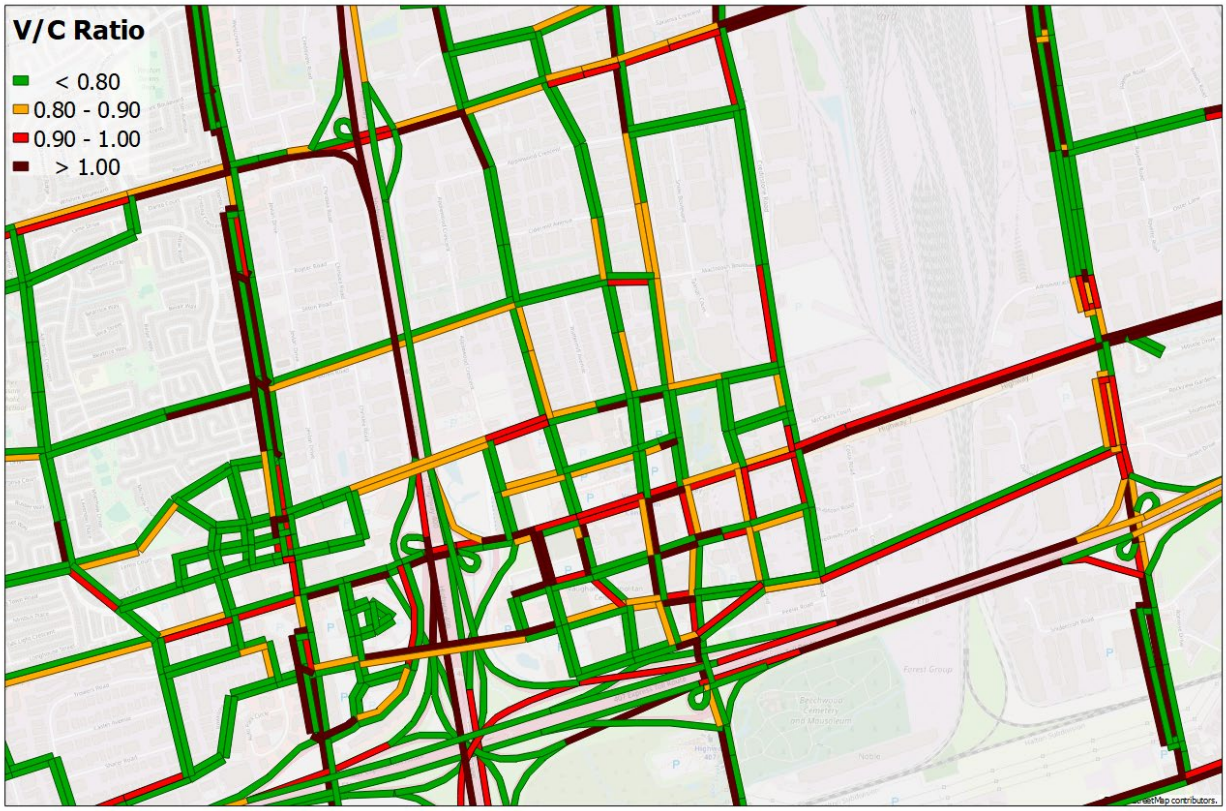


Figure 6-12. V/C in Alternative R3 with 156k Combined Population and Employment and Tolled Highway 407



Evaluation Summary

The future roadway performance evaluation reveals that the package of network improvements included in Alternative R2 (the future base network) performs the best across all land use scenarios. The additional network improvements assumed in Alternative R3 counterintuitively decrease network performance by attracting additional traffic along Highway 407 and Interchange Way.

The assessment further shows that the proposed network improvements in both Alternatives R2 and R3 cannot accommodate a combined population and employment of 156,000 within the VMC: traffic performance significantly breaks down, with severe congestion along regional roads such as Highway 7, Jane St, and Keele St, persistent congestion within the local VMC road network, and overall travel speeds decreasing by 0.3 km/h to 0.8 km/h compared to a scenario with 105,500 people and jobs. As such, **modeling results demonstrate that the development threshold for VMC is 105,500**

combined population and employment levels, when assessed for the AM peak hour. A qualitative summary of results by scenario is provided in **Table 6-3.** Results are classified relatively according to the following scale:

Negative Impact			Neutral			Positive Impact

Table 6-3. Stage 1 – Alternative Regional Networks Evaluation – Summary

Scenario	Combined VMC Pop/Emp	Network Alternative	Result
1	42,000	R1	
2	42,000	R2	
3	105,500	R1	
4	105,500	R2	
5	105,500	R3 (no Hwy 407 tolls)	
6	105,500	R3 (Hwy 407 tolls)	
7	156,000	R2	
8	156,000	R3 (no Hwy 407 tolls)	
9	156,000	R3 (Hwy 407 tolls)	

6.3 Stage 2 – Alternative Local Network Development

Building on the regional network assessment, four local alternative transportation networks were identified and assessed for the VMC at full build-out:

- Alternative L1: The first alternative assumes that the existing local network does not change compared to today. This alternative serves as a reference point for the other alternatives. This alternative includes the regional future base network (R2).
- Alternative L2: The second alternative includes all local projects already planned by York Region and the City, including the planned VMC road network from the previous 2012 VMC TMP as well as the internal network recommended in the current VMC Secondary Plan. Notably, the Colossus Drive extension is included in this option. This alternative helps to identify whether the existing plan will satisfy the needs of VMC's growing population and employment. This alternative includes the regional future base network as well (R2).
- Alternative L3: The third alternative network is a new alternative that builds on the second alternative with additional internal network improvements, most notably a new transit circulator and several off-road multi-use paths. Additionally, this option includes the extension of Freshway Drive to Jane Street. This alternative includes the regional future base network as well (R2).
- Alternative L4: The fourth alternative network expands on the L3 network by including an extension of Interchange Way to Keele Street with a new rail grade separation. the second stage regional network (R3) is assumed, including a Highway 7 LRT and a subway extension along Jane Street to Major Mackenzie Drive.

Key improvements included in each alternative are shown in **Table 6-4**. Maps for each alternative are presented in **Figure 6-13** through **Figure 6-16**.

Table 6-4. Network Alternatives

Alternative	Transportation Network
Alternative L1: Existing network	— Existing local road, active transportation, and transit network — Future base regional network (R2)
Alternative L2: Planned Network Improvements	— Future base regional network (R2) — Extensions of existing collector roads within VMC: — Colossus Drive extension over Highway 400 — Portage Parkway extension from Jane Street to Creditstone Road

Alternative	Transportation Network
	— Maplecrete Road extension from Highway 7 to the Portage Parkway extension — Millway Avenue extension from Highway 7 to Exchange Ave — Doughton Road extension from Edgeley Boulevard to Jane Street — Interchange Way extension from Jane Street to Creditstone Road — Edgeley Boulevard extension from Interchange Way to Exchange Avenue — Commerce Street extension from Doughton Road to Exchange Ave — Network of new local streets. — Dedicated separated cycling facilities / cycle tracks on all arterials and collectors (where no bike lanes already exist) — Construction of a new Jane Street BRT between Highway 7 and Major Mackenzie Drive — 10 minute transit frequencies along Highway 7 VIVA and Jane Street BRT
Alternative L3: Enhanced network improvements	— Everything included in Alternative L2, except for the cycle tracks along Maplecrete Road north of Highway 7 and Barnes Court — Extended network of local streets — A transit circulator connecting Weston 7 and VMC Secondary Plan Areas — An extensive multi-use path system — Pedestrian and cyclist grade separation across Highway 400, Highway 7 and Highway 407 including a new AT-only crossing of Highway 400 and weather protection along the existing Highway 7 median multi-use trail over Highway 400 — Additional internal signals — New pedestrian/cycling elevator at Jane Street overpass — Freshway Drive extension to Jane Street
Alternative L4: Infrastructure-	— Everything included in Alternative L3, but with the second stage regional network (Alternative R3)

Alternative	Transportation Network
intensive network improvements	— Interchange Way extension to Keele Street — Subway extension with four stations to Major Mackenzie Drive in lieu of the Jane Street BRT — Conversion of Highway 7 VIVA BRT to LRT

Figure 6-13. Alternative L1

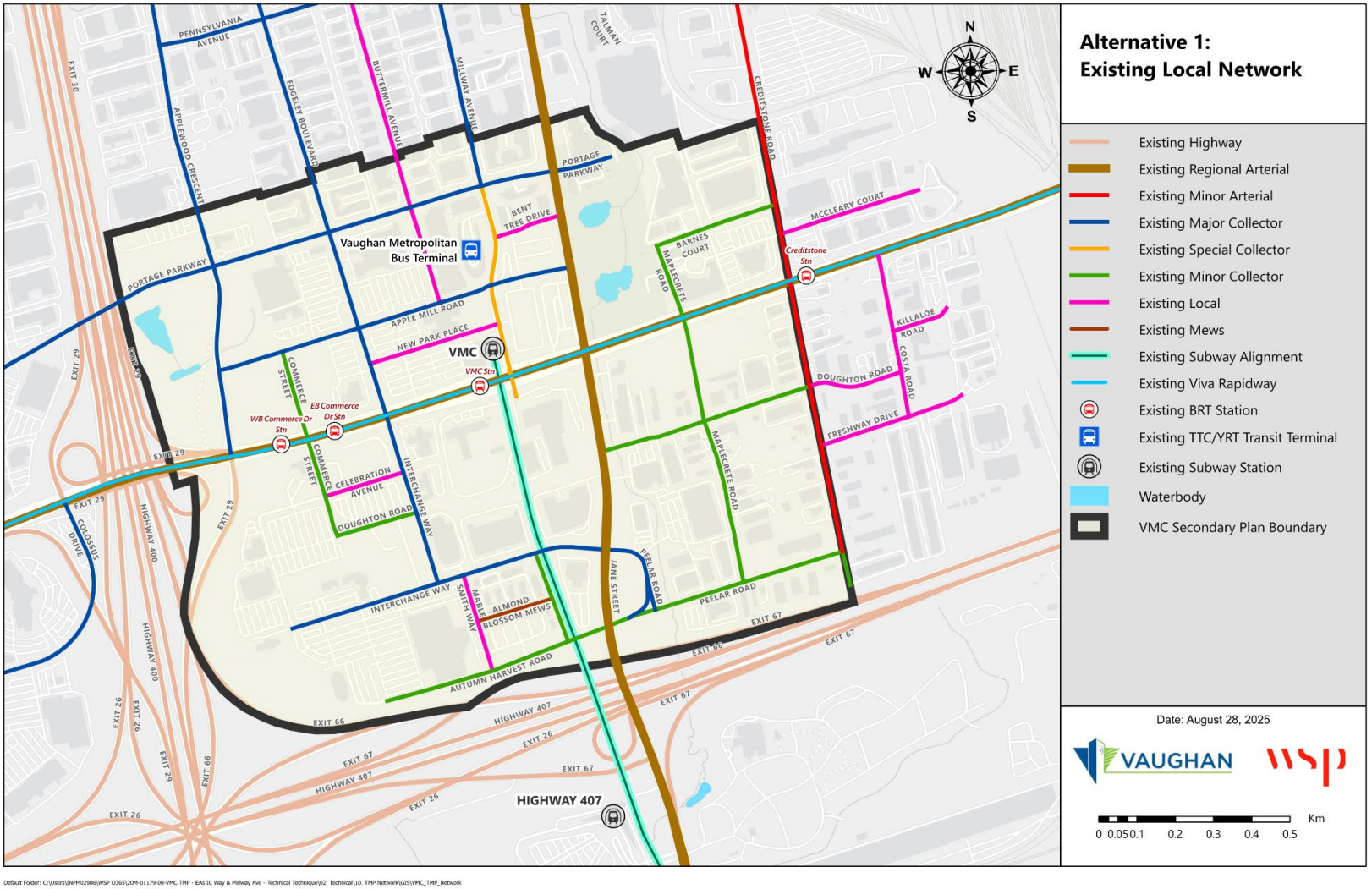


Figure 6-14. Alternative L2

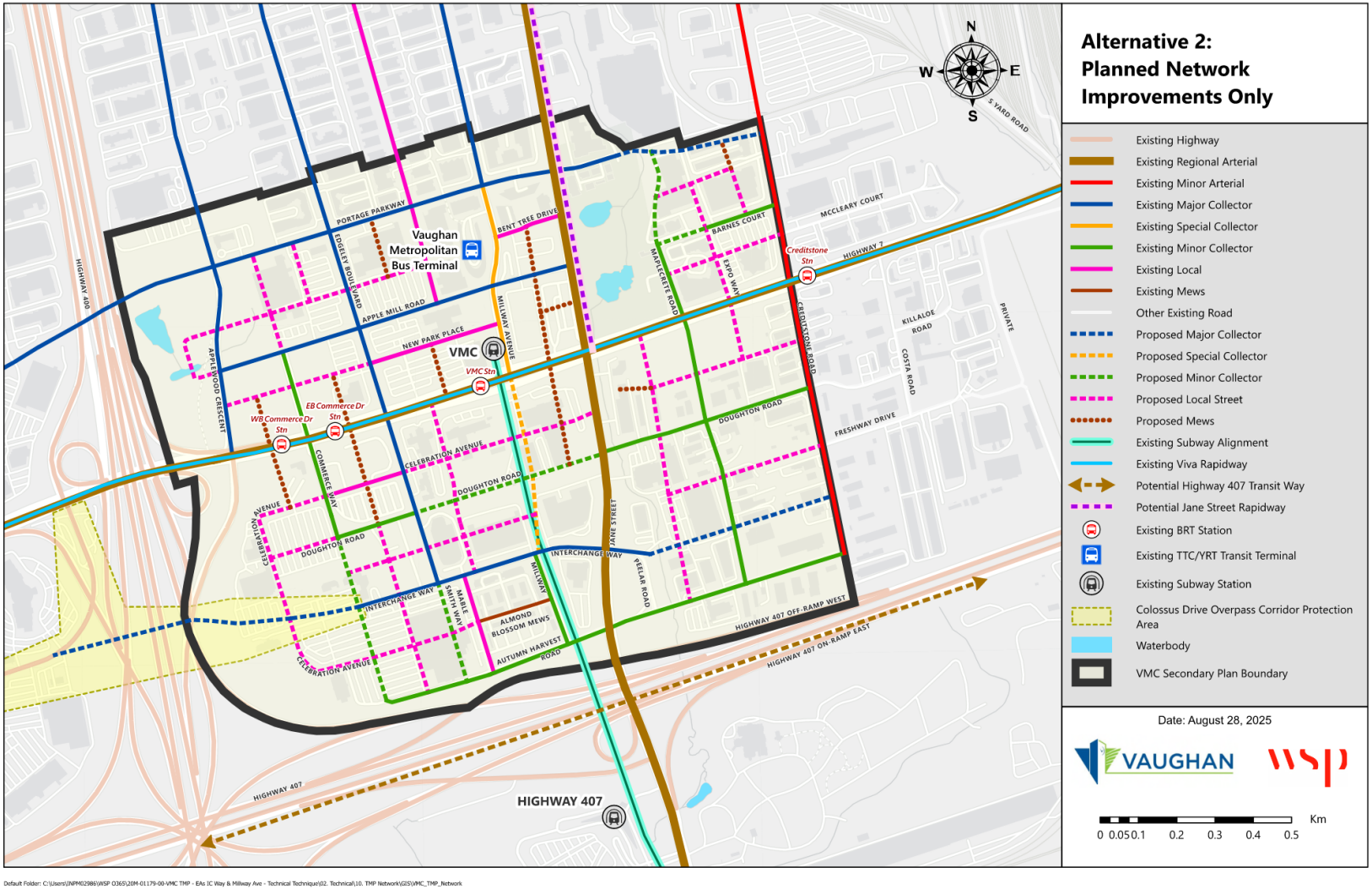


Figure 6-15. Alternative L3

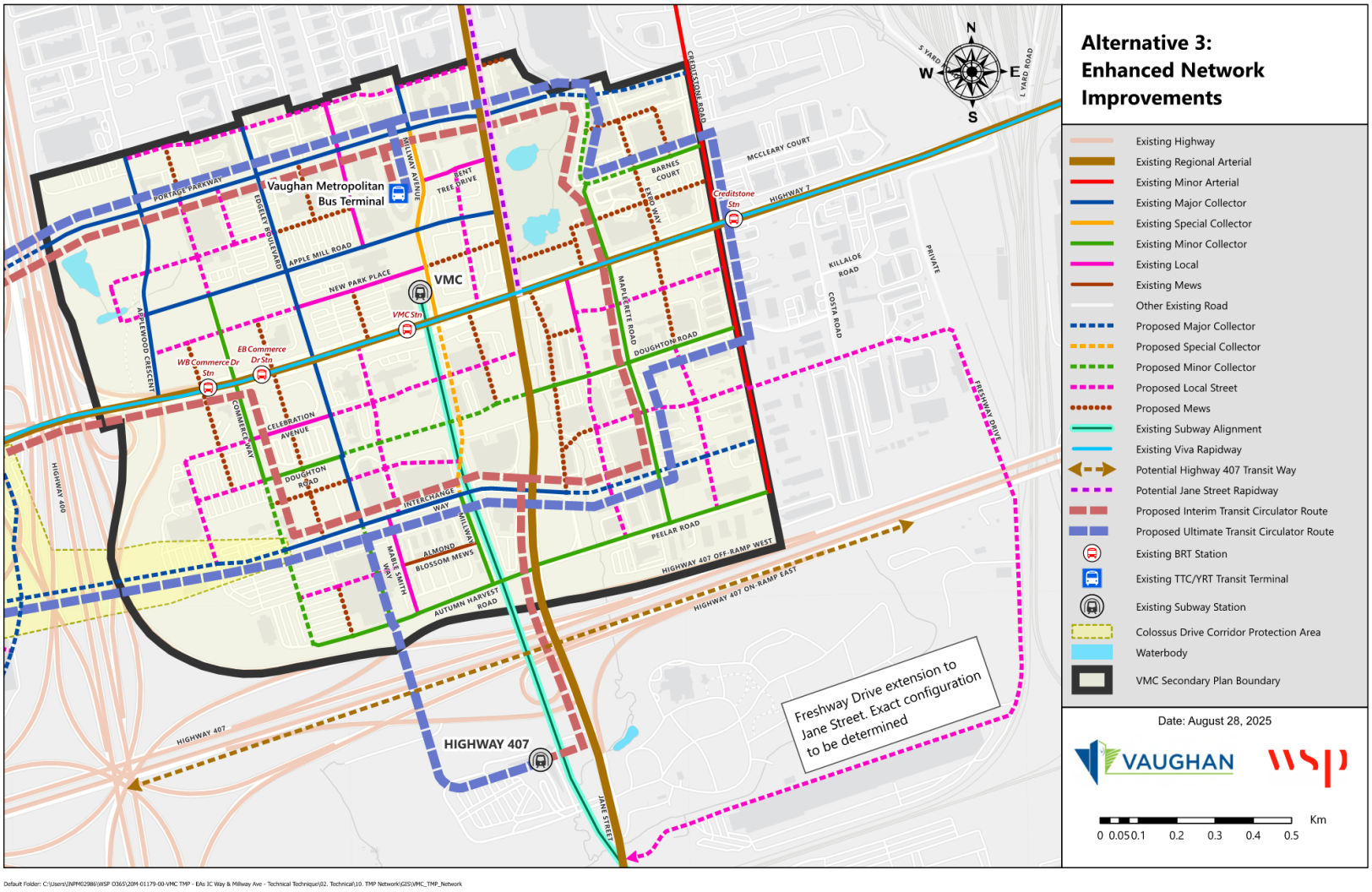
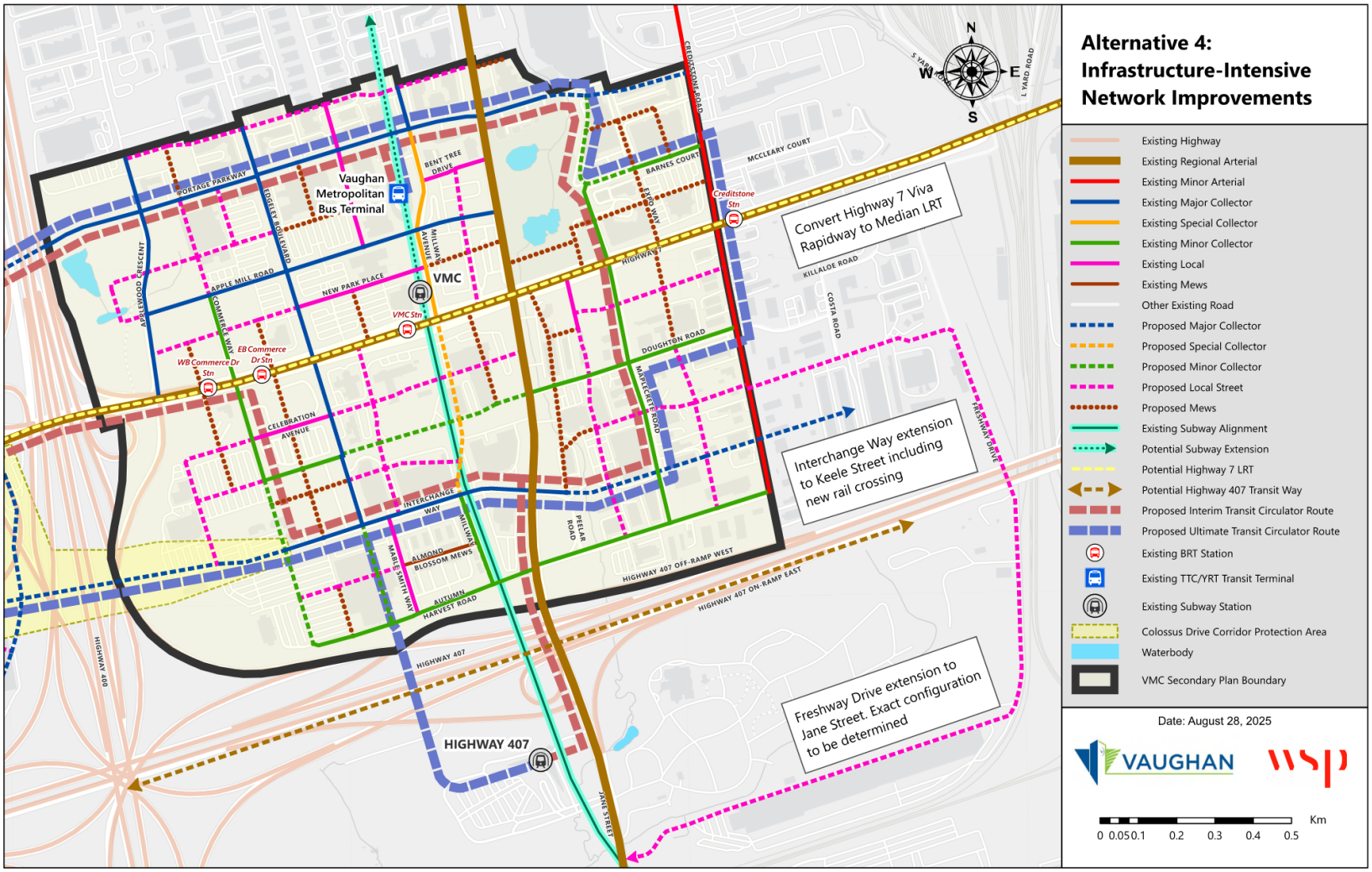


Figure 6-16. Alternative L4



6.4 Stage 2 – Alternative Local Networks Evaluation

The four local alternatives were evaluated through a Multiple Account Evaluation (MAE), to determine to what extent they advance the TMP vision and goals. The MAE consists of a series of criteria that summarize the relative advantages and disadvantages of the network alternatives in both a quantitative and qualitative way, drawing from a variety of data sources. This helps to compare and contrast the alternatives and provide a logical and grounded process to select a preferred option.

The MAE includes the roadway performance metrics identified as part of the regional network assessment, in addition to variety of other criteria, grouped under 6 overarching themes. All the criteria can be seen in **Table 6-5.** They were created through a series of stakeholder engagement sessions and technical agency meetings and refined based on feedback from the Public Information Centre (PIC) held on February 16, 2023.

Table 6-5. Criteria Used in the Multiple Account Evaluation

Theme	Account	Criterion
Multi-Modal Network Elements	Local Street Network Connectivity	— Total km of internal roadways
	Public Transit Coverage	— Percentage of VMC within a 10-minute walk of a subway or BRT station — Percentage of VMC within a 5-minute walk of local transit services
	Pedestrian Network Connectivity	— Total km of sidewalks, in-boulevard multi-paths, and multi-use trails
	Cycling and Micromobility Network Connectivity	— Total km of cycling facilities, in-boulevard multi-use paths, and multi-use trails
Travel Demand and Traffic Impacts	Auto Travel Demand	— Total vehicle trips originating in VMC in the AM peak hour — Truck vehicle km travelled in VMC in the AM peak hour

Theme	Account	Criterion
	Transit Travel Demand	— Total transit trips originating in VMC in the AM peak hour — Transit mode share for trips originating in VMC in the AM peak hour
	Traffic Impacts	— Screenline analysis — Corridor volume-to-capacity ratio for Jane Street and Highway 7
Planning and Policy Alignment	Alignment with Provincial Planning Priorities	— Degree of alignment with existing policies
	Alignment with York Region Planning Priorities	— Degree of alignment with existing policies
	Alignment with Vaughan Planning and Council Priorities	— Degree of alignment with existing policies
Safety for Pedestrians and Cyclists	Safe crossing opportunities	— Number of intersections per km^2 — Total pedestrian grade-separated crossings
	Segregated cycling network development	— Percentage of street network with dedicated cycling facilities
Environment	Climate Change and Energy	— Number of auto trips in the AM peak hour — AM peak hour overall network vehicle km travelled
	Natural Environment	— Number of crossings of environmental features
Equity	Structural inequality	— Transportation choice and ease of mobility for seniors, those with mobility challenges, and individuals who do not have access to a car

Theme	Account	Criterion
Cost	Relative cost of construction	— Qualitative order-of-magnitude consideration

Because of the mixed qualitative and quantitative nature of the accounts, a scoring mechanism was utilized to assess the accounts for each alternative against the existing network alternative (Alternative L1). The scoring mechanism is as follows:

- Significantly improved account compared to Alternative L1: ●
- Moderately improved account compared to Alternative L1: ◕
- Neutral account compared to Alternative L1: ◑
- Moderately worsened account compared to Alternative L1: ◔,
- Significantly worsened account compared to Alternative L1: ○.

A five-gradation scoring system was adopted to enable an incremental assessment of each alternative network's ability to accommodate growth, travel demand, shifts in travel behavior, and ability to accommodate multimodality.

Table 6-6. Multiple Account Evaluation Results

Theme	Account	Criterion	Alternative L1	Alternative L2	Alternative L3	Alternative L4
Multi-Modal Network Elements	Local Street Network Connectivity	Total km of internal roadways	19.28 ◑	28.29 ◕	29.88 ●	29.88 ●
	Public Transit Coverage	Percentage of VMC within a 10-minute walk of a subway or BRT station	74% ◑	78% ◕	78% ◕	78% ◕
		Percentage of VMC within a 5-minute walk of local transit services	70% ◑	70% ◑	93% ●	93% ●
	Pedestrian Network Connectivity	Total km of sidewalks, in-boulevard multi-paths, and multi-use trails	10.68 ◑	32.58 ◕	39.67 ●	39.67 ●
	Cycling and Micromobility Network Connectivity	Total km of cycling facilities, in-boulevard multi-use paths, and multi-use trails	5.20 ◑	21.88 ◕	29.21 ●	29.21 ●
	Summary		◑	◕ Clear improvements compared to Alternative L1 in the extent of the road and active transportation networks	● Transit improvements lead to significantly better coverage than in Alternative L1. Also boasts the most extensive road and active transportation networks.	● Same as alternative L3

Theme	Account	Criterion	Alternative L1	Alternative L2	Alternative L3	Alternative L4
Travel Demand and Traffic Impacts	Auto Travel Demand	Total vehicle trips originating in VMC in the AM peak hour	16,681 trips	16,710 trips	16,664 trips	16,740 trips
	Transit Travel Demand	Total transit trips originating in VMC in the AM peak hour	13,239 trips	13,217 trips	13,262 trips	13,186 trips
		Transit mode share for trips originating in VMC in the AM peak hour	44.3%	44.2%	44.3%	44.1%
	Traffic Impacts	Screenline analysis	Hwy 7 east of Creditstone: 2,521 (EB) 2,247 (WB) Highway 7 east of Highway 400: 2,034 (EB) 3,276 (WB) Jane Street north of Portage Parkway: 1,380 (NB) 1,197 (SB) Jane Street north of Highway 407: 1,582 (NB) 2,342 (SB)	Hwy 7 east of Creditstone: 2,553 (EB) 2,250 (WB) Highway 7 east of Highway 400: 1,734 (EB) 3,079 (WB) Jane Street north of Portage Parkway: 1,372 (NB) 1,139 (SB) Jane Street north of Highway 407: 1,633 (NB) 2,312 (SB)	Hwy 7 east of Creditstone: 2,557 (EB) 2,246 (WB) Highway 7 east of Highway 400: 1,756 (EB) 3,076 (WB) Jane Street north of Portage Parkway: 1,370 (NB) 1,084 (SB) Jane Street north of Highway 407: 1,642 (NB) 2,289 (SB)	Hwy 7 east of Creditstone: 2,558 (EB) 2,341 (WB) Highway 7 east of Highway 400: 1,720 (EB) 3,166 (WB) Jane Street north of Portage Parkway: 1,384 (NB) 1,317 (SB) Jane Street north of Highway 407: 1,289 (NB) 2,246 (SB)
		Corridor volume-to-capacity ratio for Jane Street and Highway 7	Hwy 7 east of Creditstone: 1.05 (EB) 0.94 (WB)	Hwy 7 east of Creditstone: 1.06 (EB) 0.94 (WB)	Hwy 7 east of Creditstone: 1.07 (EB) 0.94 (WB)	Hwy 7 east of Creditstone: 1.07 (EB) 0.98 (WB)

Theme	Account	Criterion	Alternative L1	Alternative L2	Alternative L3	Alternative L4
			Highway 7 east of Highway 400: 0.85 (EB) 1.36 (WB) Jane Street north of Portage Parkway: 0.77 (NB) 0.66 (SB) Jane Street north of Highway 407: 0.88 (NB) 1.30 (SB)	Highway 7 east of Highway 400: 0.72 (EB) 1.28 (WB) Jane Street north of Portage Parkway: 0.76 (NB) 0.63 (SB) Jane Street north of Highway 407: 0.91 (NB) 1.28 (SB)	Highway 7 east of Highway 400: 0.73 (EB) 1.28 (WB) Jane Street north of Portage Parkway: 0.76 (NB) 0.60 (SB) Jane Street north of Highway 407: 0.91 (NB) 1.27 (SB)	Highway 7 east of Highway 400: 0.72 (EB) 1.32 (WB) Jane Street north of Portage Parkway: 0.77 (NB) 0.73 (SB) Jane Street north of Highway 407: 0.72 (NB) 1.25 (SB)
	Summary		◑	◑ No appreciable difference in travel demand and traffic impacts compared to L1	◑ No appreciable difference in travel demand and traffic impacts compared to L1	◑ No appreciable difference in travel demand and traffic impacts compared to L1
Planning and Policy Alignment	Alignment with Provincial Planning Priorities	Degree of alignment with existing policies	◑	◕ • Reflects provincial direction related to creating a safe, connected network offering a mix of transportation options with multimodal access.	● • Reflects provincial direction related to creating a safe, connected network offering a mix of transportation options with multimodal access.	● Same as alternative L3.

Theme	Account	Criterion	Alternative L1	Alternative L2	Alternative L3	Alternative L4
				• Follows guidance from the GGH Transportation Plan to ensure safe and convenient first and last mile connections.	• Follows guidance from the GGH Transportation Plan to ensure safe and convenient first and last mile connections. • Follows guidance from the GGH Transportation Plan to offer frequent local transit services	
	Alignment with York Region Planning Priorities	Degree of alignment with existing policies	◑	◕ • Promotes active modes, in line with Official Plan policies, through an extensive active transportation network. • Supports the Region's TMP goal to reduce reliance on single-occupancy vehicles (SOVs). • Introducing the Colossus Drive extension as a mechanism to	● • Promotes active modes and transit, in line with Official Plan policies, through the transit circulator and an extensive active transportation network. • Supports the Region's TMP goal to reduce reliance on SOVs. The transit circulator introduced in this option	● • Same benefits as alternative L3. • The conversion of the Highway 7 BRT to an LRT, and the introduction of subway extensions, allow for further reductions in the reliance on SOVs.

Theme	Account	Criterion	Alternative L1	Alternative L2	Alternative L3	Alternative L4
				implement a multi-modal network between Weston 7 and VMC supports Regional and local policy frameworks.	allows this Alternative to reduce SOV reliance more than Alternative 2. • Introducing the Colossus Drive extension as a mechanism to implement a multi-modal network between Weston 7 and VMC supports Regional and local policy frameworks.	
	Alignment with Vaughan Planning and Council Priorities	Degree of alignment with existing policies	◑	◕ • Allows for a full range of high-quality, attractive, competitive, and sustainable mobility options and choices, aligned with the Vaughan Official Plan (VOP) and Vaughan Transportation Plan (VTP).	● • Aligns with the VOP policy to have transit be the primary focus for expanding transportation network capacity. • Allows for a full range of high-quality, attractive, competitive, and sustainable mobility options and choices,	● • Same benefits as alternative L3. • The conversion of the Highway 7 BRT to an LRT and the introduction of subway extensions align with Vaughan's transportation goals.

Theme	Account	Criterion	Alternative L1	Alternative L2	Alternative L3	Alternative L4
					aligned with the VOP and VTP.	
	Summary		◑	◕ Aligns with most direction, though it does not focus on transit as a first option.	● Aligns with direction.	● Aligns with direction, with the additional transit infrastructure in this Alternative giving it an edge over alternative L3.
Safety for Pedestrians and Cyclists	Safe crossing opportunities	Average number of intersections per km^2	23.15 ◑	46.73 ◕	55.31 ●	55.31 ●
		Total pedestrian grade-separated crossings	0 ◑	0 ◑	9 ●	9 ●
	Segregated cycling network development	Percentage of street network with dedicated cycling facilities	27% ◑	58% ●	42% ◕	42% ◕
	Summary		◑	◕ • Provides a safe active transportation network. • Additional intersections compared to alternative L1 allow for greater pedestrian crossing opportunities.	● • Provides the safest network for pedestrians and, thanks to the multi-use path loops, also for cyclists. This loop is not accounted for in the 42% calculation	● Same as alternative L3

Theme	Account	Criterion	Alternative L1	Alternative L2	Alternative L3	Alternative L4
					above as it is off-road. • Additional intersections compared to both alternatives L1 and L2 allow for greater pedestrian crossing opportunities. • Cycling network coverage is lower than in alternative L2 because this alternative has more local streets (which do not require dedicated facilities)	
Environment	Climate Change and Energy	Number of auto trips in the AM peak hour	28,363 (auto) 23,095 (transit)	28,419 (auto) 23,040 (transit)	28,355 (auto) 23,102 (transit)	28,526 (auto) 22,933 (transit)
		AM peak hour overall network vehicle km travelled	923,141 (auto & truck, whole subarea)	922,271 (auto & truck, whole subarea)	920,829 (auto & truck, whole subarea)	1,005,453 (auto & truck, whole subarea)
	Natural Environment	Number of crossings of environmental features	3 ◑	7 ◔	7 ◔	7 ◔
	Summary		◑	◕ Introduction of Colossus Drive extension	● Introduction of a transit circulator reduces overall	◔ Interchange Way extension and other

Theme	Account	Criterion	Alternative L1	Alternative L2	Alternative L3	Alternative L4
				reduces total VKT in the sub-area, reducing total GHG emissions.	VKT in the sub-area, reducing total GHG emissions.	roadway improvements direct additional traffic to the area, resulting in overall increases in VKT in the sub-area.
Equity	Structural inequality	Transportation choice and ease of mobility for seniors, those with mobility challenges, and individuals who do not have access to a car	◑	◕ • The improved walking / cycling network in this alternative provides additional active transportation mobility options for those who cannot or do not want to drive.	● • The improved walking / cycling network in this alternative provides additional active transportation mobility options for those who cannot or do not want to drive. • The extensive multi-use path system, introduced in this alternative provide people of all ages and abilities with a safe way to get around without being impacted by existing traffic,	● • Same benefits as alternative L3. • The conversion of the Highway 7 BRT to an LRT and the introduction of subway extensions allows for even more choice.

Theme	Account	Criterion	Alternative L1	Alternative L2	Alternative L3	Alternative L4
					improving safety. • The transit circulator introduced in this alternative allows for real choices for those who cannot or do not want to drive (and those who may not be able to use active transportation).	
Cost	Relative cost		◑ $ • Least expensive option; involves minimal infrastructure investment	◔ $$ • Requires construction of Colossus Drive overpass, new internal roadways, and upgrades to existing facilities	◔ $$$ • Requires construction of Colossus Drive overpass, new internal roadways, and upgrades to existing facilities • Includes new transit circulator and incremental AT improvements	○ $$$$ • Requires construction of Colossus Drive overpass, new internal roadways, and upgrades to existing facilities • Includes new transit circulator and incremental AT improvements • Subway extension to Major Mackenzie Drive

Theme	Account	Criterion	Alternative L1	Alternative L2	Alternative L3	Alternative L4
						• VIVA Rapidway conversion to LRT • Construction of new Interchange Way connection to Keele Street including rail grade-separated crossing.
Overall evaluation			◑	◕	•	◕

The results of the MAE are provided in **Table 6-6**. **Alternative L3 scores highest on 5 out of 7 MAE themes:**

- Together with Alternative L4, L3 has the most extensive active transportation network and transit coverage, offering a robust multi-modal network.
- Alternative L3 results in lowest overall VKT in the sub-area
- Alternative L3 aligns the most with the current policy context, mostly thanks to the transit circulator.
- Together with Alternative L4, L3 provides the greatest range of travel options for area residents and visitors, significantly improving transportation equity for those unable to access a private automobile. A range of transit options and multi-use path networks provide people of all ages and abilities a way to get around, even if they cannot or do not want to drive.
- Together with Alternative L4, L3 provides for the safest transportation network, thanks to the addition of off-road multi-use path networks to the transportation system.
- While not the most inexpensive option, Alternative L3 provides a high range of benefits to travellers and requires significantly less investment than Alternative L4.

7 The Future Multimodal Network

7.1 Complete Streets Approach

It is recommended that the street network in the VMC is developed according to Complete Streets principles, as laid out in the Vaughan Complete Streets Guide. Complete Streets are people-first, multi-modal, safe, and equitable streets that fit their context and support active, healthy, and complete communities. These streets are important for the economic health of businesses and residents while remaining flexible, adaptable, and resilient. The City of Vaughan's Complete Streets Guide seeks to lead a culture shift in street design in the city by bringing a holistic lens forward, prioritizing the many social, economic, environmental, multi-modal, equity, and context driven demands on streets.

The purpose of the Guide is to provide direction to staff and developers, among others, to incorporate the planning, design, rehabilitation, and maintenance concepts of Complete Streets into the existing and new street network. The Guide seeks to support existing policy in emphasizing moving away from auto-dependence and creating a street network that is safe, sustainable, and future-ready, accommodating all mobility choices and providing accessibly to all.

The Guide is built upon street classes and rights-of-ways identified in the Vaughan Transportation Plan (VTP). It provides detailed information on how streets are categorized across the City and outlines the appropriate approach needed for implementing Complete Streets for each classification. Four urban structure areas are defined within the Guide including natural areas, community areas, employment areas, and intensification areas. The Guide states that guidance provided in specific plans, such as Secondary Plans take precedence, provided it aligns with the principles established in the Guide. Streets within VMC all fall under the intensification area classification, which includes downtown, corridors, and centres. Guidelines are provided for how arterial, major collector, minor collector and local roads should be designed within intensification areas. This includes link and place objectives, as well as various elements that should be included along with the targeted measurements to needed to

develop enjoyable and effective streets for all users. Principles for the intensification area classification were used to ensure a successful implementation of new streets and reconstruction of existing streets in VMC.

7.2 Active Transportation Network

The active transportation network was developed to make walking, cycling, and micromobility safe, convenient, and attractive modes of travel for people of all ages and abilities. The network is designed to integrate seamlessly with the transit network to facilitate longer-distance trips to start and end as active transportation modes.

Separated cycling facilities/cycle tracks will form the backbone and the bulk of the network. Planned facilities are to be located on all collector and arterial roads within the VMC, such as Highway 7, Creditstone Road, Jane Street, Millway Avenue, Portage Parkway, Interchange Way, Edgeley Boulevard, Apple Mill Road, and Applewood Road. **Figure 7-1** shows these facilities along with cycle tracks on minor roadways in the VMC. This infrastructure will ensure cycling in the area is safe, pleasant, and efficient, as cyclists have their own realm separate from both vehicles and pedestrians. In addition, the separated cycling facilities can provide space for micromobility devices such as e-bikes and e-scooters which are rising in usage across the City and primarily in the VMC.

Multi-use recreational trails (MURTs) will be another aspect of the network, connecting both built up areas and open spaces in the VMC, and designed in a loop system, with the urban loop on Maplecrete Road, Freshway Drive, Doughton Road, Applewood Road, and Apple Mill Road. The open space loop, on the peripheries of the VMC, will run north of Portage Parkway, east of Jane Street, and along Exchange Avenue and Highway 400. MURTs will allow inexperienced riders to more comfortably bike at slower speeds in a shared space with pedestrians. The open space loop will also allow for a way around the dense urban area, providing increased comfort and leveraging open space to be both recreational and utilitarian.

Active transportation paths and connections will fill missing links and improve network connectivity. Seven new connections are recommended, as seen in **Figure 7-1**, including the extension of Freshway Drive to Jane Street and Edgeley Boulevard to Highway 407 station. This will help to make walking and cycling a more convenient way to travel within the area.

Grade-separated active transportation facilities have also been planned to improve the experience of crossing wide roadways, including at multiple points along Highway 7. These include upgrades to pedestrian and cyclist infrastructure along the Jane Street overpass of Highway 407, the Portage Way overpass of Highway 400, and future Colossus Drive grade separation of Highway 400. In addition, a new active-transportation-only crossing of Highway 400 is recommended tying the Weston 7 Secondary Plan Area to Apple Mill Road. Additionally, weather protecting the existing Highway 7 median multi-use pathway is recommended across Highway 400 to reduce the impact of physical barriers on pedestrian and cyclist circulation. An elevator will also create a connection between the Jane Street bridge over Highway 407 and the at-grade Autumn Harvest Road. All grade-separated facilities can be seen in **Figure 7-1**.

7.2.1 Integrating Active Transportation into a Multi-Modal Transportation Strategy

To truly integrate the active transportation network into a multi-modal system, it must interface smoothly with transit. The co-location of high-quality active transportation facilities and transit makes transfers between the two convenient. For example, a cyclist biking along Millway Avenue's separated cycling facilities could park their bicycle at the bus terminal, from where they might take a bus or use the underground connection to access the VMC subway station.

The above-mentioned underground connection currently exists from the Highway 7 BRT station to the VMC subway station and TTC/YRT bus terminal. Extending the connection south to Doughton Road will offer more ways to access those transit facilities and create shorter active transportation trips in and out of the station. As a whole, this works to make sustainable modes more attractive as connections are simple and efficient.

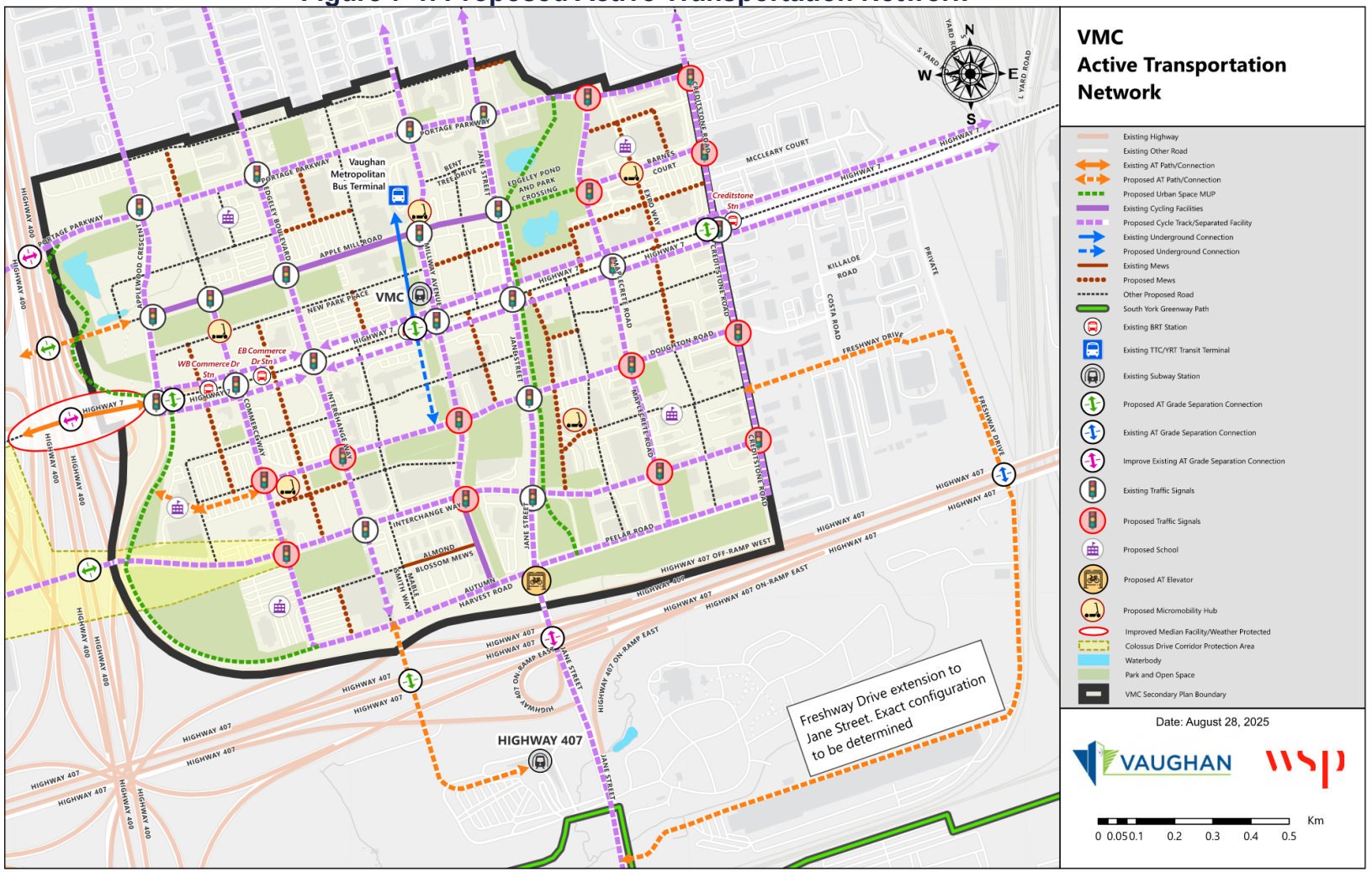
Edgeley Boulevard's extension across Highway 407 to the similarly named subway station will also offer direct active transportation and transit connections. Once again, this helps to make transfers between modes as direct as possible.

7.2.2 Supporting the Active Transportation Recommendations

Based on the active transportation network design, the City should:

- Design and construct active transportation facilities and crossings for all ages and abilities on City streets and land and facilitate connections through private property within VMC.
- Coordinate with the Region to design and construct active transportation facilities and crossings for all ages and abilities along Highway 7 and Jane Street.
- Advocate for active transportation facilities (cycle track/ separate facility) on Jane Street/ 407 Overpass to provide connectivity with the South York Greenway that York Region is implementing.
- Work with MTO where active transportation facilities and improvements are planned in close proximity to or across Highway 400, and work with 407ETR for facilities across Highway 407.
- Collaborate with TTC and YRT to establish adequate active transportation connections and amenities at transit stations and stops with the opening of new active transportation facilities.

Figure 7-1. Proposed Active Transportation Network



7.3 Transit Network

The transit plan has been developed around higher-order transit services within the VMC. The plan incorporates TTC subway service, rapidways, the Highway 407 transitway (or a potential cross-regional east-west transit line, as planned by MTO), and a transit circulator route. Micromobility hubs are also identified in the plan as the integration between transit and active transportation modes is critical to bolstering transit ridership.

The core of the system lies at Highway 7 and Millway Ave, where the VMC subway station and the Highway 7 Rapidway station interface. The subway accesses are found on the north and south side of Highway 7, on the west side of Millway Ave. The Highway 7 Rapidway station is also conveniently located on the west side of Millway Ave, in the median, with direct subway access through the concourse.

The Highway 7 Rapidway should remain a key east-west transit connection. Improving frequencies from current service levels will be an integral part in building a higher transit mode share, and an upgrade of the rapidway to LRT should be considered. An LRT would enable greater capacity along the corridor.

The Jane Street Rapidway is another critical piece of the transit plan for VMC, with stations to be located at Interchange Way, Highway 7, and Portage Parkway (with a potential extension to Highway 407 subway station). The corridor should offer 5-minute frequencies and work towards establishing higher-order infrastructure such as a BRT, LRT, or subway. The rapidway would attract transit trips from further north in Vaughan, where it is planned to extend to Major Mackenzie, and elsewhere in York Region. It would also connect directly at Steeles Avenue with Toronto's planned curbside bus lanes along Jane Street to the future Jane-Eglinton station on the Eglinton Crosstown West Extension. This would significantly expand north-south transit capacity to VMC, in conjunction with Line 1 subway service, and provide more robust connections to the wider regional transit system. It would also expand the 5-minute walking radii to transit to improve access for residents, employees, and visitors.

In addition to, or as an alternative to, the Jane Street Rapidway, an extension of the subway to Major Mackenzie Drive can be considered. This extension would have stops at Langstaff, Vaughan Mills-Rutherford. and Major Mackenzie-Wonderland-Cortellucci

Hospital. This would allow the VMC to attract more transit trips into the existing station from elsewhere in Vaughan.

The Highway 407 Transitway is planned to provide BRT service along the highway, with potential conversion to LRT, connecting VMC to Halton, Peel, Durham, and York. This would significantly expand east-west transit connections and capacity, alongside the Highway 7 Rapidway. A station at the Highway 407 subway station on Jane Street would offer direct transfers to the Jane Street Rapidway and Line 1. The park & ride at the station would keep auto trips outside of VMC, offering frequent transit options into the area.

A new transit circulator would provide local connections within VMC and the neighbouring Weston Road – Highway 7 Secondary Plan Area, which is also expected to grow significantly. The circulator would serve the Highway 407 subway station and connect to key rapidway stations along Jane Street and Highway 7 within VMC. An interim routing can be seen in **Figure 7-2** to be used as proposed infrastructure is implemented, with the ultimate route coming into service once the full transportation network is in operation. The implementation of the transit circulator will be a collaborative effort with York Region, with details to be confirmed at a later date.

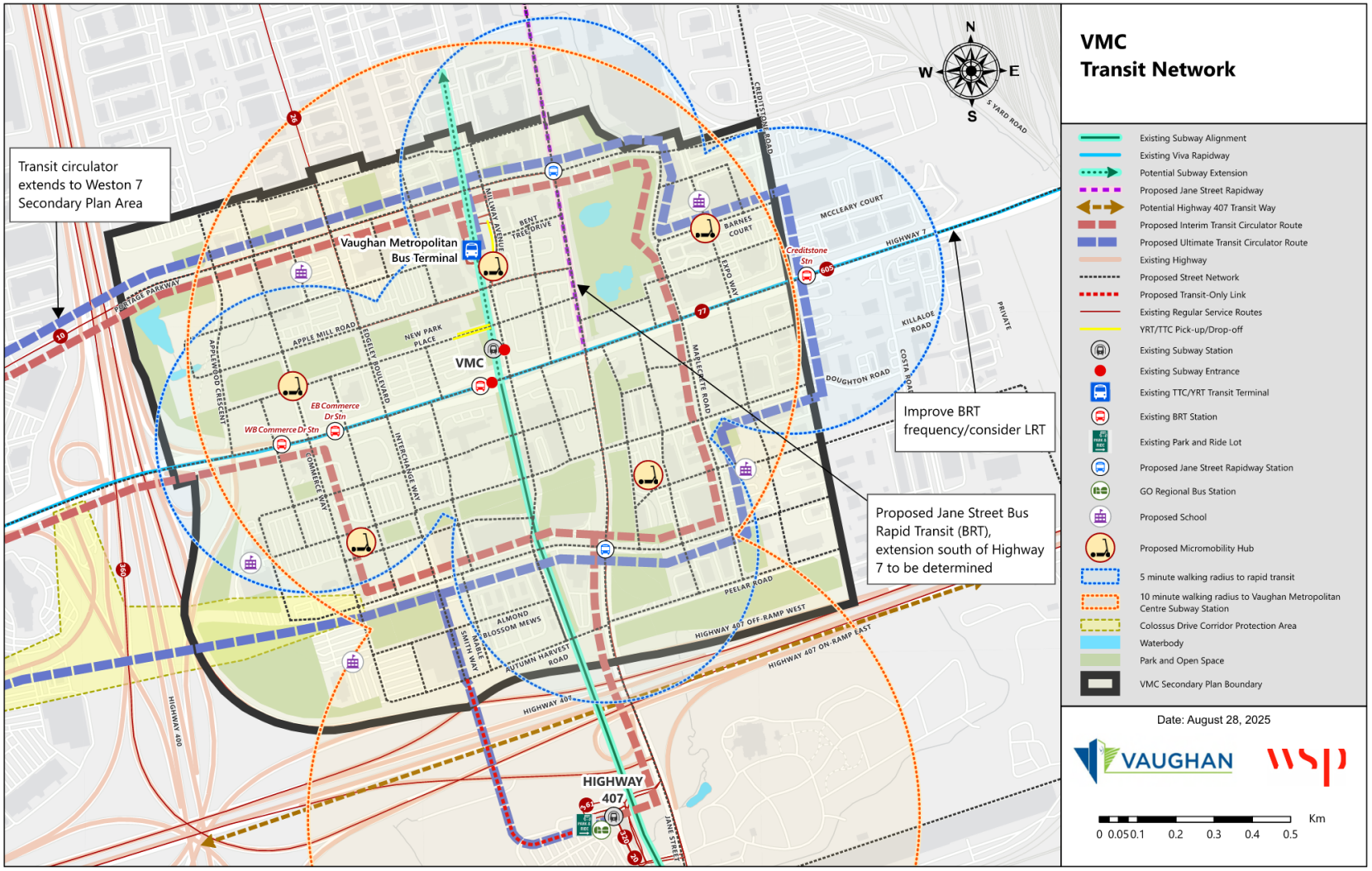
Micromobility hubs have been strategically located as a part of the plan to maximize access to transit and encourage multimodal trips. This will best leverage planned transit service to improve alternatives to the automobile. The five micromobility hubs can be seen in **Figure 7-2.**

7.3.1 Supporting Transit Recommendations

To support the transit plan for VMC, it is recommended that the City:

- Coordinate with the Region to improve BRT frequency along Highway 7 and explore a conversion to LRT.
- Work with the Region to improve Jane Street Rapidway bus frequency to 5 minutes and plan for the establishment of higher-order transit along the corridor.
- Implement an interim transit circulator to enhance local service within VMC and Weston 7 and establish the permanent routing once other infrastructure delivery is completed.
- Ensure convenient access from transit stops to micromobility hubs.
- Work with the TTC to support extensions of the subway to Major Mackenzie Drive.
- Ensure the relocation of the existing park & ride at the VMC subway station further north in conjunction with a subway extension.

Figure 7-2. Proposed Transit Network



7.4 Street Network

As identified by the MAE, the preferred street network is Alternative L3. This alternative meets the transportation needs of VMC residents, employees, and visitors through a logical road hierarchy. Highway 7 and Jane Street are classified as arterials, moving the highest volume of people via transit routes, bus corridors, bike lanes, sidewalks, and general road lanes. Creditstone Road will be a minor arterial, serving a similar purpose without the same regional connections.

Major collectors, such as Interchange Way, Edgeley Boulevard, Portage Parkway, Applewood Road, and Apple Mill Road, will move medium to high volumes of people, focusing on active transportation facilities, transit routes, and vehicle traffic. They will connect arterials to local streets. Millway Avenue will be a special collector, serving the VMC Bus Terminal and subway at the heart of the area.

Minor collectors in the network will include Commerce Road, Autumn Harvest Road/Peelar Road, Barnes Court, Maplecrete Road and Doughton Road. These streets will support more modest volumes, while still offering direct connections to the wider street network. They will also focus on accommodating active transportation and surface transit.

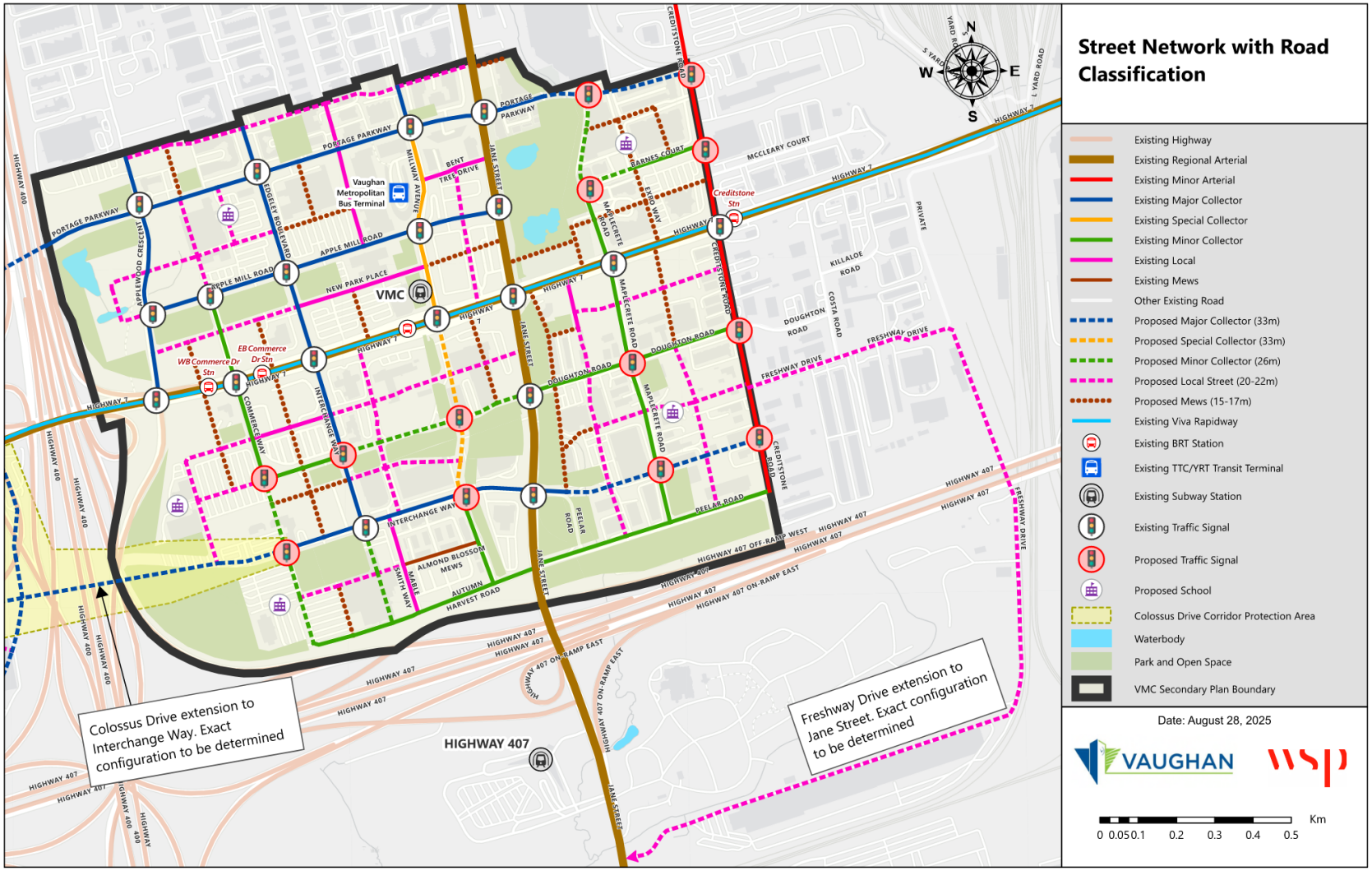
The network's local streets will be pedestrian-focused slow-speed environments, planned more for placemaking rather than mobility. These streets will not offer through connections but rather serve to make up a more intimate portion of the street network. **Figure 7-3** indicates the local streets in the preferred network.

The higher traffic volumes expected in the area, as well as new roads, will also necessitate additional traffic signals to be installed at various intersections. **Figure 7-3** highlights those locations.

An extension of Freshway Drive to Jane Street south of Highway 407 is also proposed to improve connectivity with the surrounding network, as is a connection between Interchange Way and Colossus drive over Highway 400.

The proposed street network also includes a goods movement corridor to bypass the heart of the VMC, via Creditstone Road, Portage Parkway, and Applewood Crescent. This will reduce freight volumes along Highway 7.

Figure 7-3. Proposed Street Network



8 Cross Sections and Standard Road Network Design

The VMC TMP envisions a transportation network that supports all users and all modes of transportation, putting pedestrians first, followed by cyclists, and then transit. Key principles include promoting sustainability, improving connectivity, enhancing accessibility, and supporting mobility for all modes of transportation. To support these objectives, streets in VMC should be designed as Complete Streets. This will ensure that space is prioritized for vulnerable road users and streets are positioned to accommodate micromobility and other emerging transportation technologies.

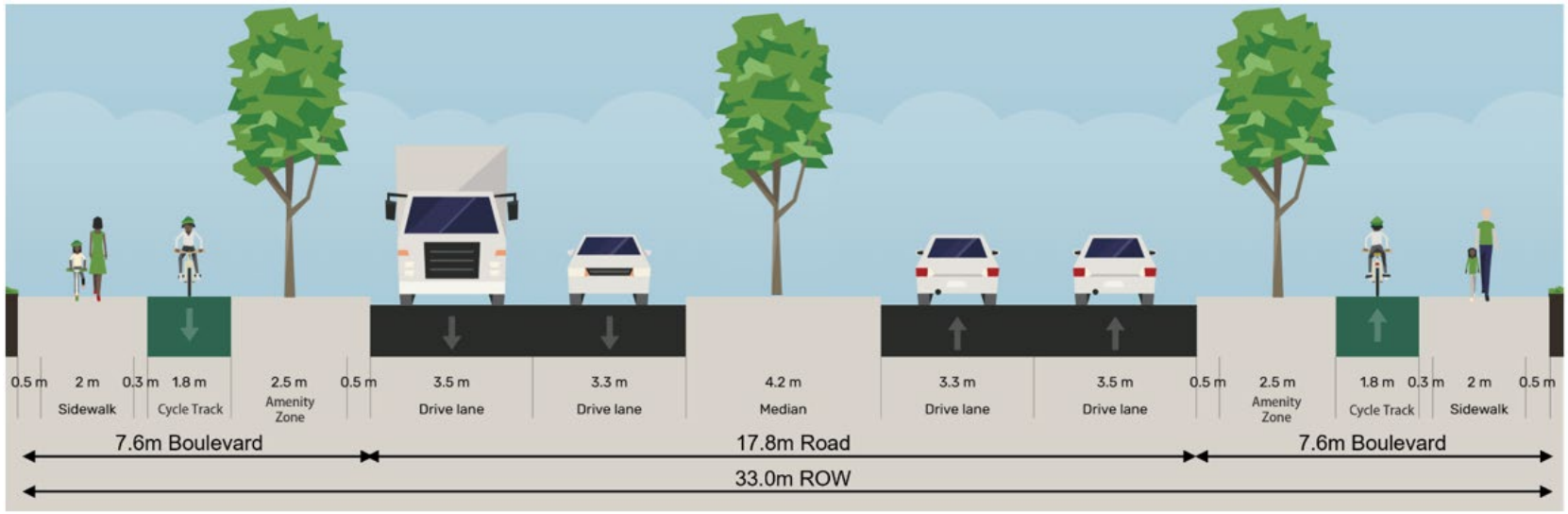
Street cross sections were developed to set out minimum rights-of-way at typical midblock sections for minor arterial, major collector, minor collector, local street and mew classifications. They also identify the required elements within the right- of way, providing for their widths, buffers, and separation distances. Cross sections were developed at a planning stage and were guided by the City of Vaughan's *Complete Streets Design Guidelines*.

Street and intersection specific cross-sections for improvements will be identified, assessed, and evaluated through project/road project specific Environmental Assessment studies (or suitable equivalents) and/or in association with development application processes.

8.1 Minor Arterial Roads

Minor arterials will have a minimum 33 metre right-of-way that contains 4 total travel lanes, with amenity zones on each side. Minor arterials feature wide 2 metre sidewalks along with 1.8 metre cycle tracks on both sides to support active transportation. **Figure 8-1** illustrates a typical midblock cross section for a minor arterial road Collector Roads

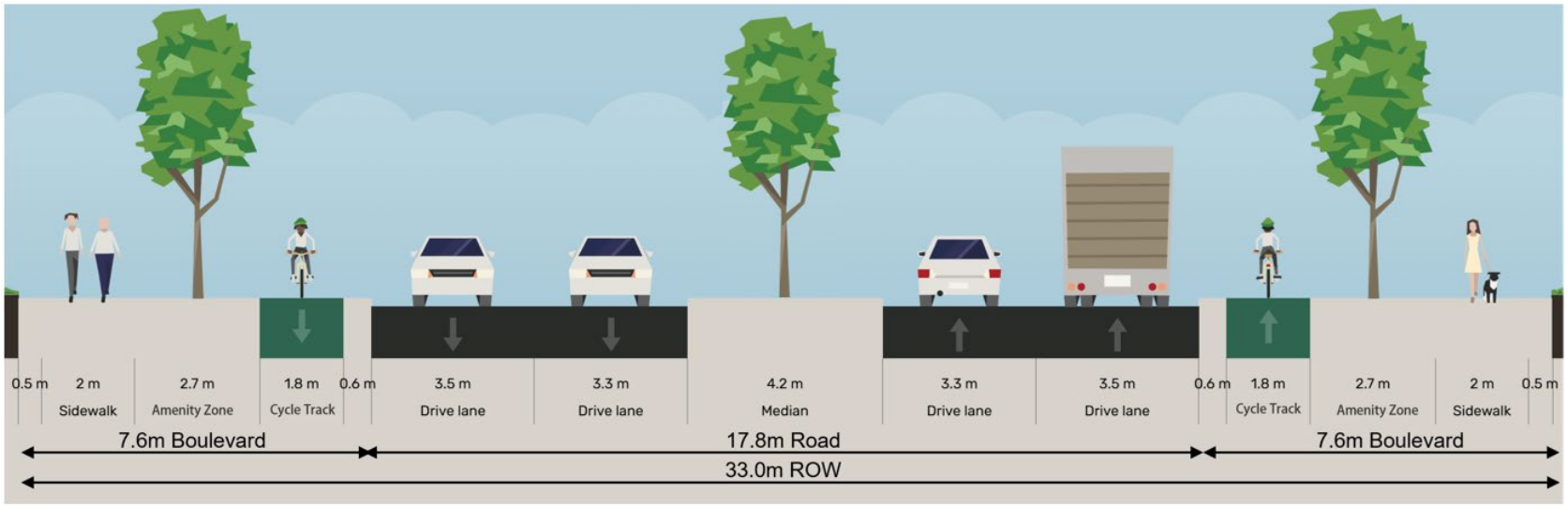
Figure 8-1: Minor Arterial Cross Section – Midblock



8.2 Major Collector

Major collectors will have a minimum 33 metre right-of-way that contains 4 total travel lanes, with amenity zones on each side. Major collectors feature wide 2 metre sidewalks along with 1.8 metre cycle tracks on both sides to support active transportation. **Figure 8-2** illustrates a typical mid block section for major collectors.

Figure 8-2: Major Collector Cross Section – Midblock



8.3 Minor Collector

Minor collectors will have a 26-metre minimum right-of-way at a typical mid-block section containing 2 total travel lanes, with amenity zones on each side. Like major collectors, minor collectors require sidewalks and cycle tracks on both sides to provide pedestrians and cyclists the infrastructure needed for travel within VMC. Furthermore, minor collectors will feature pedestrian crossings that are aimed for improving pedestrian connectivity throughout the VMC.

Different cross sections are suitable for minor collectors to accommodate for parking either on one or both sides of the road. The configurations for parking on both sides are illustrated in **Figure 8-3** through **Figure 8-5** while those for parking on one side are shown **Figure 8-6** through **Figure 8-8**.

Figure 8-3: Minor Collector Cross Section with Parking on Both Sides – Midblock

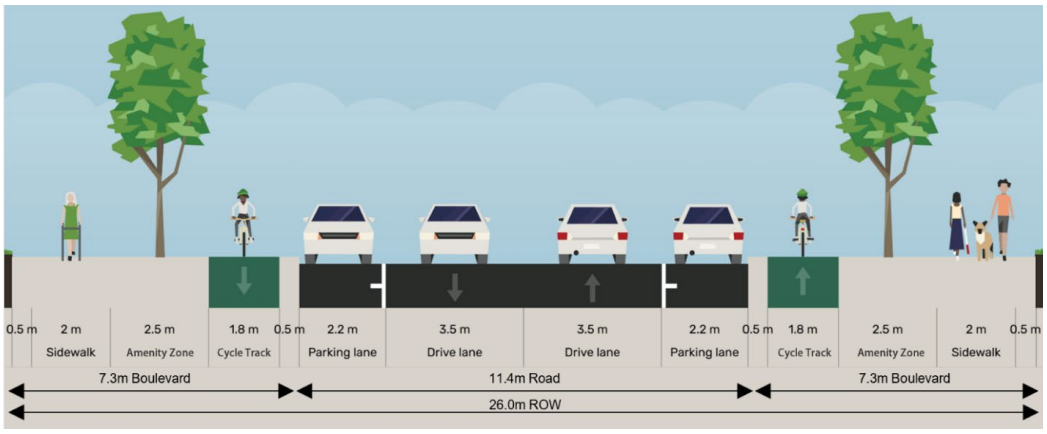


Figure 8-4: Minor Collector Cross Section with Parking on Both Sides – Midblock Pedestrian Crossover

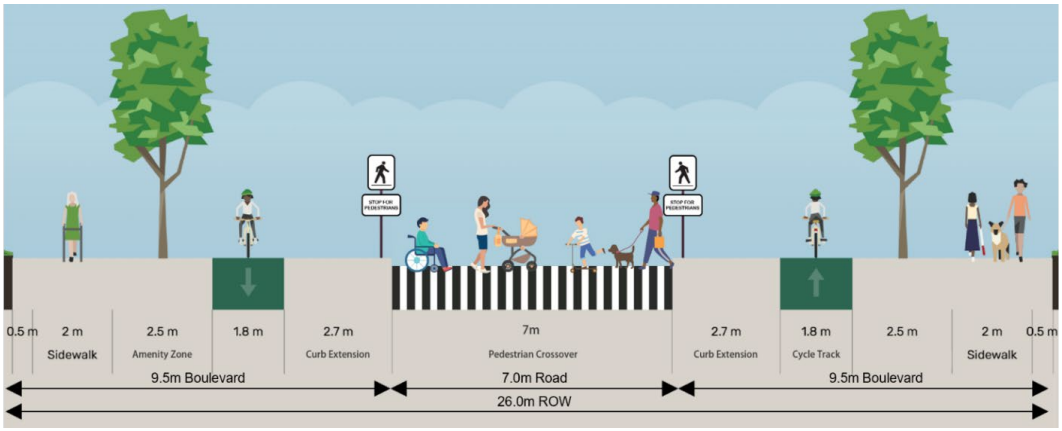


Figure 8-5: Minor Collector Cross Section with Parking on Both Sides - Intersection

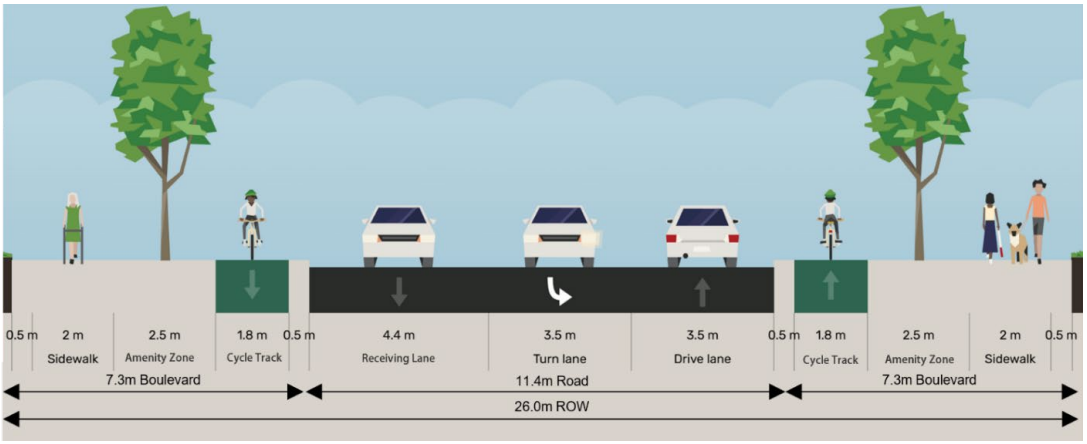


Figure 8-6: Minor Collector Cross Section with Parking on One Side – Midblock

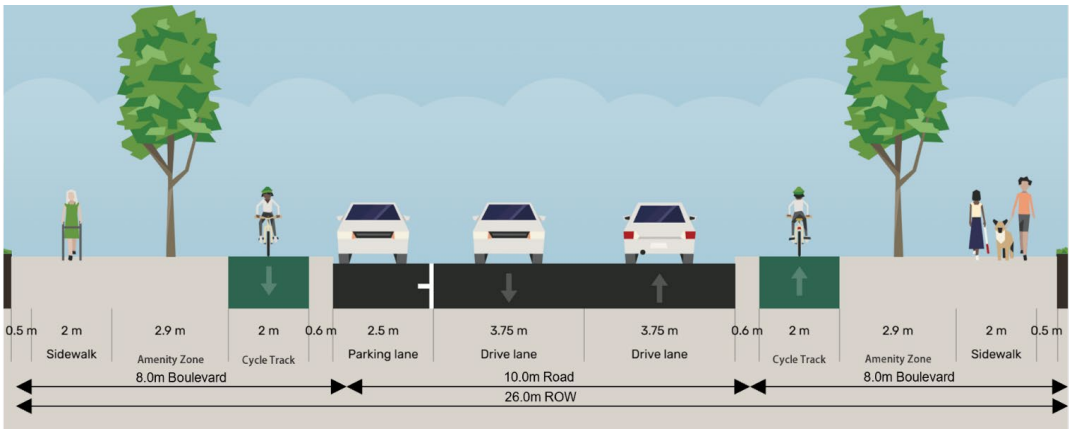


Figure 8-7: Minor Collector Cross Section with Parking on One Side – Midblock Pedestrian Crossover

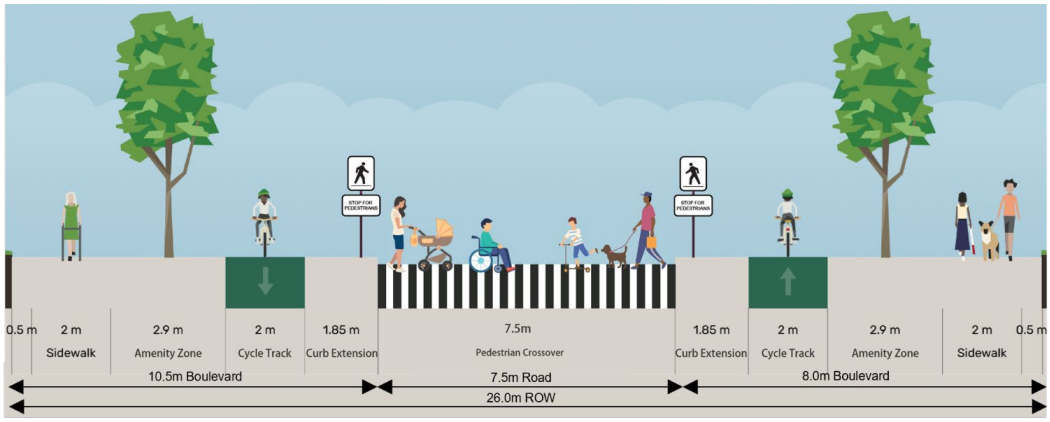
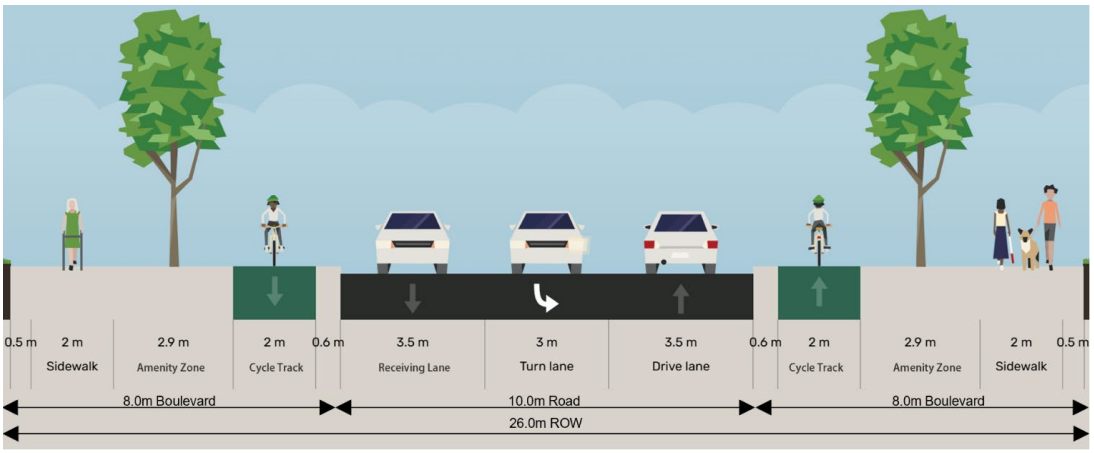


Figure 8-8: Minor Collector Cross Section with Parking on One Side – Intersection



8.4 Local Roads

Local roads have either a 20-metre minimum right-of-way with two travel lanes and a parking lane on one side of the road, or a 22-metre minimum right of way with two travel lanes and parking lanes on both sides of the road. The 22-metre right of way should be considered in areas that are adjacent to public uses such as parks, schools, community centres and other institutional or civic facilities where higher parking demand is anticipated. Local roads are designed to include sidewalks on both sides. The typical mid-block section with parking on both is illustrated in **Figure 8-9**, and the typical mid-block section with parking on one side is shown in **Figure 8-10**.

Figure 8-9: Local Cross Section with Parking on Both Sides

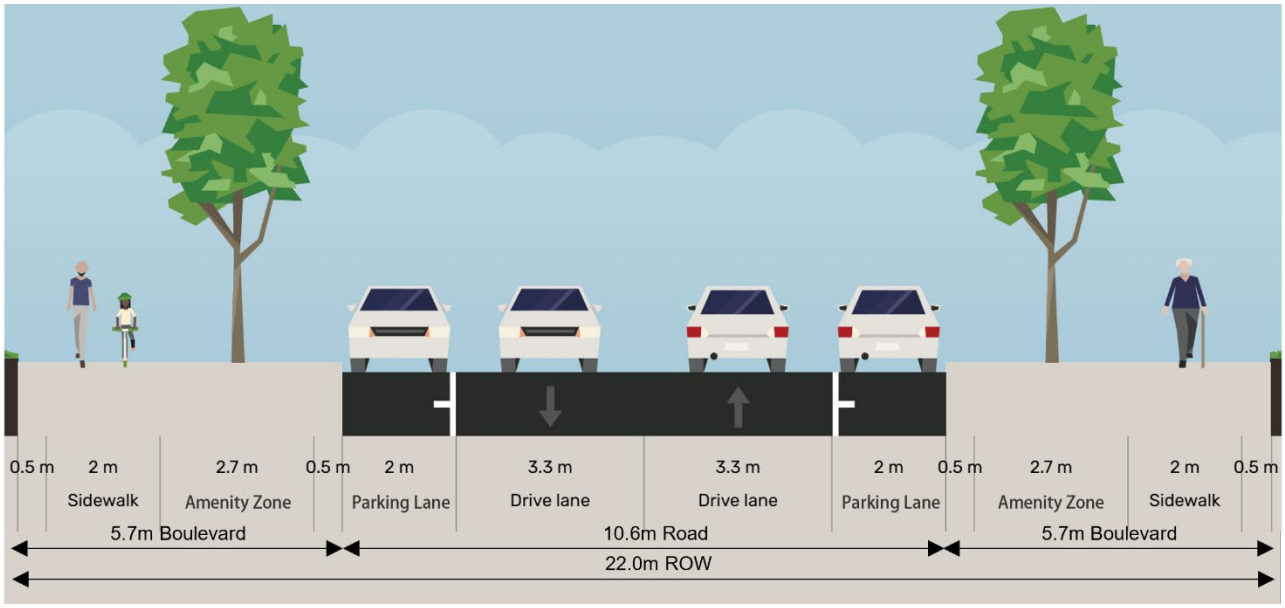
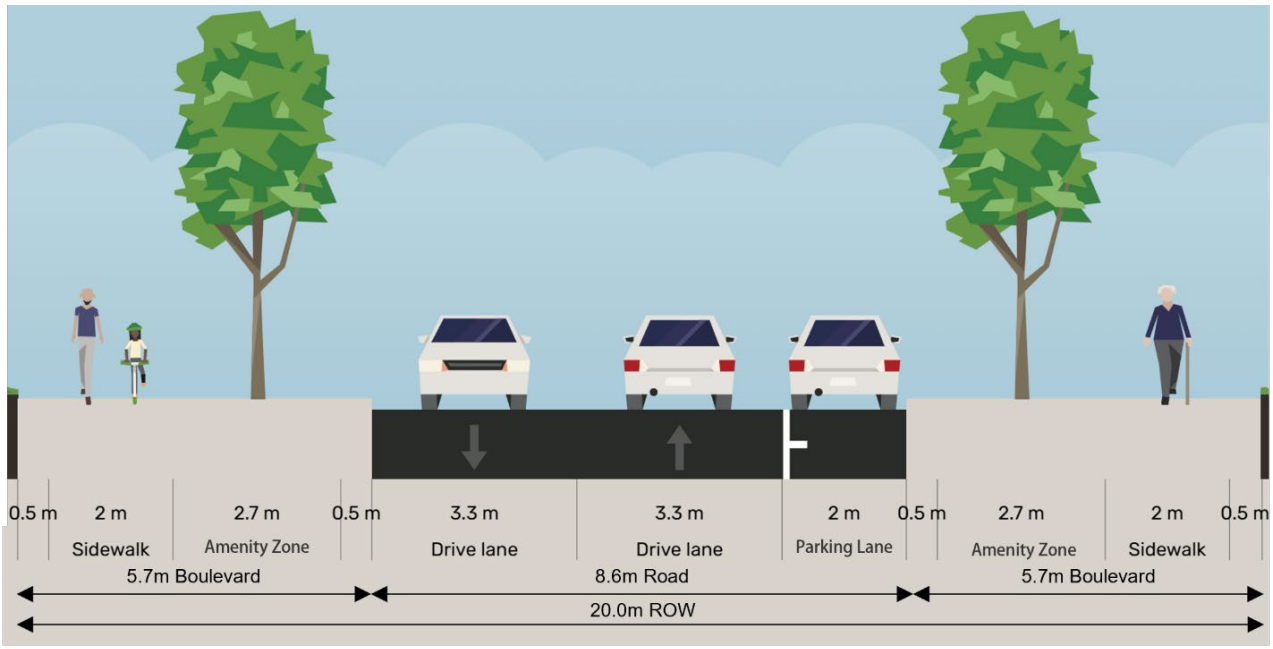


Figure 8-10: Local Cross Section with Parking on One Side



8.5 Mews

VMC will include both vehicular and non-vehicular mews that will accommodate various forms of movement and activity. The vehicular mews will have 17m ROW widths(**Figure 8-11**) and will allow for vehicle access, ensuring ease of transportation and connectivity. The non-vehicular mews will have 15m ROW widths (**Figure 8-12**) and will prioritize pedestrian flow, enhancing active transportation.

Figure 8-11: Vehicular Mews Cross Section

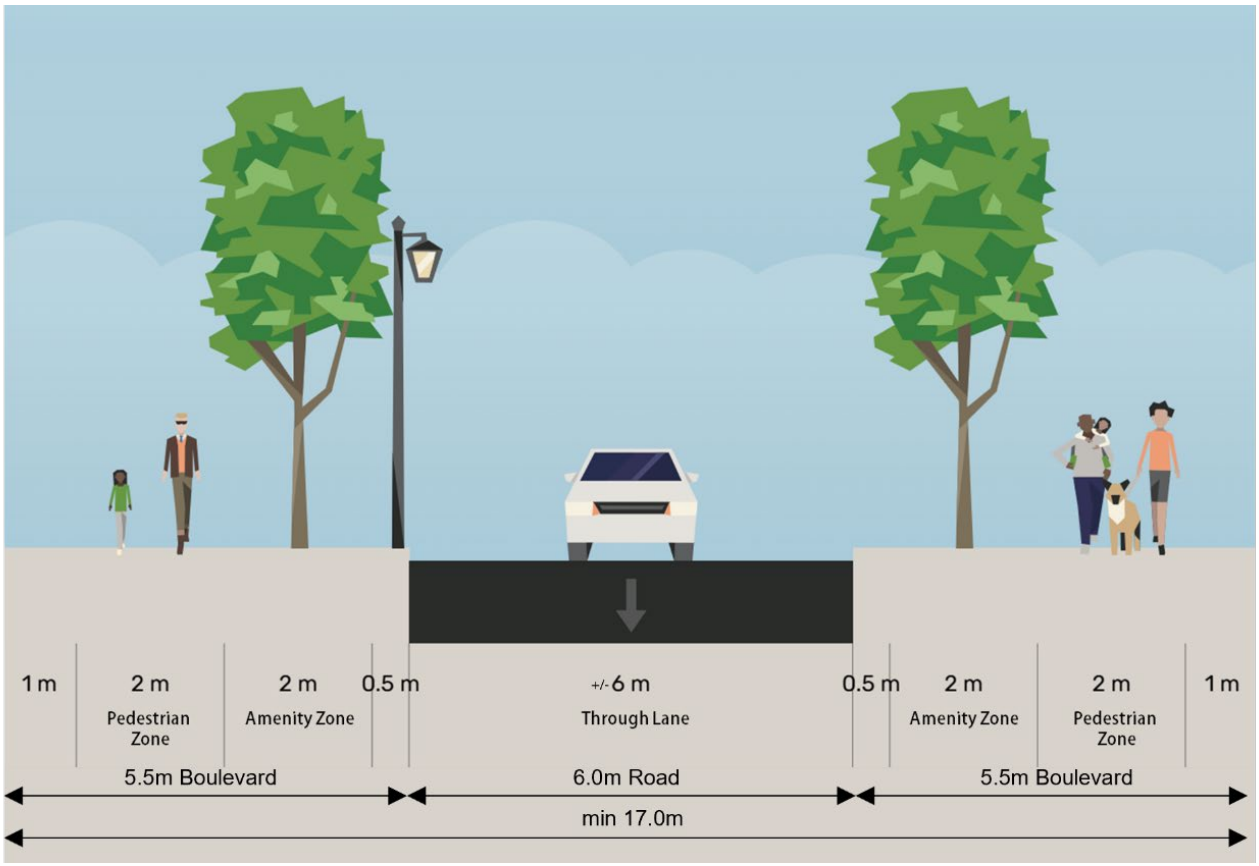
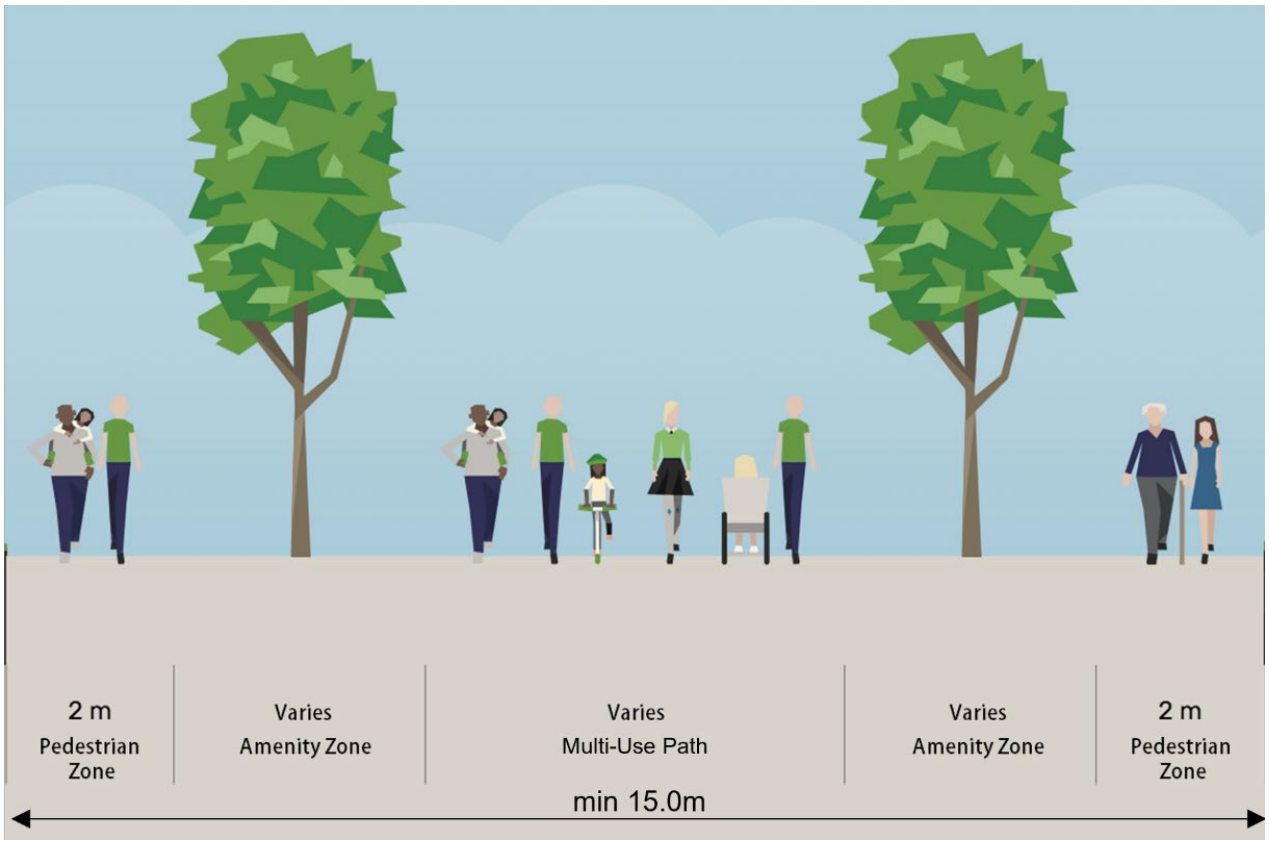


Figure 8-12: Non-Vehicular Mews Cross Section



9 Supporting Policies

9.1 Transportation Demand Management

Transportation Demand Management (TDM) is a set of policies and strategies that seeks to reduce the need to travel and incentivize people to choose sustainable travel modes. TDM measures intend to maximize the use of existing transportation infrastructure, reduce congestion, promote equity for all transportation modes, improve health-related outcomes, and minimize environmental externalities. As single-occupancy vehicle (SOV) trips can create considerable negative externalities, TDM measures are focused on promoting alternatives such as walking, biking, riding micromobility devices, riding transit, and carpooling.

With the planned growth in population and employment in the VMC, current auto mode shares cannot be sustained without resulting in significant congestion. Non-auto modes must be made more convenient and attractive to maintain congestion at more acceptable levels. TDM will play a key role in this.

Implementation of TDM in VMC will help to ensure that expected growth is sustainable and can be adequately accommodated within the planned network. The Region's Official Plan requires that TDM measures be outlined in this TMP to prioritize active transportation/micromobility, transit, and goods movement.

9.1.1 Existing TDM Framework

Both the Region and the City dictate and guide the use of TDM measures, especially in areas slated for intensification. VMC will need to incorporate this existing framework into its approach to TDM to achieve ideal results.

York Region TDM Measures

York Region utilizes several TDM measures to reduce reliance on SOV trips, including MyTrip, MyRide Travel, and the YRT Employer Pass program..

MyTrip is a program offered by York Region to help residents in new and growing communities learn about sustainable travel modes such as carpooling, transit, cycling,

walking, and telecommuting. The program collects travel survey data and offers incentives to explore sustainable travel options to residents of these communities.

MyRide Travel training is offered by the Region to residents of all ages and abilities to build the knowledge and skills to use YRT independently.

The **YRT Employer Pass Program** offers discounted monthly passes through participating employers, which can be loaded directly onto a Presto card and provide unlimited travel. Discounts range from 10% to 15% depending on the number of employees and only a minimum of 10 employees are needed to participate.

Collaborative TDM Measures

Smart Commute is a program offered throughout the GTHA, supported by York Region in partnership with the City of Vaughan, that helps to facilitate residents, employers, employees, and school-aged children to use sustainable transportation modes. The goal of the program is to both reduce congestion and save time and money for users. The program includes marketing, travel and behaviour shift incentives, flexible work arrangements, workplace training, and engagement events.

The Region has also partnered with the York Region District School Board, York Catholic District School Board, and the City of Vaughan to promote the **Active School Travel (AST)** program. The program seeks to:

— Build lifelong habits of active transportation and independent mobility.
— Educate the community about the benefits of active and sustainable travel.
— Encourage students to enjoy AST.
— Enhance road safety to manage congestion around schools.
— Improve air quality in school zones and decrease vehicle emissions.
— Positively impact the physical and mental health, social development, and academic performance of students.
— Raise awareness surrounding road safety.

The program includes installing message boards, flexi posts, wayfinding signage, and better school zone pavement markings to bolster educational and activity-based initiatives.

City of Vaughan TDM Measures

The **Vaughan Official Plan (VOP)** highlights the importance of TDM in reducing SOVs. It recommends the following initiatives:

- A TDM program for City employees.
- Continued support for Smart Commute.
- Collaboration with school boards, Region police, and residents to implement Safe Routes to School programs.
- Encouraging Active School Travel (AST).
- Coordination with developers to provide new homebuyers with information on active transportation, transit, and carpooling options.
- Facilitation of choice and flexibility through viability of sustainable modes, alternative work arrangements, accommodating live-work units, supporting ridesharing, and adopting awards to highlight successful TDM initiatives and best practices.
- Enabling multi-modal transfers through park-and-rides and pick-up/drop-off zones at rapid transit and GO stations, convenient active transportation access and bicycle facilities at transit stations, carpool parking, and well-designed transfer points at stations.
- Requirement of a TDM program for site plan approvals for office, residential, and mixed use buildings of a certain size, to be included within transportation impact assessments, identifying roles and responsibilities of the landowner in program implementation, as well as ongoing management and operations.
- Support for car-sharing and bike-sharing programs to reduce parking demand.

The Vaughan Transportation Plan (VTP) includes a peer review of TDM programs in comparable jurisdictions. It found that early involvement in TDM measures is crucial to properly funding, implementing, and monitoring TDM programs. The right scale and allocating adequate staff are also key factors to success. Requirements for partnerships with programs like Smart Commute to access corporate transit pass discounts incentivizes employers to adopt a holistic approach to TDM. Collaborating on TDM coordination, management, and monitoring with non-profits and consultants, while also maintaining in-house personnel, can aid in ensuring adequate resources are allocated in a manageable way. An approach that targets workplaces, residential areas, commercial areas, and schools separately and equally serves to ensure maximum efficacy in TDM outreach and program implementation. The VTP suggests hiring or outsourcing staff with skills in project management, outreaching and event planning, graphic design,

communications, and evaluation and reporting. Measurement of program performance through indicators such as vehicle kilometers travelled, GHG emissions, and equity metrics will help to highlight successes and shortcomings to adapt to changing trends.

The City has also developed a **TDM Guideline and Toolkit** to serve as a tool for developers as they submit development applications. The Guideline goes hand in hand with TDM requirements for site approval and provides a travel survey form when monitoring of travel behaviour is deemed necessary. The Guideline tool has a set of suggested measures specific to VMC sorted by land use, effectiveness, and cost. Examples of measures included in the Guideline include but are not limited to:

- Passenger Pick Up and Drop Off (PUDO) zones
- TDM communication strategies
- Cycling/pedestrian network implementation
- Cycling skills courses
- Bike repair station
- Short- & long-term bike parking
- Wayfinding & signage
- Micromobility service
- Transit/sustainable transportation incentives
- Real-time transit information and information kiosks
- Weather-protected waiting areas
- Unbundled parking and unit costs
- Carshare spaces
- Travel planning resources

The new VMC Secondary Plan reinforces the need for a TDM plan with site applications for developments, encouraging transit, walking, and cycling.

9.1.2 Best Practices

As outlined above, many TDM initiatives are already taking place in VMC and throughout the City and Region. However, it is important to scan for best practices to ensure VMC is best equipped in its TDM plan and recommendations.

The Victoria Transport Policy Institute outlines TDM strategies and best practices in its Online TDM Encyclopedia that have been tried and tested across global cities.

Among the TDM measures focused on a reduction in congestion and improving livability, the strategies outlined below are applicable to VMC:

- **Commute Trip Reduction Programs:** Encouraging commuters to use non-auto modes. It is most effective when coupled with financial incentives such as discounted transit passes, bike share vouchers, or paid parking.
- **Flextime:** Allowing employees flexibility in their work schedule, distributing peak period travel over a few hours, fitting better to transit and rideshare schedules.
- **Telework:** Replacing physical travel with telecommunications including telecommuting, satellite offices, videoconferencing, distance learning, online shopping, electronic government, and internet business-to-business.
- **Transit Improvements:** Reducing congestion by improving transit service, particularly by serving major corridors and destinations through affordable grade-separated high quality transit service.
- **Access Management:** Coordinating roadway design and land use to limit driveways and intersections on arterials/collectors and creating more pedestrian-oriented streets.
- **Parking Management & Pricing:** Curbing driving demand through paid or reduced parking. Parking management is put into practice through the introduction of revised parking maximums for VMC, discussed elsewhere.
- **Traffic Calming:** Reducing vehicle speeds and volumes through a variety of measures relating to infrastructure design and enforcement.
- **Vehicle Restrictions & Car-Free Planning:** Prohibiting or restricting the use of automobiles on certain roads to create pedestrian-oriented spaces. Residents, commercial vehicles, and people with disabilities can be exempted from such limitations.
- **Smart Growth:** Integrating land use and transportation policies through compact mixed-use development and discouraging automobile dependent development.
- **Non-Motorized Transportation Improvements:** Enhancing modes such as walking, cycling, micromobility, and wheelchair use through improved sidewalks, cycling facilities, crosswalks/crossrides, street furniture, path connectivity, integration with transit, bicycle parking, pedways, and public bike share.
- **Complete Streets:** Designing and operating roadways to safely accommodate diverse users and activities.
- **Universal Design:** Ensuring transportation facilities and services are capable of accommodating the widest range of users, including people with disabilities and

other special needs through infrastructure like wide walkways, smooth walking surfaces, curb ramps, automatic doors, and transit stop design.

- **School Trip Management:** Encouraging parents, students, and staff to use alternative modes and reduce automobile trips to and from school.
- **Ridesharing:** Carrying additional passengers when making a trip to proximal destinations, reducing SOVs and cost for participants.
- **Carsharing:** Offering conveniently located automobile rental services as an alternative to private ownership priced by hour with simple automated pick-up and drop-off procedures.

Table 9-1. VMC TDM Measure Implementation Status

TDM Initiatives	Implemented in VMC	Partially Implemented in VMC	Not Implemented in VMC
Commute Trip Reduction Program		X	
Flextime	X		
Telework	X		
Transit Improvements		X	
Access Management		X	
Parking Management & Pricing		X	
Traffic Calming		X	
Vehicle Restrictions & Car-Free Planning			X
Smart Growth	X		
Non-Motorized Transportation Improvements		X	
Complete Streets		X	
Universal Design		X	
School Trip Management			X
Ridesharing	X		
Carsharing			X

Beyond TDM measures themselves, it is important to consider how responsibilities, management, and monitoring will ensure their successful implementation. The TDM Supportive Guidelines for Development Approvals by the Association for Commuter Transportation of Canada (ACT Canada) states TMPs should create policies that assign TDM coordinators and encourage monitoring of initiative success. For example, in the Region of Waterloo, a reference guide and monitoring plan is provided with the TDM Checklist for Transportation Impact Study Guidelines. Site applications are also

monitored for the kind of TDM measures implemented, as well as the initiatives themselves using key performance indicators.

The City should add monitoring guidance directly into the TDM strategies in their Toolkit, to ensure property owners are equipped with the knowledge on how to monitor use and efficiency. Guidance such as that provided by the City of Toronto in their Guidelines for the Design and Management of Bicycle Parking Facilities can also ensure property owners understand how to maintain facilities, such as standards for removing abandoned bicycles and snow clearance. This should be applied to any physical TDM measure.

Another opportunity for innovation is for the City to develop a program for retrofitting existing developments with TDM measures. This would need to be a collaborative program with financial incentives to property owners.

ACT Canada's guideline also encourages embedding TDM strategies into Transit-Oriented Design Guidelines and Urban Design Guidelines to ensure new developments rely on transit. The guideline also emphasizes setting TDM goals to be measured is a critical component of ensuring coordination.

9.1.3 Recommendations

The following recommendations seek to support TDM initiatives in VMC based on the existing TDM framework and best practices:

Policy Support:

1-21 Implement comprehensive TDM measures for all municipal employees and at all municipal buildings to lead by example.

1-22 Add guidance for maintenance, data collection, and monitoring relating to individual TDM strategies as a part of the City TDM Guideline and Toolkit.

1-23 Incorporate TDM measures from the VMC Urban Design Guidelines and the City Complete Streets Guide in streetscape and road design for existing and new roads to manage automobile access and prioritize non-auto modes.

1-24 Work with the Region to require workplaces to partner with Smart Commute as a prerequisite to access financial incentives such as the YRT Employer Pass Program.

1-25 Continue to develop, promote, and incentivize telework and flextime through Smart Commute with a VMC-tailored approach.

1-26 Collaborate with the Region and school board to expand the AST program to all schools in and around VMC.

1-27 Explore the feasibility of a municipal or private bike-share or scooter-share program in VMC.

1-28 Partner with local businesses and major delivery companies to consolidate deliveries and explore the use of smaller vehicles more appropriate to VMC.

1-29 Work with the Region to improve transit frequencies and service.

1-30 Work with public and private-sector partners to encourage the establishment of a public-facing car-share service for VMC. A point-to-point or return-to-base car-share service allows subscribers to access automobiles for short-term rental periods, providing access to a car when needed. Studies have shown that providing casual access to a vehicle enables many individuals to sell or avoid the purchase of a private automobile, resulting in significant trip reduction and personal microeconomic benefits.

Education and Awareness:

1-31 Inform and educate new residents and employers of TDM programs and incentives early to shape desirable travel behaviour.

1-32 Emphasize AST to form sustainable travel behaviour at a young age and leverage Region offerings to equip educators.

1-33 Promote MyRide Travel and MyTrip to ensure people are equipped with the skills to ride transit independently.

1-34 Offer transit vouchers, transit schedules, real-time transit information, bicycle shop gift certificates, or micromobility discounts, and other incentives to residents and employees to encourage sustainable travel.

Infrastructure Measures:

1-35 Design pedestrian-oriented spaces and local streets, such as car-free and car-light realms.

1-36 Improve active transportation connections to be safe, direct, and convenient.

1-37 Ensure universal design of infrastructure to attract users of all abilities.

1-38 Implement complete streets and traffic calming to street design to provide high-quality, safe, and convenient facilities for sustainable transportation. Reduction in drive lane widths to conform to the Vaughan Complete Streets guideline.

1-39 Work with the Region to improve the design of transit stops, for example by including bike parking.

1-40 Consolidate driveways and eliminate accesses onto arterial and major collector roads where possible.

Refer to **Section 9.3** for parking-related recommendations.

9.2 Road Safety

Ensuring road safety is crucial to maintaining the health and comfort of all road users, especially those most vulnerable. All severe injuries and fatalities caused by road collisions are avoidable and should be mitigated through various initiatives such as design interventions, regulations, enforcement, engagement, and education. Beyond saving lives, safe streets decrease burdens on the public health system, reduce economic losses, and improve quality of life for VMC's residents. Road safety should continue to be a top priority, building on existing initiatives in Vaughan.

9.2.1 Existing Safety Framework

MoveSmart Mobility Management Strategy

The City of Vaughan has initiated its MoveSmart Mobility Management Strategy. The Strategy prioritizes road safety, active and sustainable travel, and traffic management through a broad set of policies and programs. Some of the safety-related initiatives implemented under the Strategy include:

- Automated Speed Enforcement (ASE)
- Community Safety Zones (CSZs)
- The Safer School Zone Plan
- Speed reductions
- Neighbourhood speed management studies
- Corridor operations reviews for safety
- The Neighbourhood Area Traffic Calming Plan and Speed Management Strategy
- Traffic calming measures
- Optimized pavement marking and signage
- Upgraded streetlights
- Recruitment and training of school crossings guards

The Strategy includes significant monitoring released in an annual report.

The City has completed its pilot of various traffic calming initiatives through the Neighbourhood Area Traffic Calming Plan and Speed Management Strategy. This has enriched Vaughan's traffic calming initiatives toolbox, setting the City up to implement traffic calming on new and existing streets more effectively.

The comprehensive Speed Limit Policy has reduced speed limits City-wide in school zones, laneways, and select neighbourhood areas. Speed limits on roads in school zones and in neighbourhood areas were reduced from 50 km/h to 40 km/h, while on laneways speed limits were reduced from 50 km/h to 30 km/h.

The City's ongoing implementation of CSZs seeks to reduce speeds through increased signage, greater fines for speeding, and ASE. Sites for CSZs are selected based on factors such as traffic volume, number of lanes, sidewalk length, bus stops, speed limits, traffic speeds, and collision history. Currently, the City has designated 11 CSZs, a number that is expected to grow to 104.

The City provides education about road safety on its website for cyclists and pedestrians. Vaughan also promotes safe and slower driving through its #SlowDownVaughan initiative. The initiative consists of free graphics in the form of lawn signs, a PDF to be printed, or images to be shared online, promoting responsible driving.

Complete Streets

The Vaughan Complete Streets Guide, discussed in **Section 7.1**, incorporates safety into its framework for streets that serve users of all ages and abilities. Identifying safety and operational improvements for existing streets is embedded into the Guide. Safety is also one of the 5 directives for street design decision-making, including:

— Prioritizing vulnerable users.
— Reducing and managing vehicle speeds.
— Accommodating the smallest possible vehicle design.
— Minimizing exposure risk.
— Maximizing predictable signage and self-regulating design.

City Policy

Safety is an integral part of the Vaughan Official Plan (VOP)'s prescription for the transportation network. The VOP asserts that Vaughan streets should be safe for all users, including pedestrians, cyclists and drivers. It also recognizes the link between traffic safety, vehicular speed, and road design, positing that wide streets lead to high traffic speeds and vice versa. Therefore, the VOP requires street design to be context appropriate.

The VMC Secondary Plan states that all streets in the area should be designed to be safe, attractive, and pedestrian-friendly. It prescribes that the cycling network should also be designed with safety and comfort as a priority.

York Region Vision Zero Traveller Safety Plan

York Region has developed a Traveller Safety Plan that seeks to reduce severe collisions resulting in injury or death by 10% between 2024 and 2028 on Regional roads. The Region's ultimate goal is to end all severe collisions as motor vehicle collisions are a leading cause of death and disability. The Plan involves several countermeasures classified by engineering, enforcement, and education/engagement to improve road

safety. The countermeasures are applied to “emphasis areas”, including general safety, vulnerable road users, intersections, aggressive driving, distracted driving, and impaired driving. The Plan marks an improvement from current initiatives with a budget, measurable goals, and monitoring, helping to ensure continued investment and allowing interventions to be adapted for the greatest impact.

9.2.2 Best Practices

Traffic safety best practices are outlined by organizations such as the Transportation Association of Canada (TAC), the Ontario Traffic Council (OTC), the Institute of Transportation Engineers (ITE), and the Canadian Council for Motor Transport Administrators (CCMTA). Specifically, these organizations advocate for the adoption of the Vision Zero/Towards Zero and Safe System Approach to road safety.

In Canada, Vision Zero, recognizing that zero traffic-related fatalities and severe injuries are acceptable, has already been formally adopted by 3 provinces and 28 municipalities, of which 13 are in Ontario, including York Region. Vision Zero serves as a guiding philosophy for these jurisdictions in road safety implementation and monitoring.

The Safe Systems Approach to road safety acknowledges that road users make mistakes and are vulnerable. This framework takes the single onus off the road user as the cause for collisions and also places it with those who are involved in roadway design. The Safe Systems Approach is a practical strategy that seeks to achieve the goal of Vision Zero. The Approach has 6 main domains to be addressed for improved safety:

- **Safe Land Use Planning**: Reducing the need for car travel, supporting vulnerable road users, and separating high-volume roads from residential and commercial land uses.
- **Safe Speeds**: Establishing appropriate speed limits based on road classifications and physical tolerances of road users. Educating residents about the impacts of speeding, enforcing limits, and matching speed design to speed limits.
- **Safe Road Users**: Focusing on strategies mitigating and preventing behaviours resulting in crashes, such as distracted driving.
- **Safe Road Design**: Designing roads to minimize the risk of crashes and the severity of injury in the case of a crash. Separating modes, designing for safe speed limits, and designing roads that are easy for drivers to navigate.

— **Post Crash Care**: Ensuring emergency responders are involved in road safety plans. Measuring response times for post-trauma care and establishing appropriate goals. Including access to rehabilitation programs in road safety plans.

Though Vaughan has not formally adopted these 6 domains, it has already addressed some of these strategies through various safety-related initiatives. The City's Complete Streets Guide has established a framework to better match streets to their surrounding land uses and better support vulnerable road users. The City's existing TDM measures serve to reduce the need for car travel. The City's road safety initiatives mentioned above also address safe speeds, safe road design, and safe road users. Post crash care is not a currently a significant component of Vaughan's approach to road safety.

Beyond applying the best practices discussed above, monitoring is a critical component to the success of road safety planning. Key performance indicators (KPIs), to be monitored and evaluated, help to measure progress of goals set for road safety and to identify where intervention is lacking. These statistics should be aggregated annually and published to the public for accountability. Establishing tools such as a road safety dashboard can help to further improve transparency and simplify complex measures.

To work towards the goal of Vision Zero, jurisdictions typically adopt network screening frameworks such as a Road Safety Management (RSM) process or a Systemic Road Safety Process (SRS) to identify locations prone to crashes and implement measures to improve safety. The RSM process considers crash history to identify high-priority locations, whereas the SRS considers a series of risk factors that make a location high-risk. Network screening is critical to an effective road safety plan.

Other best practices include outreach, education, and culture shifts regarding road safety. As with TDM, leading by example by establishing training for municipal employees is an important first step. Political support and funding are necessary to ensure continued delivery of safety initiatives. An equity-centred approach is also necessary, acknowledging that certain demographics and areas are more prone to unsafe road conditions.

Enforcement through ASE and police services is also necessary to ensure road users operating dangerously are penalized.

9.2.3 Recommendations

To continue to build on the success of road safety initiatives throughout Vaughan, the City should focus on the following initiatives for VMC:

2-1 Develop a comprehensive road safety strategy, including clear goals and KPIs, a traffic safety toolkit, embedded equity considerations, and a network screening process incorporating Vision Zero and the Safe Systems Approach.

2-2 Implement advanced data collection tools to better inform network screening.

2-3 Report annually on progress towards road safety goals.

2-4 Identify and establish more CSZs and School Zones where appropriate in VMC.

2-5 Establish municipal road safety initiatives for all City employees including internal awareness campaigns to promote road safety culture within the workplace and fleet safety policies that govern use of City-owned vehicles.

2-6 Develop a public online dashboard and interactive mapping tools to communicate road safety statistics.

2-7 Expand public awareness campaigns regarding speeding, distracted driving, and driving under the influence, among other issues.

2-8 Explore opportunities for partnerships with local employers to promote safe driving behaviours such as ridesharing.

2-9 Engage VMC residents and businesses to identify community concerns surrounding road safety.

2-10 Explore grater opportunities for collaboration with emergency response services to include them in road safety planning and enforcement.

9.3 Parking Management

A parking management strategy was developed based on a review of the existing and planned future transportation network, the VMC Secondary Plan, current planning and transportation policy context, and a jurisdictional scan of parking approaches in other

urban settings. This section summarizes the recommendations for VMC; the full parking management strategy is available in **Appendix H**.

9.3.1 Parking on Development Sites

Through Bill 185, the Province recently removed the ability for municipalities to set minimum parking requirements within Major Transit Station Areas (MTSAs). As most of the VMC is designated as an MTSA, no minimum vehicular parking requirements have been set. However, existing maximum parking requirements are recommended to be lowered to control the total parking supply and the associated traffic impacts on the area road network.

Table 9-2 provides existing and proposed parking requirements in the VMC, as well as applicable policies regarding accessible parking and bicycle parking.

Table 9-2. Proposed Parking Requirements

Land Use	Existing [1]	Proposed	Policies
Residential Apartment: Resident [2]	1.5 max	0.4 max	100% of required parking should be EV ready.
Residential Apartment: Visitor [2]	0.15	0.15 max	Privately operated paid parking permitted. 25% of required parking should be EV ready
Office [3]	2.5 max	1.5 max	Privately operated paid parking permitted.
Retail, Service, Commercial [3, 4]	4.0 max (for retail up to 5,000 sq.m	2.0 max	

[1] Rates obtained for the VMC from the City of Vaughan's Comprehensive Zoning By-law 001-2021.
[2] Rates are provided per dwelling unit.
[3] Rates are provided per 100 square metres of Gross Floor Area
[4] The parking requirements are applicable for the following land uses included in the City's Zoning By-Law: 1) Art Studio, 2) Business Service, 3) Clinic, 4) Financial Institution, 5) Health and Fitness Centre, 6) Personal

Land Use	Existing[1]	Proposed	Policies
	and personal service) 4.0 max (for retail over 5,000 sq.m)		25% of required parking should be EV ready.
Accessible Parking Spaces: Accessible parking requirement to be calculated based on By-law 001-2021 Table 6.4: Required Barrier-free Parking Spaces.			
Bicycle Parking Requirements: Bicycle parking to be provided per By-law 001-2021 Section 6.5: Bicycle Parking Spaces Requirements.			

Bicycle parking to be provided per By-law 001-2021 Section 6.5: Bicycle Parking Spaces Requirements as displayed in **Table 9-3**.

Table 9-3: Minimum Bicycle Parking Space Rates applicable to the VMC and MU Zones from By-law 001-2021

Use	Long-Term	Short-term
Apartment dwelling, and any residential use that requires visitor parking	0.8 per dwelling unit	0.2 per dwelling unit, or 6 spaces, whichever is greater
Any commercial use, including retail and shopping centre	0.1	0.2, or 6 spaces, whichever is greater
Clinic	0.2	0.2, or 6 spaces, whichever is greater

Service, 7) Pet Services Establishment, 8) Retail, 9) Service or Repair Shop, 10) Shopping Centre, and 11) Supermarket. These parking rates are applicable for all sizes of these land uses.

Use	Long-Term	Short-term
Community facility	0.1	0.4, or 6 spaces, whichever is greater
Office	0.2	0.2, or 6 spaces, whichever is greater
Research and development	0.2	0.2, or 6 spaces, whichever is greater
Restaurant, including outdoor patio and a take-out restaurant	0.1	0.2, or 6 spaces, whichever is greater
School, including post secondary school	0.1	0.4, or 6 spaces, whichever is greater

It is extremely important that the proposed parking rates are supported by a strong multimodal transportation system that will be responsible for enabling first and last mile trips to and from the subway station and bus terminal. The parking rates proposed in the parking management strategy will give developers the ability to provide no parking but also flexibility to provide sufficient parking to support businesses, attract residents, customers, and employers.

To improve the efficiency of the parking supply in the VMC, developments should be permitted to provide non-resident parking as privately operated paid public parking where feasible and appropriate (while adhering to parking maximums). Parking for multiple phases of development may be consolidated in one centralized paid public parking facility.

9.3.2 Parking-Related TDM

The implementation of aggressive TDM measures on development sites is important for residents, employees, and visitors to best utilize the available non-auto infrastructure and reduce SOV trips.

The City of Vaughan TDM Development Guideline divides the City into different character areas based on the groups of zones considered for the parking requirements section in the City's Zoning By-law. The VMC is categorized as a separate character area. As per the TDM Development Guideline, all TDM initiatives except for 'Launch Shuttle Services' are applicable to the VMC character area. This includes the following six initiatives included under the 'Parking' category:

- Provision of dedicated parking spaces for car-share vehicles (for residential uses)
- Provision of preferential parking spaces for car-pool (for non-residential uses)
- Unbundling parking from unit cost
- Implementation of employee parking cash-out programs
- Implementation of paid parking
- Implementation of pick-up and drop-off zones

Additional parking-related TDM measures mentioned in the TDM Development Guideline to be considered for the VMC include:

- Provision of long and short-term bicycle parking - Long and short-term bicycle parking should be provided based on the requirements included in the City's Zoning By-law.
- Provision of separated bicycle access to long-term bicycle parking - An entrance separated from vehicular traffic and accessible to cyclists should be allocated to increase the safety and convenience of cyclists. In case of a ramp entrance, the ramp must be compliant with AODA requirements, should have an adequate heating facility in the exterior, and should have a minimum width to accommodate bi-directional travel all in accordance with current better practices.
- Provision of shower and change room facilities - Shower and change room facilities should be provided as per the requirements included in the City's Zoning By-law for non-residential uses.
- Installation of bike repair stations - As per the City's TDM Development Guideline, at least one permanent bicycle repair station should be installed adjacent to a long-term bicycle parking area with at least 50 long-term bicycle parking spaces. Additionally,

the station should have adequate workspace surrounding it with a minimum area of 4 m^2 and a minimum aisle width of 1.5 m.
— Provision of micromobility services on-site - micromobility services including bike share and e-scooters to be provided for residential, commercial, and institutional uses. It is recommended that developments provide designated areas in covered locations near entrances for future bike share or e-scooter stations. Micromobility parking is recommended to be addressed through the development review process.

The City could consider identifying guidelines inspired by 8-80 design principles with a view to requiring developments to provide ground level, temperature-regulated accessible bike storage rooms that are compatible, secure, and safe for e-bike, e-scooter and other electric mobility devices. Storage options that increase convenience for different age groups should be considered, including a mix of ground storage, wall storage and hydraulic assisted storage racks.

It should be noted that minimum car-share, car-pool, and PUDO requirements are not recommended based on the findings of a jurisdictional scan. These elements should continue to be addressed through the TDM Development Guideline and considered on a site-by-site basis through development review. When assessing the adequacy of PUDO design and supply during development review, considerations should include the increasing prevalence of ridesharing and delivery services as well as the future potential to accommodate PUDO by autonomous vehicles.

9.3.3 Smart Parking Technology

Smart Parking refers to a series of technologies that optimize the use of parking facilities, improve the user experience, and enable better management of parking facilities. The following technologies may be used to support good functioning of parking:

— Parking guidance systems
— Mobile payment systems
— Digital parking permit systems
— Parking reservation systems
— Parking elevators, stacked or mechanical parking, and automated or robotic parking
— Future proofing for autonomous vehicles

9.3.4 Micromobility

The VTP recommends the implementation of mobility hubs which include consideration of electric vehicles and micromobility devices. The following guidelines are recommended for micromobility parking:

- Designate corrals or specific zones for on-street micromobility parking. Demarcate the parking zones with appropriate signage or other means for easy identification.
- Provide parking corrals that integrate active transportation and electric micromobility devices to ensure accessibility for all users.
- Designate covered areas, wherever possible, for bicycle, e-bike, or e-scooter stations near building entrances, and within walking distance of major destinations (as per the City's TDM Development Guideline).
- Establish micromobility hubs at strategic locations across the VMC to provide safe and secure parking options for bicycle and micromobility devices (See **Figure 7-2**).
- Integrate active transportation and micromobility network, including establish context sensitive parking locations either above-grate or at grate to ensure safety and accessibility.
- Explore ways to encourage compliance with micromobility parking requirements.
- Continue outreach and engagement efforts to promote and encourage safe and proper riding etiquette and rules of the road.

The City should provide the following amenities throughout the VMC:

- Micromobility hubs that integrates active transportation and micromobility networks, including bicycle and scooter parking are provided at strategic locations such as immediately adjacent to large trip generators, the VMC Subway Station, the SmartVMC Bus Terminal, and the VIVA BRT stops.
- The hubs should include secure, weather-protected short-term and long-term bicycle and scooter parking that is conveniently placed for commuters switching to or from transit. Consideration should be given to the inclusion of air pumps, and self-service mechanic kits (bicycle repair stations).
- The City should pursue opportunities to establish or participate in programs offering shared micromobility devices including bicycles and scooters. Docking stations for shared micromobility could be incorporated into the micromobility hubs, alongside facilities for privately owned devices.

- Micromobility parking (for bikes and scooters) in parks, privately owned public spaces (POPS) and where appropriate within the right-of-way (ROW), in addition to micromobility hubs.
- Signage and Pavement Markings as part of a wayfinding system.
- Signs should be placed at major decision points along bicycle routes and at other key locations leading to and along the routes. Pavement markings should be installed to help reinforce routes and provide directional signage.

To further micromobility, the City has launched a two-year Shared Micromobility Pilot Program in June 2025, deploying and operating e-scooters and e-bikes in the central area of the city bounded by Pine Valley to the west, Teston Road to the north, Dufferin Street to the east, and Highway 407 to the south (the pilot program encompasses the VMC study area). Shared e-scooters can only be operated in bike lanes, cycle tracks, in boulevard multi-use paths, and on roadways with a speed limit of 50km/h or less. They are prohibited on sidewalks, trails and in park areas. Shared e-bikes are permitted anywhere conventional bicycles are allowed, including bike lanes, cycle tracks, in-boulevard multi-use pathways and on most roadways. They are not permitted on sidewalks, trails, park areas or where e-bikes are prohibited. A hybrid parking model that includes both physical and digital parking corrals has been implemented; digital corrals that are highly utilized will be upgraded with markings and other identifying features into physical corrals.

The City will utilize a robust performance evaluation plan to review the data collected, as well as key metrics such as public feedback, operational successes/challenges to evaluate the program and provide Council with recommendations on program permanency, changes or expansions at the end of the two-year Pilot.

9.3.5 Curbside Management

It is recommended that the City develop a curbside management strategy for the VMC. Decisions to provide on-street parking, PUDO, loading, and micromobility parking must consider compatibility with the street typology and available spacing and be weighed against other competing curbside uses for traffic, transit, active transportation, curbside cafes, and others. When developing the curbside management strategy for the VMC, the following parking-related functions should be considered:

- Micromobility hubs, including bicycle and scooter parking for personal devices and docking stations for shared devices

- Micromobility parking in additional locations outside of the hubs
- PUDO facilities as appropriate near transit and key destinations, considering the increasing popularity of rideshare services such as Uber and Lyft as first and last mile solutions
- Short-term parking (i.e. 10 minute) to support a variety of uses including convenience stops at local businesses, ride shares, and small deliveries
- Designated on-street parking for car-share vehicles (pending the availability of a publicly accessible car-share service)

Parking-related curbside uses that should be discouraged in the VMC include:

- Long-term parking, such as daily parking or commuter parking
- Residential permit parking
- On-street passenger drop-off and pick-up facilities for residential and office uses
- On-street loading zones

9.3.6 Education and Communication

The City should encourage trip planning by providing information on how to access the VMC emphasizing the use of transit and other non-SOV modes. Information should be available through mobile phone applications, social networking sites, and websites, and must be readily available, accessible, and understandable to the public.

Provided resources should include interactive maps and trip planning tools for travel by transit, cycling, micromobility, walking, and driving. Parking information should include:

- Parking location
- Number of parking spaces, and real-time parking availability if available
- Parking pricing
- Breakdown of available EV, car-pool and accessible spaces

Links should be provided for users to access information and services including those from third parties, such as:

- Parking reservation, payment and pre-payment
- Car-share registration and reservation
- Bicycle and scooter share registration

9.3.7 Implementation

Table 9-4 summarizes the key implementation steps for the parking recommendations. Implementation will require updates to existing policies and regulations, further study, and in some cases partnerships with third parties such as transit and shared micromobility providers. In 2018, the City conducted the VMC Parking Study in anticipation of the VMC Subway Station opening. Recommendations that are carried forward from that study are also indicated in **Table 9-4**.

Table 9-4. Summary of Parking Management Strategy Implementation Steps

Recommendation		Key action items to be undertaken by the City	Alignment with the 20118 VMC Parking Study	Impact to Existing Policies	Further Study Required	Potential Partnerships
3-1	Apply updated vehicular parking requirements	- Update the Zoning By-law parking requirements to remove minimum parking requirements and develop reduced maximum requirements for all applicable land uses	Yes	Yes	Yes	
3-2	Update bicycle parking requirements as part of future Zoning By-law reviews	- Monitor bicycle parking demands and emerging trends - Update the Zoning By-law, if required. This can be done as part of regular Zoning By-law updates.		Yes	Yes	

Recommendation		Key action items to be undertaken by the City	Alignment with the 20118 VMC Parking Study	Impact to Existing Policies	Further Study Required	Potential Partnerships
3-3	Permit privately operated paid public parking for non-resident parking	- Approve through development review		Yes		
3-4	Apply EV parking requirements	- Update the Zoning By-law		Yes		
3-5	Permit implementation of smart parking technology	- Consider Secondary Plan Streets and Transportation policies in the development review process				
3-6	Provide micromobility hubs including bicycle and scooter parking at strategic locations	- Conduct a study to determine appropriate micromobility hub design and locations - Incorporate shared micromobility docking stations when this service is available			Yes	Yes
3-7	Provide Transportation Innovation Programs	- Pursue opportunities to establish or participate in programs providing shared micromobility devices			Yes	Yes
3-8	Provide micromobility	- Develop a curbside			Yes	Yes

Recommendation		Key action items to be undertaken by the City	Alignment with the 20118 VMC Parking Study	Impact to Existing Policies	Further Study Required	Potential Partnerships
	parking outside of micromobility hubs	management strategy for VMC to determine appropriate conditions for providing micromobility parking - Develop a micromobility parking plan				
3-9	Provide micromobility wayfinding	- Develop and implement an appropriate pavement markings and signage plan				Yes
3-10	Provide on-street parking, PUDO, and loading zones	- Develop a curbside management strategy for VMC to determine appropriate conditions for providing on-street parking, PUDO and loading zones - Develop an on-street parking plan including PUDO and loading zones, if appropriate	Yes		Yes	

Recommendation		Key action items to be undertaken by the City	Alignment with the 20118 VMC Parking Study	Impact to Existing Policies	Further Study Required	Potential Partnerships
3-11	To encourage trip planning, provide multimodal transportation and parking information for VMC in an online portal	- Develop a VMC transportation information portal accessible by mobile app, social media and website - Regularly update the transportation information portal to show current information - Advertise the transportation information portal to promote its use	Yes			Yes

10 Implementation

The VMC TMP followed the MCEA process and satisfies Phases 1 and 2 of the MCEA process for Master Plans. It has identified a group of interrelated transportation projects and improvements forming the preferred multi-modal network. This chapter highlights how this network should be implemented and phased.

The implementation framework for the proposed transportation network is a structured approach to planning, protecting, and positioning the area to accommodate the people and jobs being planned for. It is structured around:

- Required implementation of broader City and Regional transportation improvements which are necessary to provide the capacity to accommodate the planned 105,500 combined people and jobs.
- Provision of a VMC Secondary Plan multi-modal transportation network of recommended transportation projects and improvements, including:
  - A highly accessible and dense active transportation network that is formed by separated cycling facilities, multi-use paths, and grade-separated facilities to improve the experience of crossing wide roadways.
  - A collector street network which provides connectivity for pedestrians, cyclists, transit, and personal vehicles between the arterial roads and local or private streets.
  - Proposed local street locations with forward looking minimum rights-of-way to ensure that space is prioritized for vulnerable road users, and to be positioned to accommodate micromobility.
  - Protection of a corridor area from development on the west side of Highway 400 for the Interchange Way - Colossus Drive Extension, a multi-modal crossing of Highway 400. The ultimate configuration of this new extension/flyover of Highway 400 will be determined by a subsequent Municipal Class Environmental Assessment.
  - Recognition of TRCA's regulated areas and desires for environmental restoration goals, which typically are coordinated and implemented between the City and TRCA in the design phases of a project.

10.1 Phasing

The proposed transportation networks and improvements should be implemented in a phased manner to ensure projects are built only when and where they are needed. This phased approach ensures that new residents and employees in the VMC will have access to those improvements they need right when they move in. Research suggests that when people move, they are most likely to change their travel habits and then stick to them. As such, providing infrastructure on day one to support beneficial habit formation is crucial.

10.1.1 Broader-Area Improvements

Transportation analysis was completed to understand the requirements and timing of the transportation infrastructure required. Key findings indicate that improvements to City and Regional facilities are necessary to provide capacity to accommodate growth by the 2041 horizon.

Table 10-1 identifies the necessary broader area improvements that are required to accommodate background traffic growth by 2041. These improvements are warranted independent of further development at VMC, the further development of which will place additional demands on an already very constrained network. Associated capital costs for broader area improvements are additionally reported where costing was available.

Table 10-1: Required Broader Area Improvements and Associated Capital Costs

Timing	Project	Jurisdiction	Capital Cost	Cost Source
2031	Bass Pro Mills extension from Highway 400 to Weston Road	City of Vaughan	$29.3 M	Vaughan Transportation Plan (2023)
2041	Langstaff Road connection over CN Yard	York Region	$836.4 M	York Region TMP (2022)
2041	Langstaff Road full interchange at Highway 400	York Region / MTO	$43.0 M	York Region TMP (2022)

Timing	Project	Jurisdiction	Capital Cost	Cost Source
2041	Langstaff Road widening between Weston Road and Dufferin Street (4 to 6 lanes)	York Region	$63.8 M	York Region TMP (2022)
2041	Steeles Avenue widening between Jane Street and Pine Valley Drive (4 to 6 lanes)	City of Toronto	No costs available	
2041	Weston Road widening between Steeles Avenue and Major Mackenzie Drive (4 to 6 lanes)	York Region	$22.2 M*	York Region TMP (2022)
2041	Keele Street widening between Steeles Avenue and Rutherford Road (4 to 6 lanes)	York Region	$89.9 M	York Region TMP (2022)
2041	Highway 7 Rapid Transit (10-minute headways)	YRT	N/A	
2041	Jane Street Transit Corridor between Highway 7 and Major Mackenzie	YRRTC, York Region, YRT	$353.0 M	York Region TMP (2022)

Timing	Project	Jurisdiction	Capital Cost	Cost Source
	Drive (4 mixed traffic lanes + transitway, 10-minute headways)			
2041	Steeles Avenue Transit Corridor between Kennedy Road and Jane Street (4 mixed traffic lanes + transitway)	City of Toronto, TTC	$1,008.0 M	York Region TMP (2022)
***Reflects partial costs (Highway 407 to North of Highway 7; North and South of Rutherford Road)**				

The improvements – as described – provide sufficient capacity for up to 105,500 people and jobs to be accommodated at VMC in 2051. It is noted that the threshold analysis reflects AM peak conditions only. While an evaluation of PM peak conditions was not possible given the methodology employed, such an evaluation is recommended at a later date to confirm applicable development thresholds.

10.1.2 VMC Multi-Modal Transportation Network

The proposed infrastructure projects and associated studies and phasing for auto and active-transportation related improvements within street rights-of-way are numerated according to their cardinal orientation (NS or EW) and are displayed in **Figure 10-1** and detailed in **Table 10-2**. Proposed new signals are additionally noted (and grouped according to the east-west collector road they are situated on).

Improvements to the collector street network and the addition of critical active transportation infrastructure should be strongly considered in advance of development proceeding within a quadrant. Project segmentation for the local road network was not conducted. Local roads will be confirmed and delivered through the development approvals process.

Figure 10-1: Street Network Project Key Map

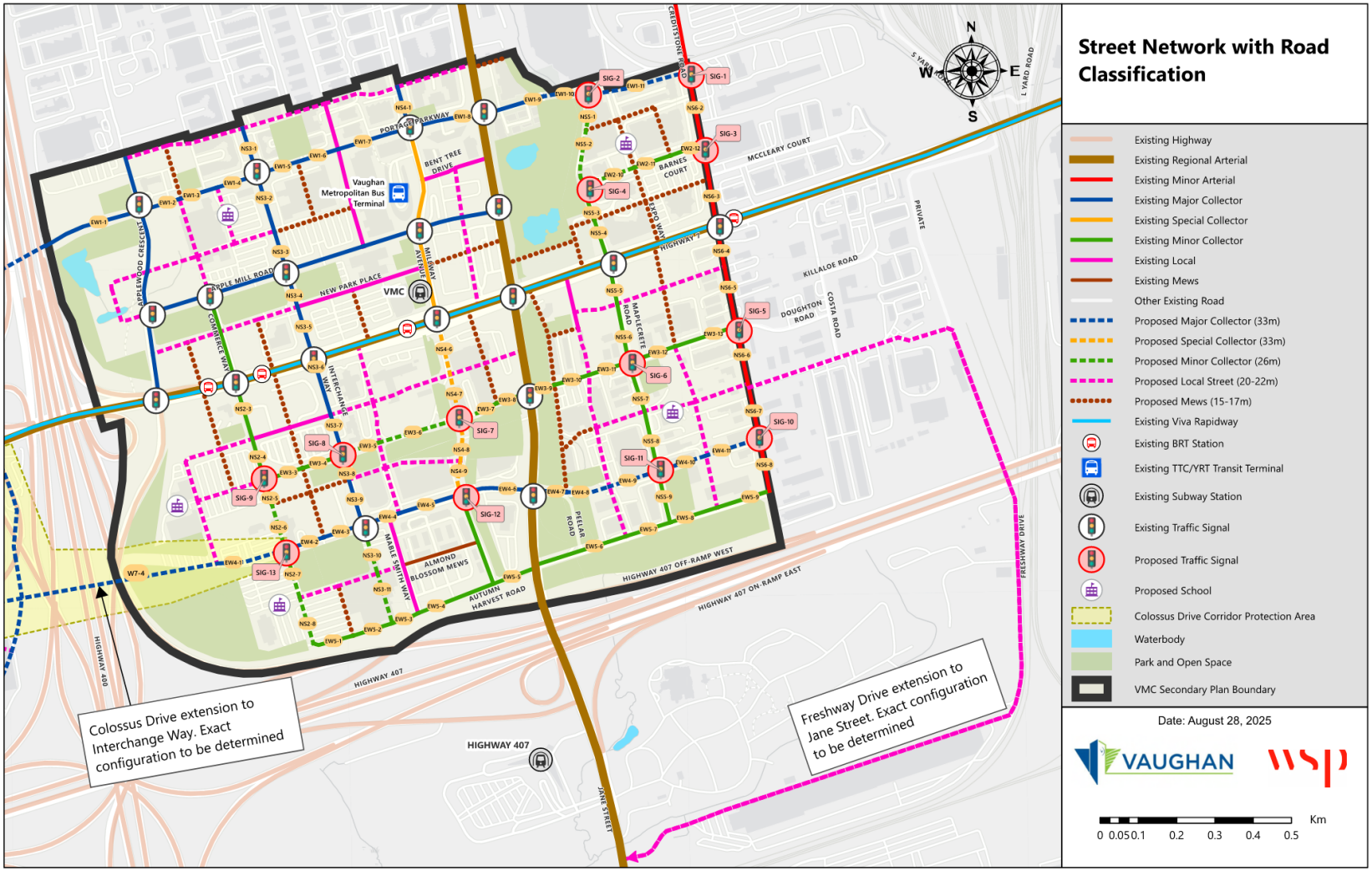


Table 10-2: Description and Phasing of Street Network Projects

ID #	Corridor	Improvement	Timing	Phasing Requirements
EW1 ***SIG-2***	Portage Parkway	Widening and Reconstruction (Highway 400 to Black Creek); New Construction (Black Creek to Creditstone Road).	2051 or earlier	- Completion of Municipal Class EA or suitable equivalent to the satisfaction of the City - Securing of land requirements to the City as a holding condition for development approval
EW2 ***SIG-4***	Barnes Court	Multi-use path (Jane Street to Maplecrete Road); New Construction (Maplecrete Road to Expo Way); Widening and Reconstruction (Expo Way to Creditstone Road).	2051 or earlier	- Completion of Municipal Class EA or suitable equivalent to the satisfaction of the City - Securing of land requirements to the City as a holding condition for development approval
EW3 ***SIG-6*** ***SIG-7*** ***SIG-8*** ***SIG-9***	Doughton Road	MURT construction (West Side Trail to Commerce Way); New Construction (Commerce Way to Mew C); Widening and Reconstruction (Mew C to Edgeley Boulevard);	2051 or earlier	- Completion of Municipal Class EA or suitable equivalent to the satisfaction of the City - Securing of land requirements to the City as a holding condition for development approval

ID #	Corridor	Improvement	Timing	Phasing Requirements
		New Construction (Edgeley Boulevard to Jane Street); Widening and Reconstruction (Jane Street to Creditstone Road).		
EW4 ***SIG-11***	Interchange Way	New Construction (Celebration Avenue to Commerce Way); Widening and Reconstruction (Commerce Way to Mew D); New Construction (Mew D to Creditstone Road).	2051 or earlier	- Completion of Municipal Class EA or suitable equivalent to the satisfaction of the City - Securing of land requirements to the City as a holding condition for development approval
EW5	Autumn Harvest Road	Widening and Reconstruction (Commerce Way to Creditstone Road)	2051 or earlier	- Completion of Municipal Class EA or suitable equivalent to the satisfaction of the City - Securing of land requirements to the City as a holding condition for development approval
NS1	Applewood Crescent	Cycle Track-New Construction (Portage Parkway to Highway 7)	2051 or earlier	- Securing of land requirements to the City as a holding condition for

ID #	Corridor	Improvement	Timing	Phasing Requirements
				development approval
NS2	Commerce Street	Cycle Track-New Construction (Apple Mill Road to Highway 7); Widening and Reconstruction (Highway 7 to Celebration Avenue); New Construction (Celebration Avenue to Exchange Avenue)	2051 or earlier	- Completion of Municipal Class EA or suitable equivalent to the satisfaction of the City - Securing of land requirements to the City as a holding condition for development approval
NS3	Edgeley Boulevard	Widening and Reconstruction (Street A to Interchange Way); New Construction (Interchange Way to Exchange Avenue)	2051 or earlier	- Completion of Municipal Class EA or suitable equivalent to the satisfaction of the City - Securing of land requirements to the City as a holding condition for development approval
NS4	Millway Avenue	Widening and Reconstruction (Street A to Portage Parkway); New Construction (Highway 7 to Exchange Avenue)	2051 or earlier	- Completion of Municipal Class EA or suitable equivalent to the satisfaction of the City - Securing of land requirements to the City as a holding

ID #	Corridor	Improvement	Timing	Phasing Requirements
				condition for development approval
NS5	Maplecrete Road	New Construction (Portage Parkway to Barnes Court); Cycle Track-New Construction (Barnes Court to Highway 7); Widening and Reconstruction (Highway 7 to Exchange Avenue)	2051 or earlier	- Completion of Municipal Class EA or suitable equivalent to the satisfaction of the City - Securing of land requirements to the City as a holding condition for development approval
NS6 ***SIG-1*** ***SIG-3*** ***SIG-5*** ***SIG-10***	Creditstone Road	Widening and Reconstruction (Portage Parkway to Exchange Avenue)	2041	- Completion of Municipal Class EA or suitable equivalent to the satisfaction of the City - Securing of land requirements to the City as a holding condition for development approval
W7-4 ***SIG-12*** ***SIG-13***	Colossus Drive connector	Colossus Drive grade separated crossing of Highway 400; extend Colossus Drive across Highway 400 to align with Interchange Way	2041	- Completion of Municipal Class EA - Securing of land requirements to the City as a holding condition for development approval

Standalone active transportation projects are identified in **Figure 10-2** and detailed in **Table 10-3** Additionally, spot improvements such as grade separated pedestrian crossings and a new AT elevator at Jane Street are noted.

All Active Transportation projects are designated with the exception of the combined AT/Transit grade separated crossing of Highway 407 connecting Edgeley Boulevard with Highway 407 Subway Station and the Freshway Drive extension to Jane Street. While both projects have been conceptually identified in the Transportation Master Plan, further study is required to confirm feasibility, alignment, and configuration.

Figure 10-2: Standalone Active Transportation Project Key Map

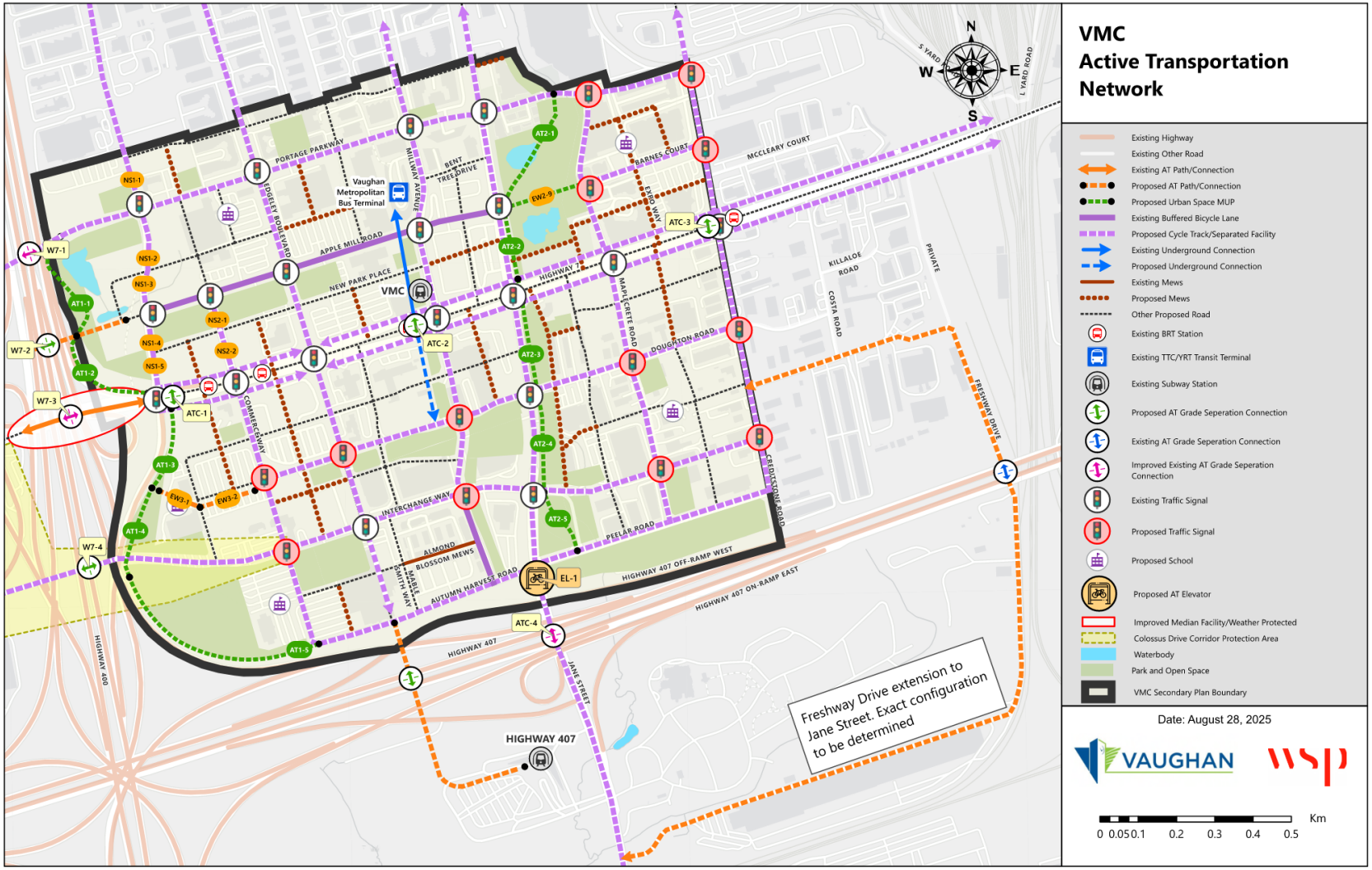


Table 10-3: Phasing of Standalone Active Transportation Projects

ID #	Project Name	Improvement	Timing	Phasing Requirements
AT1	West Side Trail	Construct new MURT network in the southwest and northwest quadrants connecting Exchange Avenue, Highway 7, and Portage Parkway	2051 or earlier	- Securing of land requirements to the City as a holding condition for development approval
AT2	Black Creek Trail	Construct new north-south MURT along the Black Creek linear parkway in the southeast and northeast quadrants connecting Exchange Avenue to Portage Parkway	2041 or earlier	- Securing of land requirements to the City as a holding condition for development approval
EL-1	Jane Street Active Transportation Elevator	Design and construct an elevator to provide direct access to the Jane Street overpass from	2041	- Completion of Jane St-Highway 407 AT study - To be implemented in collaboration with project ATC-4, which will examine how best to facilitate safe and direct AT crossings of Highway 407 along a

ID #	Project Name	Improvement	Timing	Phasing Requirements
		Exchange Avenue		widened Jane Street overpass. - Securing of land requirements to the City as a holding condition for development approval
ATC-1	Highway 7 AT Crossing at Applewood Crescent	Provide a safe grade-separated crossing across Highway 7 near the western extents of VMC	Development-driven	- May require a specific study to examine format, connections, and implementation - Envisioned to be developer-constructed
ATC-2	VMC Subway Station Pedestrian Tunnel Extension to Interchange Way	Extend the existing pedestrian tunnel that connects VMC bus terminal with the Subway station south to Interchange Way.	Development-driven	- Envisioned to be developer-constructed based on established implementation format for the existing tunnel
ATC-3	Highway 7 AT Crossing at Creditstone Road	Provide a safe grade-separated crossing across Highway 7 near the eastern	Development-driven	- May require a specific study to examine format, connections, and implementation - Envisioned to be developer-constructed

ID #	Project Name	Improvement	Timing	Phasing Requirements
		extents of VMC		
ATC-4	Jane Street Structure AT Improvements	Widen the Jane Street overpass to support a MURT across Highway 407	2041	- Completion of Jane St-Highway 407 AT study - To be implemented in collaboration with project EL-1; project is envisioned to be led by York Region and will require collaboration with 407-ETR.
W7-1	Portage Parkway Structure AT Improvements	Widen the Portage Parkway overpass to support a MURT across Highway 400	2041	- Completion of Weston 7 AT Network Implementation study - Secure land requirements as identified in the Implementation study
W7-2	New AT-only Crossing of Highway 400 (at Apple Mill Road)	Construct a new AT-only crossing of Highway 400, connecting VMC to Weston 7	Tied to Weston 7 development progression	- Completion of Weston 7 AT Network Implementation study - Secure land requirements as identified in the Implementation study
W7-3	Highway 7 Weather Protection	Cover the existing Highway 7 central median AT crossing over Highway 400 to improve the quality of the connection	2041 or earlier	- Completion of Weston 7 AT Network Implementation study - Secure land requirements as identified in the Implementation study - Project is envisioned to be led by York Region

ID #	Project Name	Improvement	Timing	Phasing Requirements
		between VMC and the Subway station and the Weston 7 area		

VMC-area transit projects are detailed in **Table 10-4**. While this TMP is predicated on significant improvements to transit, the implementation of transit projects is dependent on external agencies. Close cooperation, ongoing consultation, and partnership will be required to facilitate the realization of recommended transit capital and servicing improvements.

Table 10-4: Phasing of Transit Projects

ID #	Project Name	Improvement	Timing	Phasing Requirements
TR1	Highway 7 Rapid Transit (10 minute service)	Service frequency improvement to 10-minute headways	2041	- Reliant on YRT servicing strategy - Requires YRT allocation of capital cost for additional buses and incremental operating costs
TR2	Jane Street Rapidway	New Bus Rapid Transit service in designated lane space, operating at 10 minute headways	2041	- Project led by YRRTC - Completion of BRT TRPAP - Detailed design and construction - YRT allocation of capital cost for buses and

ID #	Project Name	Improvement	Timing	Phasing Requirements
				incremental operating costs
TR3	Transit circulator	New bus circulator connecting VMC and Weston 7 Secondary Plan Areas and connecting to Subway stations	2041	- Reliant on YRT servicing strategy - Requires YRT allocation of capital cost for additional buses and incremental operating costs

10.2 Costing

Costs were estimated at a project level for all major and minor collector road improvements and are summarized in **Table 10-5**. Costs provided are in 2025 dollars and exclude property acquisition. Costs related to the improvement of Interchange Way (Commerce Way to Creditstone Road) and Millway Avenue (Highway 7 to Interchange way) reflect cost estimates from the Municipal Class EA, which was developed in parallel with the VMC Transportation Master Plan.

Costs for the Colossus Drive Grade Separation were adapted from previous cost estimates noted in York Region's Transportation Master Plan and the City of Vaughan's Transportation Master Plan. They align with estimates for the same facility noted in the Weston 7 Transportation Master Plan but reflect expansion to 2025 dollars.

Local streets are anticipated to be constructed through development and have not been costed. Project costs exclude signalization, which is accounted for under a separate heading.

Capital construction costs are preliminary and subject to adjustment and refinement through future studies and processes for detailed design and engineering.

Table 10-5: Preliminary Cost Estimates for Collector Road Improvements

ID #	Corridor	From	To	Cost ($)
EW1	Portage Parkway	Highway 400	Creditstone Road	$11,589,000
EW2	Barnes Court	Jane Street	Creditstone Road	$1,662,900
EW3	Doughton Road	West Side Trail	Creditstone Road	$6,330,600
EW4*	Interchange Way	Celebration Avenue	Creditstone Road	$34,418,900
EW5	Autumn Harvest Road-Peelar Road	Commerce Way	Creditstone Road	$6,683,800
NS2-3 to NS2-8	Commerce Way	Highway 7	Autumn Harvest Road	$3,166,500
NS3	Edgeley Boulevard	Street A	Autumn Harvest Road	$8,568,000
NS4*	Millway Avenue	Street A	Interchange Way (except for Portage Parkway to Highway 7 segment)	$15,502,400
NS5	Maplecrete Road	Portage Parkway	Peelar Road	$5,080,900
NS6	Creditstone Road	Portage Parkway	Peelar Road	$7,669,900
W7-4**	Colossus Drive connector	W7 Secondary Plan Area	Interchange Way	$214,910,000
Signal	New signal			$490,000

*Cost estimate incorporates greater levels of detail as these estimates were generated through the corridor EA process

**City of Vaughan assumed to be responsible for two-thirds of the total cost, with York Region responsible for the remaining third.

Preliminary high-level capital cost estimates have been developed at a project level for all standalone active transportation projects and are summarized in **Table 10-6.** Linear trails reflect linear cost averages for Multi-Use Paths as per the City of Vaughan's Development Charges (DC) Bylaw (2022). Base costs for existing structure expansion to accommodate AT infrastructure is derived from MTO's *Parametric Estimating Guide (2016)* for concrete bridges. Costs for specific items including the Jane Street Active Transportation Elevator, grade separated AT crossings, and weather protection were derived from industry best practices. Cost estimates for a new AT-only crossing of Highway 400 (at Apple Mill Road) were originally developed for the same facility for the Weston 7 Transportation Master Plan and are carried forward to this TMP. All unit costs have been corrected to 2025 dollars.

Cost estimates have not been developed for projects ATC-1 – Highway 7 AT Crossing at Applewood, ATC-2 – VMC Subway Station Pedestrian Tunnel Extension to Interchange Way, ATC-3 – Highway 7 AT Crossing at Creditstone Road, and W7-2 – New AT-only Crossing of Highway 400 at Apple Mill Road. These projects are envisioned to be delivered through the development process. Cost estimates have also not been developed for the proposed AT-Transit grade separation of Highway 407 (Edgeley Boulevard to Highway 407 Subway station) and Freshway Drive extension to Jane Street on account that further study is required to confirm feasibility, alignment, and configuration.

Table 10-6: Preliminary Cost Estimates for Standalone Active Transportation Projects

ID #	Project Name	From	To	Cost ($)
AT1	West Side Trail	Portage Parkway	Exchange Avenue	$766,400
AT2	Black Creek Trail	Portage Parkway	Exchange Avenue	$554,500

ID #	Project Name	From	To	Cost ($)
NS1	Applewood Crescent	Street A	Highway 7	$1,029,100
NS2-1 & NS2-2	Commerce Way	Apple Mill Road	Highway 7	$384,200
EL-1	Jane Street Active Transportation Elevator			$8,000,000
ATC-4*	Jane Street Structure AT Improvements			$7,800,000
W7-1	Portage Parkway Structure AT Improvements			$5,430,000
W7-3*	Highway 7 Weather Protection			$5,148,000

*Project is assumed to be delivered by York Region.

Preliminary high-level capital costs have been estimated for the proposed transportation improvements to inform future capital budgets and decision-making processes, as shown in **Table 10-7.** All costs provided are in 2025 dollars and include projected commitments for City of Vaughan-led initiatives only. Costs exclude property acquisition and reflect the capital cost of construction only, which is consistent with the City of Vaughan's Transportation Plan. York Region, YRT, and development-driven projects are not reflected in the cost summary provided.

Altogether, the City of Vaughan would be responsible for $265.9M of capital infrastructure improvements to improve VMC's transportation network. $143.3M (54%) is associated with the City of Vaughan's two-third cost contribution to construct the Colossus Drive Grade Separation, which is scheduled for completion prior to 2041.

$250.9M (94%) are directed towards multimodal improvements to the local street network while $15.0M (6%) are directed towards standalone active transportation

improvements. Transit capital and operations-related improvements, as well as capital improvements along Regional facilities, are not costed in this TMP as they will be implemented by other agencies.

Altogether, $167.9M (63%) worth of City of Vaughan-led improvements are scheduled to be completed by 2041, with a further $98.0M (37%) by 2051.

Table 10-7: Cost Summary

Mode	Improvement Type	2041	2051	City of Vaughan TOTAL
Street Network	Widening and Reconstruction	$7,700,000	$66,700,000	$74,400,000
	New Street Construction	$-	$25,100,000	$25,100,000
	Cycle Track-New Construction	$-	$1,800,000	$1,800,000
	Colossus Drive Grade Separation*	$143,300,000	$-	$143,300,000
	Traffic Signals	$2,900,000	$3,400,000	$6,300,000
Standalone Active Transport Improvement	MURT-New Construction	$600,000	$1,000,000	$1,600,000
	AT Link-Existing Structure Improvement	$5,400,000	$-	$5,400,000
	New AT Crossing over Highway 400	$-	$-	$-
	New AT Crossing over Highway 7	$-	$-	$-
	New Elevator	$8,000,000	$-	$8,000,000
TOTAL		**$167,900,000**	**$98,000,000**	**$265,900,000**

*Costs to City of Vaughan shown exclusively in this table. City of Vaughan is assumed to be responsible for two-thirds of the total cost of the Colossus Drive Grade Separation, with York Region responsible for the remaining third.

10.3 Measuring and Monitoring Progress

A monitoring strategy is vital in measuring the impact of proposed improvements within the VMC TMP. It is recommended that the City of Vaughan monitor both the implementation of recommended improvements and their impacts on the Vision Statement and principles listed in **Section 1.1.** Monitoring this progress will help confirm the transportation projects included in the TMP and will help guide the direction of future decision-making and resource allocation based-on key indicators and measurable outcomes. This will create a more balanced, safer, multi-modal transportation system that will continue to contribute to the residents of VMC's well-being, health, and economy.

An initial data collection framework was developed to serve as a plan for monitoring progress. It consists of:

- A list of key performance indicators (KPIs) that measure various aspects of multi-modal facilities, factors and their respective performance
- For each KPI, the data sources that could be used to calculate it, as well as the frequency of the calculation.

Table 10-8 provides the list of each mode, indicator, unit of measurement, data source, and frequency of collection.

It is recommended that, in addition to this initial monitoring plan, the City identify:

- Which department within the City is responsible for collecting and analyzing the data.
- A target for each KPI. Progress towards the target can be analyzed by setting the existing available indicators as a baseline and ensuring the indicators are updated when appropriate.
- A plan for the actions the City intends to take when a target is met or not met.
- A plan to regularly create status updates and progress reports.

Table 10-8. Multi-modal data collection framework with key indicators

#	Mode	Indicator	Unit	Data Source	Frequency
1	Active Transportation	Total kilometres of in-boulevard and open space cycling and shared use facilities	Km	City of Vaughan York Region	Every 2 years

#	Mode	Indicator	Unit	Data Source	Frequency
2	Active Transportation	Total kilometres of new sidewalks	Km	City of Vaughan	Every 2 years
3	Active Transportation	Number of collisions with pedestrians or cyclists	/	City of Vaughan	Every year
4	Active Transportation/ Transit	Number of existing and new bicycle end-trip facilities (bike parking, bike share, bus units with bike racks)	/	City of Vaughan	Every year
5	Transit	Number of kilometres of existing and new transit routes (Transit coverage)	Km	York Region Transit	Every 2 years
6	Transit	Ridership	/	York Region Transit GO Transit	Every year
7	Transit	Effective kilometres travelled by transit units	Km	York Region Transit GO Transit	Every year
8	Car	Private vehicle ownership per household	Index (registered vehicles / household)	Transportation Tomorrow Survey (TTS)	Every 5 years
9	Car	Number of collisions with motorists	/	York Region Police OPP	Every year
10	Car	Total lane kilometres of new, repaved or newly treated roads	Lane-km	City of Vaughan York Region	Every 3 years
11	Car	Daily Vehicle Kilometres Travelled (VKT)	Km	City of Vaughan	Every 5 years

#	Mode	Indicator	Unit	Data Source	Frequency
				(through York Region ABM)	
12	Car	Daily Vehicle Hours Travelled (VHT)	Hours	City of Vaughan (through York Region ABM)	Every 5 years
13	Car	Screenline analysis (volume/capacity)	Index (A.M. peak volume/capacity)	City of Vaughan (through York Region ABM)	Every 5 years
14	All Modes	Modal split (all trips)	Percentage of trips	City of Vaughan (through York Region ABM)	Every 5 years
15	All Modes	Number of daily trips per capita	Index (trips / capita)	Transportation Tomorrow Survey (TTS)	Every 5 years