Weston 7 Transportation Master Plan

June 2025

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VAUGHAN

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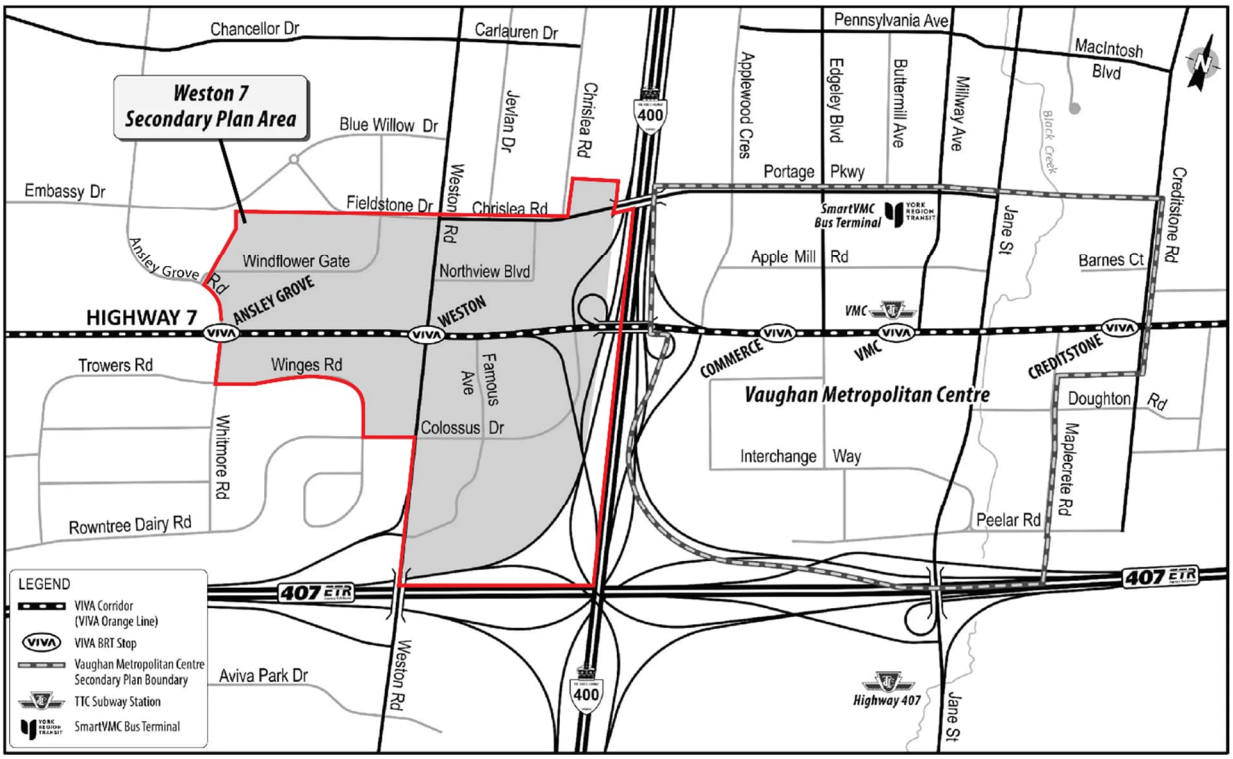
Executive Summary

Introduction

The Weston Road and Highway 7 (Weston 7) Transportation Master Plan (TMP) is a long-range transportation plan that analyzes and identifies a multi-modal transportation network to help facilitate intensification and redevelopment of the Weston 7 Secondary Plan area into a mixed-use community that focuses on sustainable travel to meet mobility needs. The Weston 7 TMP has proceeded in parallel with the Weston 7 Secondary Plan study process. In order to inform the Secondary Plan, this TMP proposes a phasing plan which identifies transportation infrastructure improvements which must be delivered prior to or during redevelopment.

The Weston 7 Secondary Plan area, as analyzed in the Weston 7 TMP, is bounded by Highway 400 to the east, Chrislea Road and Blue Willow Drive to the north, Ansley Grove Road to the west and Winges Road and 407 ETR to the south, as presented in Figure ES 1.

Figure ES 1: Weston 7 TMP Study Area



The Weston 7 TMP meets the requirements for the Municipal Class Environmental Assessment Master Plan process, specifically addressing Phase 1 – identification of problems and opportunities and Phase 2 – assessment of alternatives and selection of preferred solution.

Stakeholder, Public Engagement and Consultation

Public and stakeholder engagement was held throughout the TMP study process, with two rounds of engagement held with technical agencies, a landowners' group, and the public. The first round of consultation focused on existing challenges and the identification of opportunities to meet future travel demands of the forecast growth. Comments received were mixed between concerns regarding existing congestion and potential worsening of conditions in the future, to support for intensification of land uses.

The second round of consultation presented the assessment of alternatives and preliminary preferred plan. Comments on the preliminary preferred plan were considered in refining the multi-modal transportation network that is presented in this TMP. Comments on the phasing of improvements were noted and addressed through the TMP's phasing plan.

Setting the Stage: Existing Conditions

The Weston 7 study area already is a busy area today with numerous retail, restaurant, and entertainment options and a growing residential community as high-rise residential buildings are being constructed. Many of the streets have sidewalks, some on both sides of the street and others only on one side. The cycling network is limited to facilities on Highway 7 and the existing community is predominantly auto-oriented. Bus rapid transit (BRT) operates in designated lanes on Highway 7, with two stops in the study area, at Weston Road and Ansley Grove Road. North-south bus service also operates on Weston Road.

Traffic operations analysis of existing conditions shows congestion at select intersections on Highway 7 and select intersections on Weston Road during peak travel hours. A portion of those travelling on these major arterials are through traffic with origins and destinations outside of the study area. Highway 400 immediately to the east and Highway 407 immediately to the south are major attractors of trips through the study area.

A Stage 1 archaeological assessment was conducted for the study area. The study area was found to have been significantly previously disturbed. Based on these findings, no further archaeological assessment is recommended. A cultural heritage assessment also was conducted. No built heritage resources or cultural heritage landscapes with known or potential cultural value or interest were identified within the Weston 7 TMP study area.

Developing the Vision Statement

The analysis of existing conditions revealed a number of transportation needs and opportunities to address in the TMP, including:

- Provide a grid network of complete streets throughout Weston 7;
- Ensure the transportation network is designed all users;
- Improve safety for all modes of travel;
- Leverage new innovative smart mobility and Transportation Demand Management (TDM) measures; and
- Increase the share of non-auto trips.

These existing needs and opportunities, combined with the goal of accommodating over 50,000 residents and jobs in the study area provide a significant challenge, or opportunity, for the TMP to address.

The study area is compact and there are relatively limited opportunities to provide considerable additional vehicle capacity. The focus of the TMP has been to emphasize more sustainable travel options and provide strategic road network improvements where possible.

The TMP vision statement reads:

The vision of the Weston 7 Secondary Plan transportation network is to accommodate future growth that includes commercial, cultural, and entertainment destinations, along with housing and employment opportunities. The TMP will enhance the sustainable and multi-modal transportation system for the City with a network that supports all users and all modes of transportation. The City's transportation system will be accessible and promote connectivity, leveraging existing rapid transit infrastructure and service within and to and from the broader area.

The four key principles integrated into the vision are:

- Promoting sustainability;
- Improving connectivity;
- Enhancing accessibility; and
- Supporting mobility for all modes of transportation.

Alternative Network Development and Assessment

Extensive technical analysis was undertaken to analyze future conditions of multiple alternatives. These analyses used the York Region 2041 travel demand forecasting model as a basis and considered full build out of the study area, which at the time of analysis was estimated to be 64,900 people and jobs. Analysis of road links and intersections at a microsimulation level using the Aimsun software was conducted for an interim condition of about 40% of the above-noted full build out (about 26,000 people and jobs). Meetings were held with York Region to agree to parameters to use in the travel demand model to better reflect future conditions, such as reducing the amount of parking provided for future residential units and increasing the cost of all day parking, plus adjusting the trip rates from different land uses to reflect trip rates seen in more urban conditions.

The assessed alternatives are described below:

- Alternative 0 – Baseline: only Regional and Provincial planned improvements, with no City improvements;
- Alternative 1 – Colossus Drive: The Baseline plus the Colossus Drive extension;

- Alternative 2 – Demonstration Plan: The Baseline, Colossus Drive, plus initial road network concept for the Secondary Plan; and
- Alternative 3 – Network Plan: The Baseline, Colossus Drive, adjustments to the initial road network concept, and additional multi-modal improvements to enhance opportunities for residents and visitors to use sustainable modes of transportation.

Through the assessment detailed in the TMP, Alternative 3 was identified as the preferred alternative.

The analysis showed that a measured approach to development would be necessary. For the interim conditions with 26,000 people and jobs, chronic congestion was observed in the micro-simulation model at intersections along Highway 7 and Weston Road during peak hours. The level of congestion could be accommodated, but numerous intersections with movements with long delay were noted.

An analysis of the full build-out scenario noted above (64,900 people and jobs) was analyzed in the travel demand model only because the expected road congestion resulted in capacity constraints throughout the micro-simulation, precluding the ability to collect analytical results.

Future Multi-modal Network

The preferred multi-modal network of the future is described in more detail in this chapter. Improvements for active transportation (human-powered walking, rolling, and cycling), transit, and the street network were defined. Sidewalks will be provided on both sides of all streets. Dedicated cycling facilities will be provided on all collector and arterial streets. A transit circulator services the Weston 7 study area and is planned to connect to the Vaughan Metropolitan Centre subway station and the Highway 407 / Jane Street subway station. The Colossus Drive extension east across Highway 400 is the main road improvement, along with a finer grain street network to facilitate multi-modal access to properties.

Figures showing the individual active transportation improvements (Figure ES 2), transit improvements (Figure ES 3), and street network improvements (Figure ES 4) are provided.

Supportive transportation policy work is included as part of the preferred alternative and is designed to leverage the infrastructure investments. For example, an extensive parking management plan was developed to provide parking in strategic locations and in limited supply to encourage the use of non-auto modes of travel. Transportation demand management measures further support sustainable travel options.

Figure ES 2: Active Transportation Network Improvements

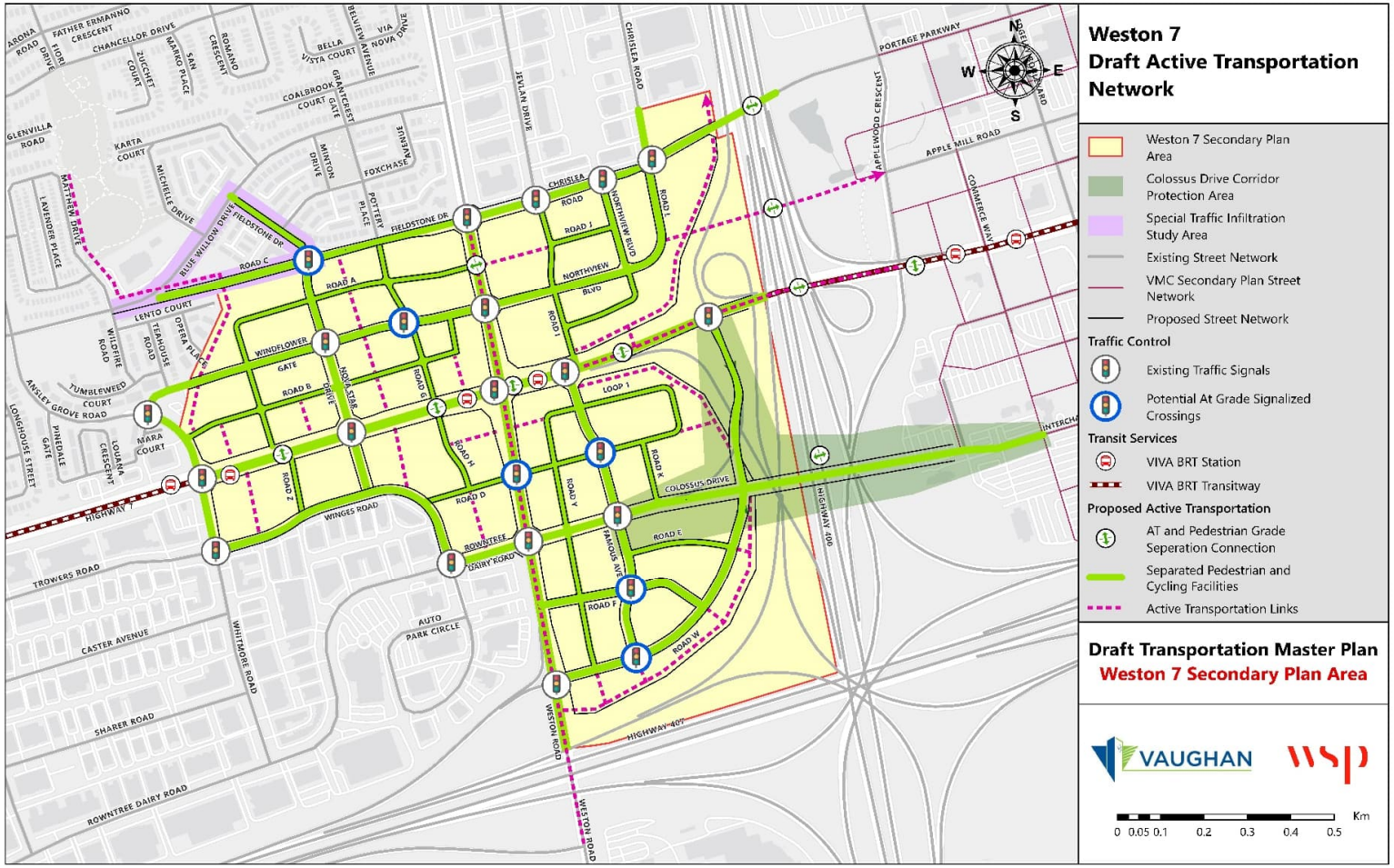


Figure ES 3: Transit Network Improvements

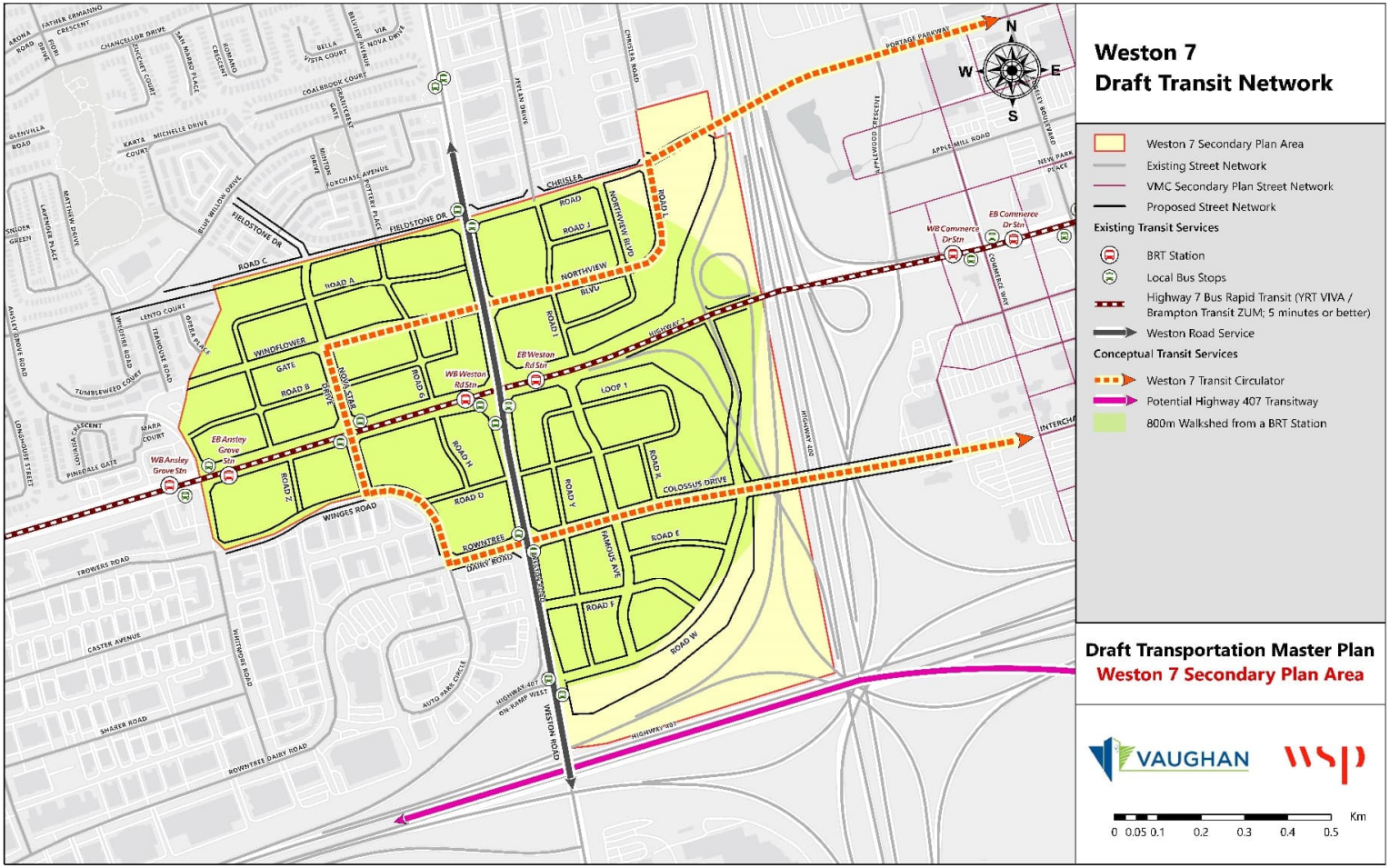
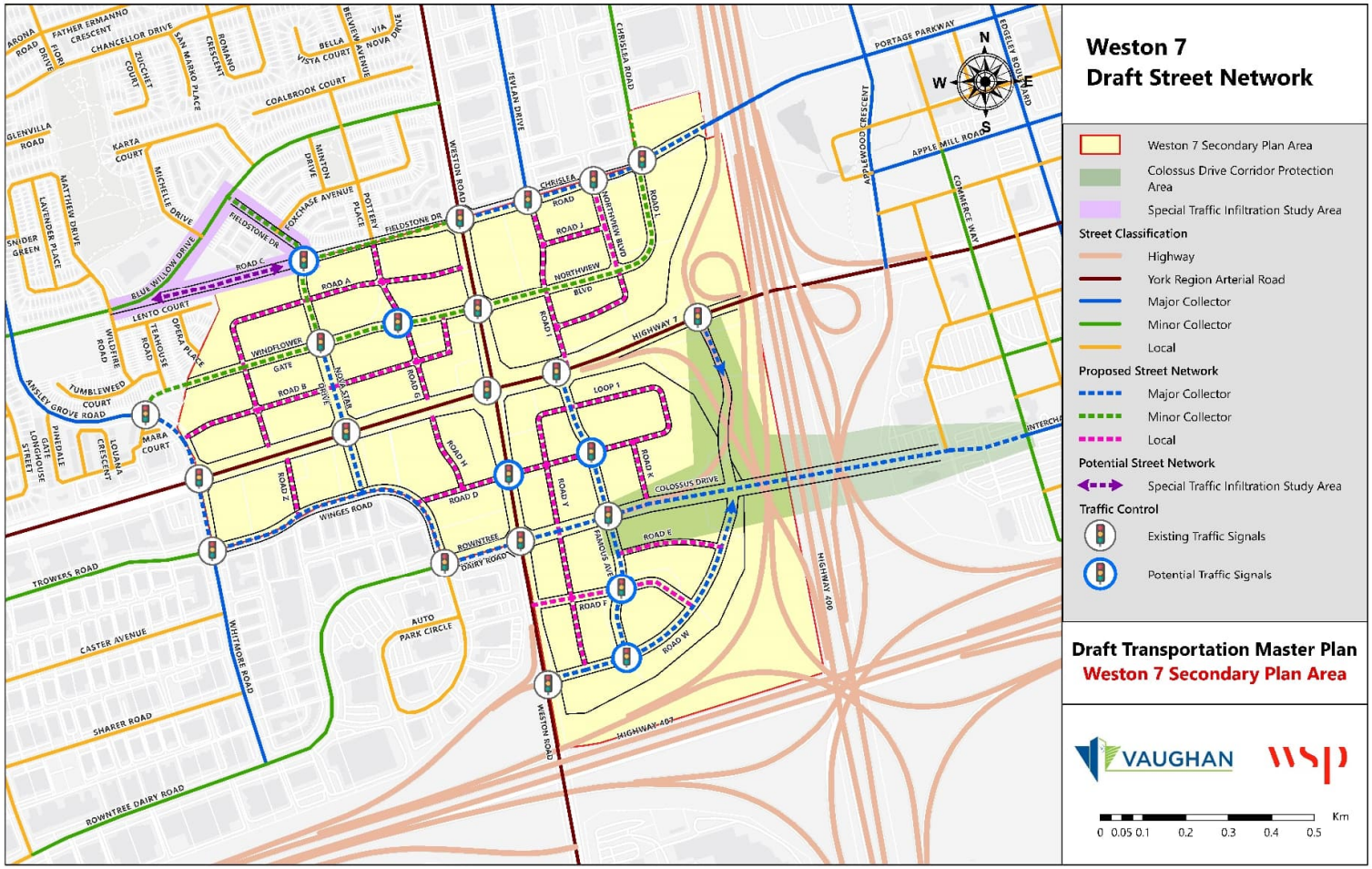


Figure ES 4: Street Network Improvements



Implementing the Plan

The implementation framework of the multi-modal transportation network proposed for the Weston 7 Secondary Plan will be imperative for planning, protecting, and positioning the area to accommodate additional population and jobs. The framework is structured around both required implementation of broader City and Regional Transportation improvements as well as the multi-modal transportation network projects recommended for the Weston 7 Secondary Plan.

City and Regional transportation infrastructure will be necessary to provide the capacity to accommodate growth up to the 2041 interim horizon (15,840 people and 10,051 jobs). The necessary broader area City and Regional improvements are as follows:

- Colossus Drive extension over Highway 400;
- 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 CN Yard;
- Langstaff Road full interchange at Highway 400;
- Steeles Avenue widening west of Jane Street (4 to 6 lanes);
- Pine Valley Drive widening between Highway 7 and Steeles Avenue (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);
- Highway 7 rapid transit corridor (Viva headway 10 minutes);
- Steeles Avenue Transit Corridor (4 general purpose lanes plus dedicated transitway east of Jane St); and
- Jane St Transit Corridor (4 general purpose lanes plus dedicated transitway between Major Mackenzie Dr and Highway 7 (Viva headway 10 mins))

A quadrant-based approach is proposed for the orderly and contiguous implementation of the internal multi-modal transportation network. Generally, the collector street network in a quadrant will be secured prior to development proceeding within that quadrant, while local streets will be delivered when adjacent development proceeds. Identification of phasing of projects and improvements for local streets should also consider existing parcel fabric and built form.

The following street (ST) and active transportation (AT) projects have area-wide implications and should be secured prior to the development within a quadrant:

- ST-34, ST-36 and ST-31: Colossus Drive Extension and connecting roadways;
- ST-35 and ST-10: All ages and abilities cycling infrastructure along Chrislea Road and Portage Parkway (Weston Road to VMC);
- ST-5, ST-1.1, and ST-1.2: Fieldstone Drive extension and related improvements (Weston Road to Blue Willow Drive);
- AT-12: New pedestrian / cycling overpass connecting Weston 7 with VMC over Highway 400, located between Highway 7 and Portage Parkway existing structures;
- ST-23, ST-24.1, ST- 24.2 and ST-18: Rowntree Dairy Road, Winges Road and Whitmore Road improvements;
- AT-15: Weather protection along the existing Highway 7 median multi-use path over Highway 400;
- AT–24 Weston Road between Highway 407 ETR EB Ramp to Chrislea Road/ Fieldstone Drive – Improved AT Separated in-boulevard cycling facilities;
- Five-minute all-day bus frequencies along the Highway 7 Viva Rapidway; and
- Transit circulator connecting Weston 7 to VMC and Highway 407 Subway stations.

Preliminary capital construction cost estimates were developed at a project level for major and minor Collector road projects and major active transportation infrastructure and are displayed in Table ES 1. It should be recognized that the AT Network Implementation Study will advance the designs and refine cost estimates for new major active transportation infrastructure. Internal active transportation links will be implemented in conjunction with development.

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

Table ES 1: Summary of Major Infrastructure Costs

ID#	Street	From	To	Cost ($)
ST-10 ST-35	Chrislea Road	Weston Road	Applewood Crescent / Portage Pkwy	$1,300,000
ST-12.1 ST-12.2	Northview Blvd	Weston Road	Chrislea Road	$2,400,000
ST-2.1 ST-2.2 ST-2.3	Windflower Gate	Ansley Grove	Weston Road	$3,200,000
ST-1.2 ST-5	Fieldstone Drive Road C (Fieldstone Drive Extension)	Blue Willow Drive Fieldstone Drive	Weston Road Blue Willow	$3,100,000
ST-7 ST-8	Nova Star Drive	Fieldstone Drive	Highway 7	$1,000,000
ST-19	Nova Star Drive	Highway 7	Winges Road	$800,000
ST-31	Road W	Weston Rd. / 407 ETR WB Ramp	Colossus Drive	$2,900,000
ST-26 ST-33	Famous Avenue	Highway 7	Road W	$4,300,000
ST-23 ST-24.1 ST-24.2	Winges Road - Rowntree Dairy Rd-Whitmore	Highway 7	Weston Road	$4,500,000
AT-12	New Active Transportation Crossing of Highway 400	Road L (Weston 7)	Applemill Road (VMC)	$31,500,000

1 Introduction

1.1 Study Overview

WSP Canada Inc. was retained by the City of Vaughan to complete the Weston Road and Highway 7 Transportation Master Plan (Weston 7 TMP), in support of and in parallel with the next phases for development and approval of the Weston 7 Secondary Plan.

Primary objectives of the study broadly include:

- Complete a Transportation Master Plan in accordance with the EA process and in conjunction with the Secondary Plan process;
- Test alternative transportation network options;
- Identify and evaluate an active transportation network;
- Use a multimodal level of service approach to evaluate network connections and infrastructure;
- Evaluate the opportunities of new mobility options (Smart Mobility); and
- Develop a travel demand management and parking strategy.

A TMP is a long range transportation plan which provides area-specific strategic transportation planning direction. Guided by community and municipal goals, the proactive plan examines the transportation needs for all modes of infrastructure to accommodate future growth. Demographics, existing conditions, emerging trends, best practices, stakeholder inputs and related policies are all assessed in a holistic manner to produce long-term transportation recommendations that facilitate growth and enhance the quality of life.

The Vaughan Transportation Plan identifies transportation network improvements with benefits across the entire city, including the Colossus Drive Extension over Highway 400. This Weston 7 TMP, however, incorporates major improvements identified by the Vaughan Transportation Plan while being specific to the Weston 7 study area, going into greater detail on how the multi-modal network for this Secondary Plan should be planned and implemented.

The roles of this Weston 7-specific TMP include:

- A community vision for the future of transportation to address the needs and abilities of its community members and visitors;
- A communication tool to further discuss transportation challenges and opportunities with various audiences;
- An opportunity for enhanced partnerships with York Region, the Ontario Ministry of Transportation, and others to improve coordination and collaboration;
- An implementation guide to support short, medium, and long-term infrastructure objectives;
- A decision-making tool to support current and future key stakeholders involved in the implementation process; and
- An integrated, holistic, multimodal plan to address and integrate all modes of transportation, including walking, cycling, taking transit and private vehicle usage, in a cohesive manner.

A TMP is typically updated on a regular basis to proactively address changing social and economic patterns, new mobility trends and policy priorities. A strong TMP aligns with existing local community growth plans, in this case, the Weston 7 Secondary Plan, as well as Regional and Provincial planning initiatives to achieve its goals.

The City recognizes that the level of development envisioned for the Weston 7 study area must have a long-range planning approach to define, prioritize, and build infrastructure over a period of time to accommodate the growth. This approach has been taken in the preparation of the TMP to proactively address transportation issues and make informed decisions about capital investments in infrastructure.

The study area is bisected by two York Region roads (Highway 7 and Weston Road) and bordered on two sides by two Ministry of Transportation highways (Highway 400 and Highway 407). Coordination with Regional and Provincial agencies is important, and Regional and Provincial planned infrastructure is essential to the overall success of circulation and mobility in the study area.

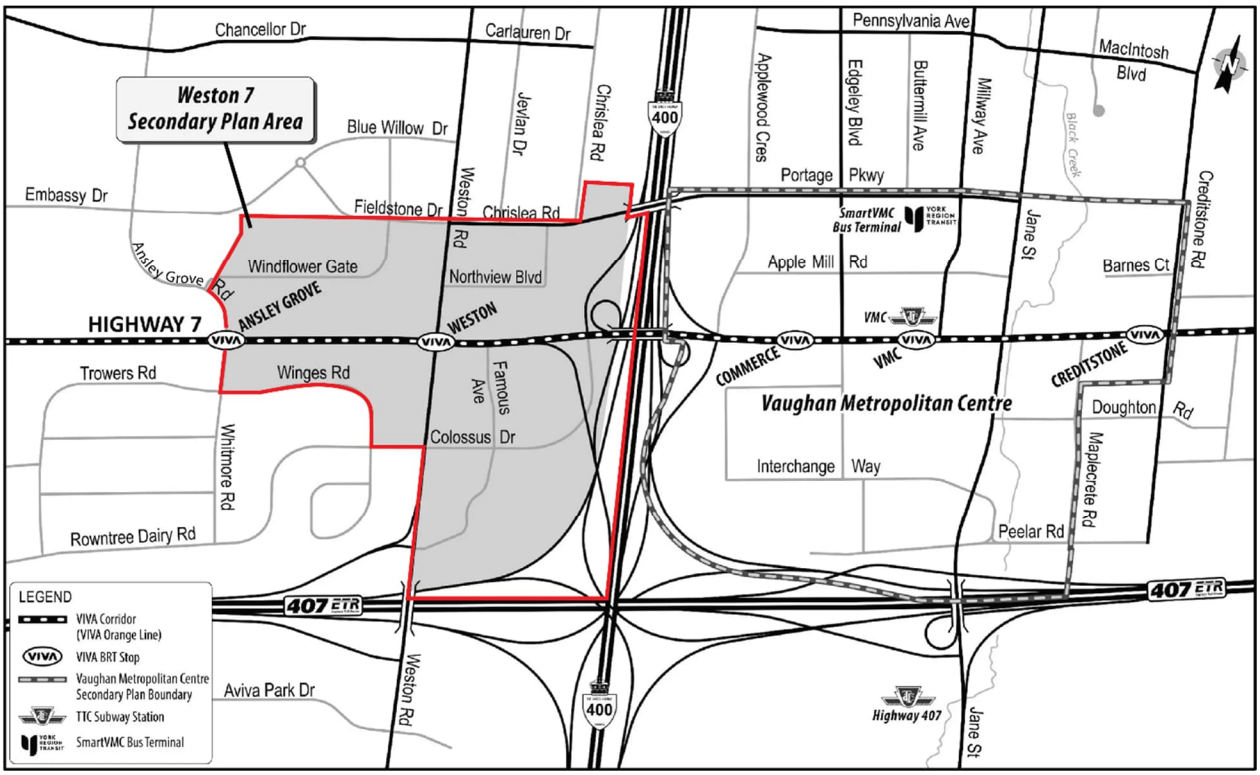
1.2 Study Process and Approach

The study process for the Weston 7 TMP study has followed the Municipal Class Environmental Assessment (MCEA) process for Master Plans Phases 1 and 2.

1.3 Study Area

The study area for the Weston 7 TMP is bounded by Highway 400 to the east, Chrislea Road, Fieldstone Drive, and Blue Willow Drive to the north, Ansley Grove Road to the west and Winges Road and 407ETR to the south, as presented in Figure 1. The study area is directly served by Viva Bus Rapid Transit, which operates along Highway 7. Two station-stops serve the community at Ansley Grove and Weston Roads. Situated directly to the east of Highway 400 is the Vaughan Metropolitan Centre (VMC), which is the City's downtown and includes the TTC Spadina Line (Line 1).

Figure 1: Weston 7 TMP Study Area



1.4 Report Structure

The TMP is divided into seven chapters, as outlined in Table 1.

Table 1: Structure of the TMP Report

	Chapter 1
Introduction	Provides an overview of the TMP, including what it is and why it is being prepared, plus addresses how it fulfills Phases 1 and 2 of the Municipal Class Environmental Assessment Process.
	Chapter 2
Stakeholder and Public Engagement	Summarizes the project's stakeholder and public engagement process. Feedback received from stakeholders and the public is summarized in subsequent chapters, where relevant under a “What we Heard” heading.
	Chapter 3
Setting the Stage: Existing Conditions	Outlines existing Regional and City policies guiding the TMP. Reviews the existing transportation system in place today in the study area and conducts an assessment of the multi-modal performance of the transportation network. This chapter also summarizes the archaeological and cultural heritage assessment undertaken for the Secondary Plan study area.
	Chapter 4
Developing the Vision Statement	Identifies constraints and opportunities to enhance the transportation network to accommodate future growth. Presents the vision statement and objectives.
	Chapter 5
Alternative Network Development and Assessment	Describes the process to identify and analyze alternative future networks. Reports the assessment of the alternatives for the 2051 ultimate build out and 2041 interim scenarios.
	Chapter 6
Future Multi-modal Network	Presents the multi-modal elements of the preferred alternative, illustrating how the active transportation, transit, and street network recommendations work together to help facilitate mobility.
	Chapter 7
Implementing the Plan	Includes an approach to planning, designing, and constructing the multi-modal infrastructure that is consistent with the overall Secondary Plan and the tools available to the City.

2 Stakeholder, Public Engagement and Consultation

Engagement with technical agencies, stakeholders and the public is a critical component of the TMP and is also required to satisfy the MCEA process. A comprehensive consultation and engagement program was designed, developed, and implemented to help inform the Weston 7 TMP Consultation Strategy.

The primary objective of the communication and consultation plan was to provide information and seek feedback on the proposed transportation system for the Weston 7 area, and to ensure that all stakeholders had an opportunity to be engaged through the process.

2.1 Who was Consulted

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

- Technical Advisory Committee: A Technical Advisory Committee was established at the outset of the study and included representatives from federal and provincial ministries including the Ministry of Transportation, regional transit agencies, City subject-matter experts, Highway 407 ETR, and utility companies who share and have interests in the Study Area and transportation-related assets.
- Landowners Group: A Landowners Group was established at the outset of the study and included property owners, business owners, and developers within the Study Area.
- General Public: people who live, work, and play within the Study Area as well as other individuals who live in the City of Vaughan.
- Indigenous Communities: Indigenous Communities whose Treaty rights or traditional territory covers the Weston 7 area.

2.2 Overview of Consultation

The MCEA process for master plans requires at least two points of contact with the public to alert them of the project and request input. For this TMP, two rounds of engagement with focused stakeholder groups and the public.

The engagement program ensured that residents, stakeholders, businesses, and institutions had ample opportunity to be heard and their opinions made known throughout the course of the study.

This TMP is being carried out concurrently with the Weston 7 Secondary Plan. The Secondary Plan will guide future growth, as well as the transformation of the area into a distinct urban setting with a variety of commercial, cultural, and entertainment destinations. It will additionally provide housing options and employment opportunities within walking distance to the Highway 7 Rapidway and other nearby transit options.

2.2.1 Description of Phases

Phase 1:

The purpose of this round was to present the preliminary vision statement, objectives, and performance criteria to assess future alternatives, identify opportunities and challenges, and begin to identify potential solutions. Meetings were held with technical agencies, landowners, and the public.

Phase 2:

The challenges and city-wide travel constraints associated with growth in population and employment, the assessment of future alternatives, and the identification of the preliminary preferred alternative with its multi-modal transportation network, were shared with stakeholders and the public through a series of events as part of the Phase 2.

2.2.2 Timetable of Consultation

The consultation process held the following meetings listed in Table 2.

Table 2: Engagement Events

Meeting	Date
Notice of Commencement	November 5,2020
TAC Meeting 1 and 2	December 15, 2020 and October 13, 2021
LOG Meeting 1	October 15, 2021
PIC 1	November 4, 2021
TAC Meeting 3	May 24, 2023
LOG Meeting 2	June 1, 2023
PIC 2	June 21, 2023

2.3 What We Heard – Phase 1 Engagement

2.3.1 Technical Advisory Committee (TAC)

Phase 1 of the consultation process included a meetings with the TAC on December 15, 2020 and October 13, 2021, and was used to provide the TAC stakeholder group with an introduction to the project, as well as give TAC members an opportunity to provide feedback on the project. At this point, the project was in the final stages of the background review process, and a review of existing conditions and upcoming challenges was presented to the TAC group.

General comments from the Phase 1 TAC meeting can be summarized as follows:

- Desire to combat congestion and improve connectivity.
- Make the city more bikeable and walkable using multi-modal street design.
- Many opportunities and suggestions for active transportation and other emerging transportation technologies

2.3.2 Landowners' Group

The first Landowners' Group (LOG) meeting was held virtually (due to health restrictions as a result of the COVID-19 pandemic). Comments received can be summarized as:

- Concerns about proposed local street network, roadway alignment, and bisection with existing property boundaries.
- Public / private street network should be clearly defined.

Public Information Centre #1

A Public Information Centre (PIC) was held virtually via Zoom on November 4, 2021, and held jointly with the Secondary Plan. A Notice of Public Information Centre was distributed via mailout to individual addresses within notification area, advertised in the Vaughan Citizen newspaper, and distributed via email to Agencies and Stakeholders, including Indigenous Communities. The City's website, social media channels, digital media and correspondence provided platforms communicating notice of the virtual Public Meeting. At this PIC event, a structured presentation was presented, followed by a forum for discussion and questions. Both positive and negative feedback was received verbally, in the Zoom chat, and following the presentation to the project e-mail. A high-level overview of these comments is as follows:

- Both support and concerns regarding active transportation, with some voices calling for more and some calling for less active transportation infrastructure.
- Many residents highlighted the lack of existing active transportation users in the Study Area.
- Concerns with the transportation prioritizations outlined within the project scope, with some members of the public preferring more vehicle travel lanes or 'do nothing' options.
- Concerns with closures of shops, businesses and parkland to make room for urban intensification.
- Requests for York Region Transit to modify existing transit fares.

The complete Phase 1 Engagement Summary is provided in Appendix A.

2.4 What We Heard – Phase 2 Engagement

Technical Advisory Group Meeting #2

The TAC #2 meeting took place on May 24, 2023, was structured similar to the previous event. A presentation was delivered by WSP and the City of Vaughan.

General comments from the Phase 2 TAC meeting can be summarized as follows:

- Plans to protect the network in the long run as the development applications come in.
- Emphasis on the modal split of the active transportation
- Clarity on strategies that are mitigating challenges in the communities, but not large-scale traffic issues in the area.

Landowners' Group Meeting #2

The LOG meeting held on June 1, 2023, was structured similar to the previous LOG event. The presentation contained recommendations for active transportation, transit, and the road network and showed the preliminary preferred multi-modal transportation network. A number of common themes were heard during the conversations, as well as submitted in the following the event. These included:

- Timelines of project implementation and effect on land use planning.
- Other transportation and transit improvements (TTC subway extension further north, or west to the Weston 7 study area, Weston Road widening, bike share network).
- Transit incentivization compared to ease of private vehicle travel.
- AODA considerations for cycling and the slope of roads.
- Truck mobility and goods movement.

Public Information Centre #2

Public Information Centre #2 was held June 21 - July 19, 2023, and included an in-person Open House on June 21, and a pop-up event at the Concerts in the Park event at the Chancellor Community Centre on July 12, 2023. Information on the project status, including the preferred multi–modal network was presented for consultation. Following the June 12 Open House event, display boards were posted on the project website and hosted online engagement using a Miro board interactive tool to allow the public to provide

comments and feedback virtually on maps illustrating the preferred multi- modal network. This board was active following the in-person event from June 21 until July 19.

Several key themes were noted in the digital maps and physical public comments from PIC #2. Some key themes are as follows:

- Road congestion: Too many proposed traffic signals on Weston Road and Highway 7.
- General congestion and high traffic levels on Weston Road.
- Needs better supporting transit for transit circulator to be practical.
- Transit frequency needs to be improved.
- Concerns about availability of parking.
- Desire for more bike infrastructure, potentially bike-only thoroughfares.
- Blind spots on Northview due to parking.
- More should be done on side streets to reduce local congestion.

The complete Phase 2 Engagement Summary is available in Appendix A.

3 Setting the Stage: Planning Context and Existing Conditions

3.1 Introduction

This section will focus on Regional and City transportation policy context and describe the existing conditions in relation to pedestrian, cycling, public transit and road networks. The existing parking availability and traffic operations as well as cultural and archeological assessment form part of this section.

3.2 Transportation Planning and Policy Context

3.2.1 Regional Planning and Policy Context

The York Regional Official Plan (2022) (YROP) provides a long-term strategic policy framework for guiding growth and development in the York Region, which is anticipated to grow to approximately 2.05 million people and 990,000 jobs by 2051.

The YROP provides a strong policy foundation for the future transportation network by establishing a number of Key Guiding Planning Principles detailed policies and recommended actions of the TMP. These include:

- A minimum of 50% of residential development between 2021 to 2041, and 55% from 2041 to 2051 to occur through intensification within the built-up area as well as a resident to job ratio of 2:1 focusing on Regional Centres and Corridors and major transit station areas.

- Enhanced mobility systems using a "people and transit first approach" to connect land use and transportation planning utilizing York Region Master Plans for all modes of transportation including, transit and active transportation.
- Provision of a full range of housing types with a region-wide target of 25% of all new housing units being affordable to low and middle-income households and in addition, a minimum of 35% of all new housing units within Regional Centres and major transit station areas.

Specifically, YROP's transportation policies call for:

- Prioritizing active transportation, transit and goods movement and requiring Transportation Demand Management measures to reduce single occupancy vehicle trips;
- Monitoring the provision of parking across York Region;
- Requiring development applications to complete a Mobility Plan to demonstrate how the proposed development supports transportation for all users;
- Requiring municipalities to consider major trip generators and strengthen land use and site design to promote multimodal access;
- Continuing work with local municipalities and external agencies to develop programs and initiatives that encourage transportation options other than single occupancy vehicles.
- Reduce automobile dependence by enhancing opportunities for residents and working to cycle, take transit and car-pool.
- Ensure streets support all modes of transportation; and
- Promote a linked and efficient network for goods movement that minimizes conflicts with sensitive land uses.

The YROP identifies Highway 7 as a regional corridor within the Weston 7 Secondary Plan area. The objective for regional corridors is to achieve attractive and vibrant corridors that link regional centres. The YROP envisions the Highway 7 Corridor to be more than just the main arteries for moving people and goods between neighbourhoods and regional centres.

The YROP outlines policies which are applicable to Highway 7:

- The most intensive and widest range of uses within the regional corridors be directed to specific intensification areas, identified by local municipalities as key development areas.
- Secondary plans shall be prepared by local municipalities, including key development areas identified by local municipalities.
- Take a comprehensive approach to intensification along regional corridors. Local municipalities will sable key development areas and other form of intensification along regional corridors.

The York Region Transportation Master Plan (2022) (TMP) is a long-term vision for the Region's transportation network, which considers the infrastructure needs to support growth and changing travel requirements by the 2051 planning horizon. The Weston 7 TMP began before the 2022 Regional TMP was completed and proceeded in the context of the previous 2016 Regional TMP, In this regard it should be noted that the 2016 Regional TMP's 2041 travel demand model was used as the basis for future conditions analysis.

There are a number of Regional projects in the 2016 and 2022 York Region TMPs that will have a direct benefit to multi-modal mobility within the Weston 7 study area, due to the project's location within the study area or adjacent to the study area. These include:

- Dedicated / separated cycling facilities along Highway 7 and a requirement for new cycling facilities along Weston Road;
- The construction of a new East-West regional trail south of Highway 407, known as the "South York Greenway";
- Extension of the Highway 7 Rapid Transit corridor to Queen Street in Brampton;
- Extension of Langstaff Road across the CNR yards alongside interchange upgrades at Highway 400;
- Road improvements along Weston Road between Highway 7 and Highway 407; and

The Regional TMP states that the Region is undertaking an environmental assessment for a new section of Langstaff Road to cross the Canadian National Railway MacMillan Yard. This project will benefit the Weston 7 study area by providing an alternate east-west arterial road to alleviate some through traffic on Highway 7.

3.2.2 City Context

The City of Vaughan Official Plan (2010 & On-going) (VOP) is part of an overall Growth Management Strategy. The Strategy is intended to shape the future of the city and guide its continued transformation into a vibrant, beautiful, and sustainable city.

The Weston 7 study area has been identified as a 'Primary Growth Centre'. These areas are prescribed to be locations for intensification and accommodated in the form of predominantly mixed-use high and mid-rise buildings, developed at an intensity supportive of transit.

Schedule 9: Future Transportation Network identifies the Colossus Drive crossing as a future 400 series road crossing. The policies in the Official Plan support a comprehensive transit system, support for active

transportation, and managing movement through parking and travel demand management policy measures.

The 2023 Vaughan Transportation Plan (VTP) 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 plan identifies Weston 7 as an area that could implement mobility hub and electric micro-mobility pilot projects in the near term. Pilot projects or the broader Transportation Innovation Program are recommended in the VTP to improve future mobility through trialing new transportation technologies and services. Incorporating innovative forms of transportation within new development areas such as Weston 7 will help guide and manage the implementation of new transportation technologies.

Infrastructure projects specific to the Weston 7 study area include the Colossus Drive crossing of Highway 400, which is identified in the five-to-eight-year horizon period and planned all ages and abilities cycling facilities throughout the study area, including on the Colossus Drive crossing.

The 2020 Pedestrian and Bicycle Master Plan (PBMP) focuses on creating a more walkable and bikeable community in Vaughan. 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, Vaughan Metropolitan Centre 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 Plan recommends prioritizing the Weston 7 study area as one of the key locations for developing a localized cycling network. This network would provide a connection to the proposed Vaughan Metropolitan Centre separated cycling network and improve accessibility to within the area.

The PBMP identifies the following priority routes within the existing Weston 7 area: Highway 7, Weston Road, and Portage Parkway / Chrislea Road based on existing travel patterns.

3.3 Existing Conditions

3.3.1 Existing Pedestrian Network

Sidewalks are generally provided along existing public roadways within the study area, as displayed in Figure 2. Within the study area, most sidewalks have a width of 1.5 metres and are separated by green space or an asphalt buffer.

The recent reconfiguration of Highway 7 has improved pedestrian connectivity along this busy corridor by providing a boulevard between the sidewalk and vehicle lanes. The Highway 7 sidewalks are setback from the curb by planters, tree grates and raised cycle tracks that provide an extra level of separation between pedestrians and motorists. Additionally, a multi-use path for pedestrians and cyclists is provided in the centre of the Highway 7 bridge over Highway 400. Intersections on the east and west side of the overpass provide access to the newly constructed multi use pathway.

Sidewalks are lacking from the following segments:

East-West:

- The south side of Blue Willow Drive between Ansley Grove Road and Michelle Drive;
- The south side of Northview Boulevard east of the north-south access road, connecting to Portage Parkway in the north; and
- The south side of Winges Road.

North-South:

- Famous Avenue; and
- The northbound and southbound segments of Colossus Drive between Highway 7 and MTO car-pool lot access.

Figure 2: Existing Pedestrian Network

3.3.2 Existing Cycling Network

As noted in Figure 3, limited cycling facilities are present within the study area. Existing facilities are limited to the Highway 7 corridor and were introduced as part of recent improvements. The cycling facilities identified in the study area are listed below:

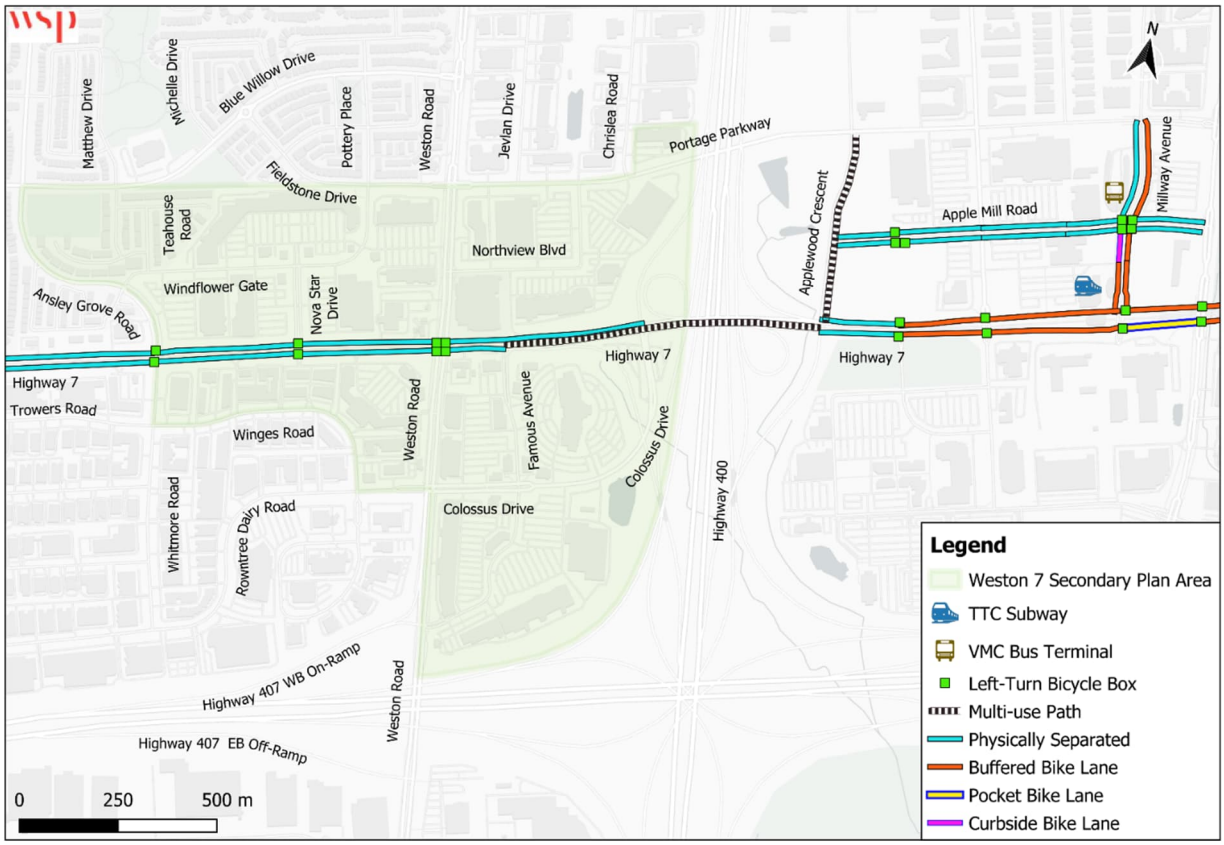
- Uni-directional raised cycle tracks on Highway 7 between Ansley Grove Road and Famous Avenue in the eastbound direction and between Colossus Drive and Ansley Grove Road in the westbound direction. The facility continues west of Ansley Grove Road and east of Applewood Crescent into and beyond Vaughan Metropolitan Centre; and

- Near Highway 400, raised cycle tracks are transitioned to a multi-use path in the centre of Highway 7 with physical separation extending between Famous Avenue and Applewood Crescent.

The provisions for cyclists turning left (left-turn bicycle boxes) are available at the intersections along the Highway 7, including:

- East and west approaches of Highway 7 intersection with Ansley Grove Road;
- East and west approaches of Highway 7 and Nova Star Drive intersection; and
- All approaches of Highway 7 intersection with Weston Road.

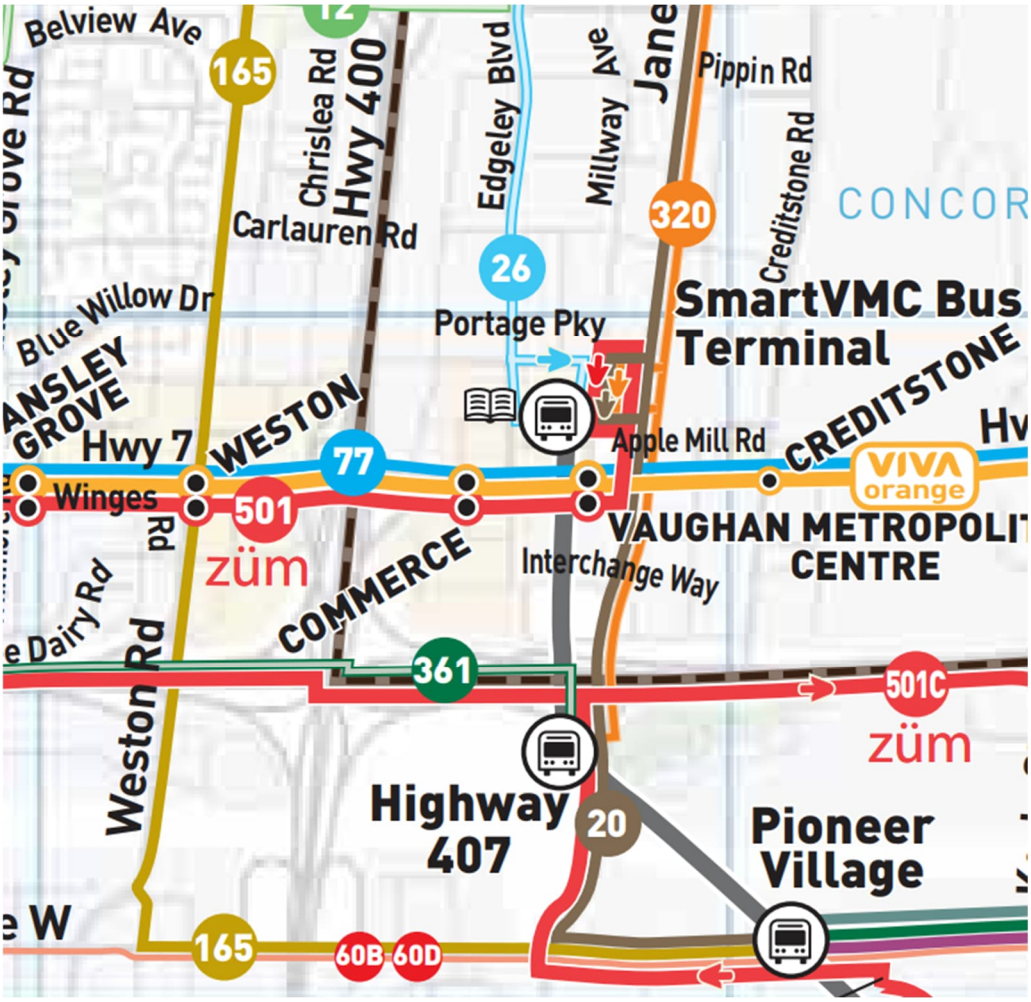
Figure 3: Existing Cycling Facilities



3.3.3 Existing Transit Network

Transit services within the Weston 7 study area and its immediate surroundings as of January 7, 2024, are displayed in Figure 4. The Weston 7 study area is serviced primarily by York Region Transit (YRT). Brampton Transit (Züm) also provides an express bus service on Highway 7. Within the Weston 7 Secondary Plan area there are VivaNext BRT Transit Stations located at Weston Road and Ansley Grove Road.

Figure 4: Existing Transit Services



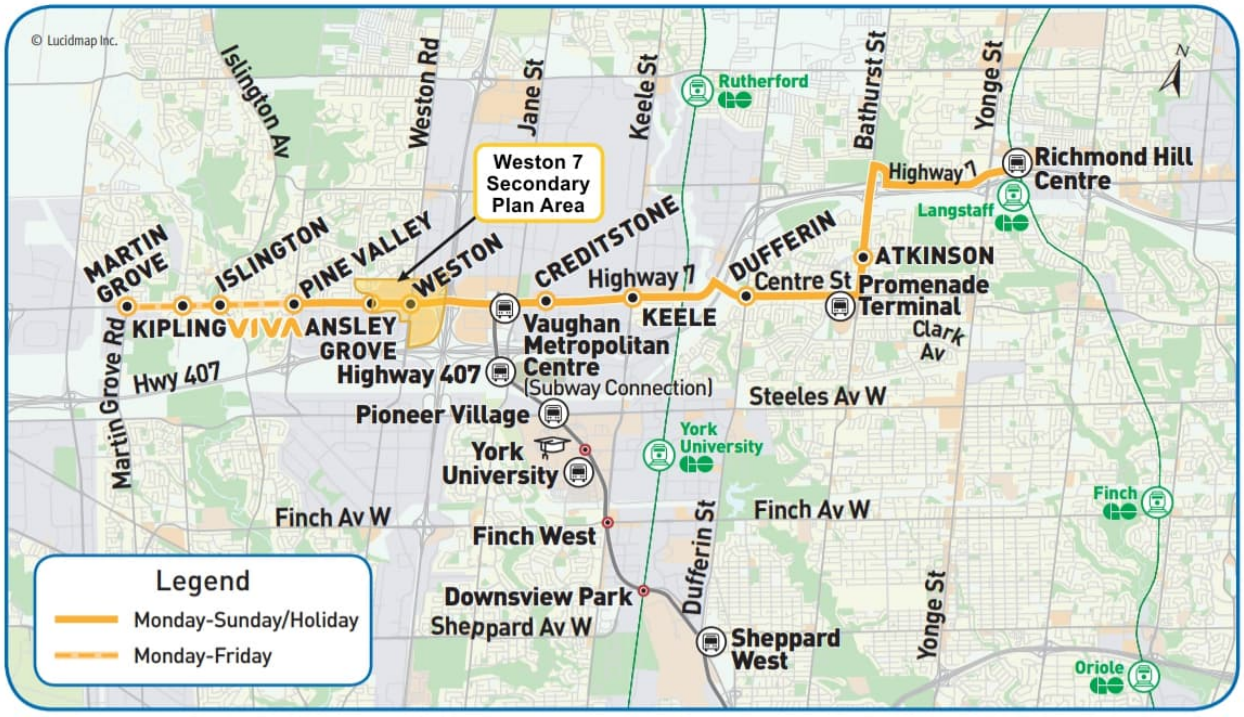
YRT routes provide service along Highway 7 and Weston Road. YRT operates both a local and a rapid transit route along Highway 7. Bus Rapid Transit (Viva) service is operated in dedicated median bus lanes and

serves distinct BRT stations, in the middle of Highway 7. Viva stations provide heightened levels of passenger amenities including variable message signs, ticket vending machines, quality shelters and system information and allow for all-door boarding.

Viva Routes

As shown in Figure 5 Viva Orange operates through the study area, connecting Weston 7 to Martin Grove in the west, and VMC (with connections to TTC subway), Promenade, and Richmond Hill terminals to the east. Within the Weston 7 Secondary Plan area, the route provides station-stops at Ansley Grove Road and Weston Road.

Figure 5: Viva Route in Weston 7 Study Area



Brampton Transit Routes

Brampton Transit (Züm) Route 501 connects Weston 7 to Brampton GO station, travelling along dedicated median bus lanes through the study area. Similar to Viva services, the route stops at Ansley Grove Road and Weston Road stations enroute to Brampton as shown in Figure 6.

Figure 6: Brampton Transit Routes in Weston 7 Study Area

TTC and GO Transit Services

TTC subway Line 1 provides direct service to neighbouring Vaughan Metropolitan Centre, 2km east of the study area. Viva Bus Rapid Transit services are directly integrated into Vaughan Metropolitan Centre subway station, with seamless access to both subway and other local bus services from a central bus loop. Line 1 subway provides frequent, fast, all-day services to York University, Downsview, Downtown Toronto and beyond.

Additionally, there are several GO Transit bus routes that use the adjacent Highway 407 corridor, bypassing the Weston 7 Secondary Plan area. While Highway 407 express routes do not provide direct access to Weston 7 Secondary Plan area, they service the nearby Highway 407 / Jane TTC subway station, one station away from Vaughan Metropolitan Centre station. Figure 7 presents a map of GO Transit routes.

Figure 7: GO Transit Service Routes

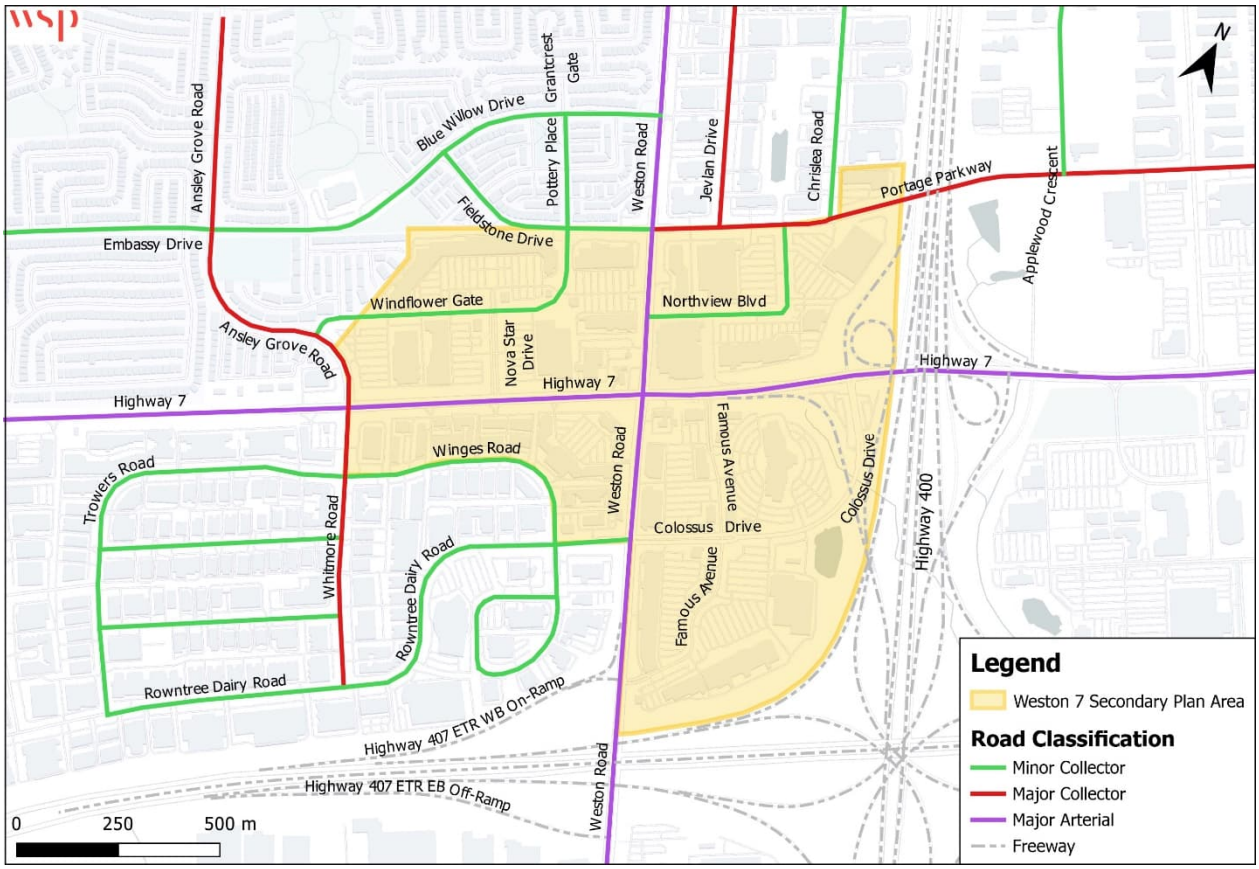
3.3.4 Existing Road Network

The existing road network is shown in Figure 8 and is displayed according to road classification type. The study area is bounded on the east by Highway 400, a multi-lane provincial freeway connecting Highway 401 to Barrie and Northern Ontario. A full access interchange to Highway 400 is provided from Highway 7. To the south, Highway 407-ETR, a privately-owned, for profit, toll freeway connects to major regional centres including Markham, Pickering and Oshawa to the east, and Brampton and Pearson Airport employment lands to the west. Access to and from Highway 407-ETR west is provided from Weston Road. The Highway 400/407-ETR interchange is located immediately southeast of the study area.

Weston Road and Highway 7 are the two primary arterial roads serving the study area, both of which are owned and operated by York Region. A former provincial highway, Highway 7 was downloaded to the Region and now serves as York Region's primary east-west regional corridor connecting major growth areas such as Weston 7, Vaughan Metropolitan Centre, Langstaff / Richmond Hill Centre, and Downtown Markham. A multimodal corridor, Highway 7 accommodates heavy vehicle and truck volumes, local and Bus Rapid Transit, and segregated cycling facilities.

The study area is provided along major collector roadways including Portage Parkway (which provides a second grade separated connection over Highway 400), Whittemore Road and Ansley Grove Road. Minor collectors primarily provide circulation around the area, connecting properties and parking facilities to higher order roadways through backage and frontage roads. Local roads, some of which are privately-owned, function solely to provide direct property access.

Figure 8: Existing Road Network



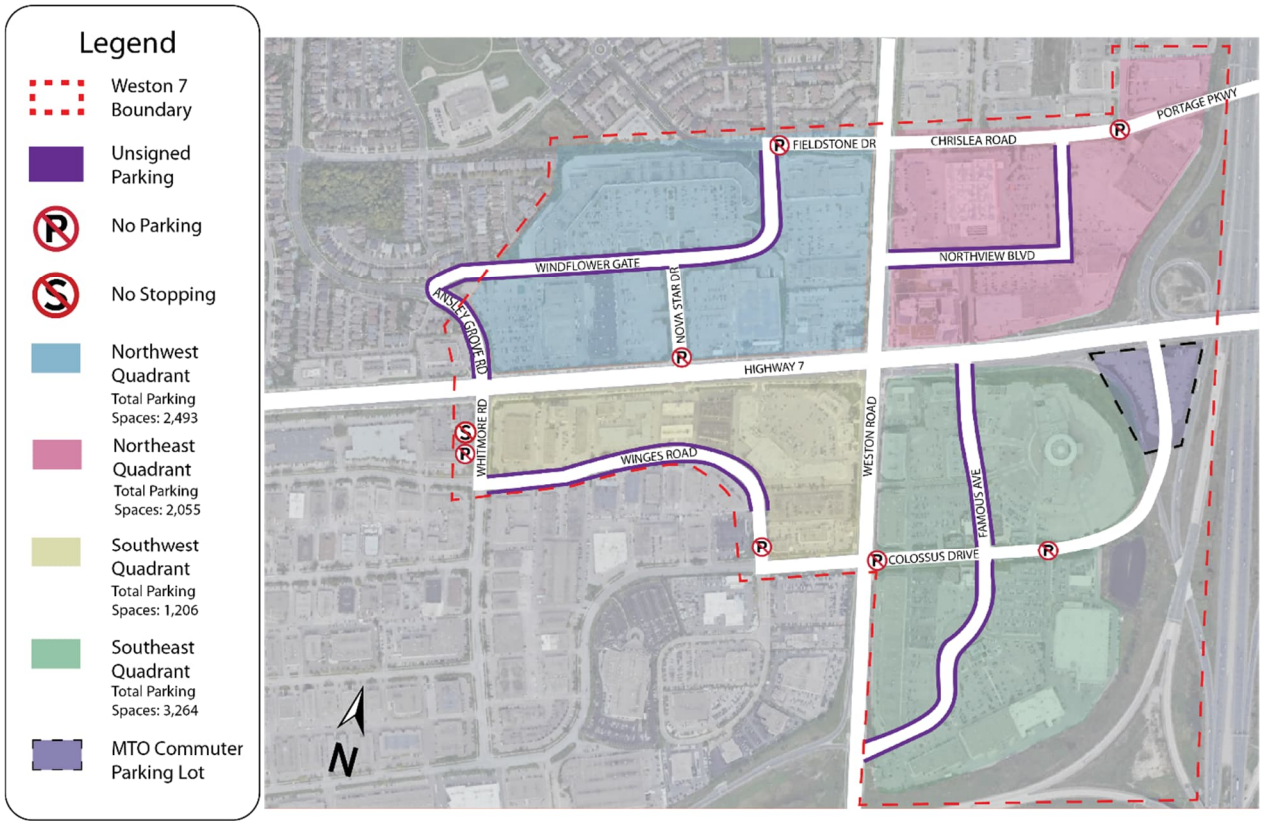
3.3.5 Existing Parking

The majority of the existing parking within Weston 7 is private and serves commercial land uses. The study area today is characterized by large parking lots, with the land uses set behind large parking lots leading to the auto-oriented nature of the study area and high vehicular traffic volumes in peak travel periods.

There are approximately 10,600 surface spaces in the Weston 7 study area. Additionally, there is an MTO commuter parking lot with 272 parking spaces located in the southeast quadrant of the study area, immediately south of Highway 7.

Several corridors within Weston 7 prohibit on-street parking as per Vaughan's Parking by-law 064-2109, such as Fieldstone Drive from Weston Road to 100m west of Weston Road. "No Parking" signs are displayed where such prohibitions exist.

Figure 9: Weston 7 Parking Supply



3.4 Existing Traffic Operations

3.4.1 Existing Level of Service – Vehicular Traffic

The Weston 7 study area is one of the City's primary destinations to many travelers as it is accessible by major transportation facilities, such as Highway 400, Highway 407-ETR, Highway 7, and Weston Road. The existing travel characteristics of the Weston 7 study area were examined utilizing the 2016 Transportation

Tomorrow Survey (TTS) data, which is the most recent data currently available at the time of writing of this report.

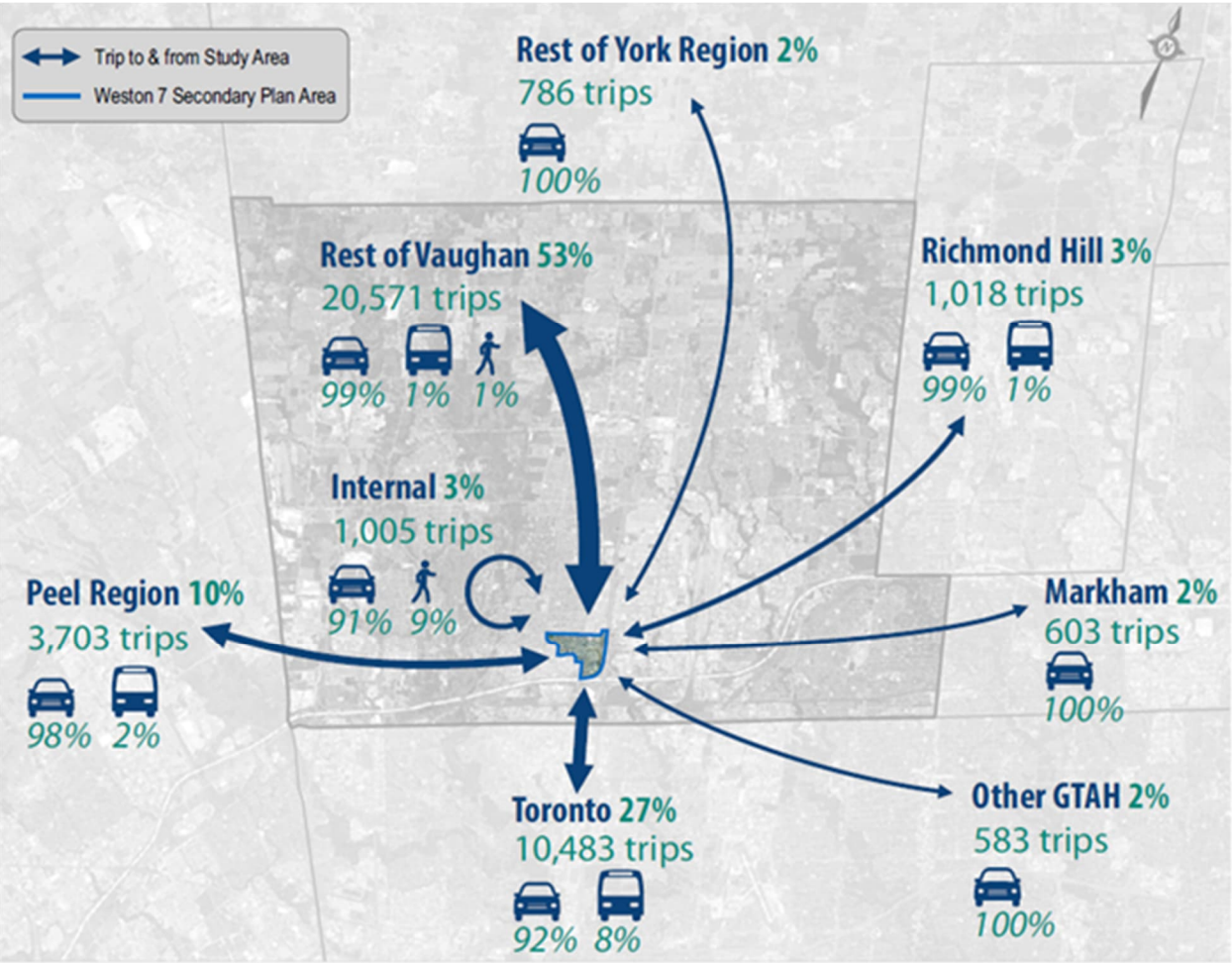
Car travel is the predominant mode of transportation to and from, as well as within, the Weston 7 area, accounting for 97% of the trips. The prevalence of commercial land use and the absence of mixed-use developments in the Weston 7 study area, as well as the presence of sizable parking lots, and high roadway accessibility via Highway 400, Highway 7, and Weston Road, encourages the utilization of the auto mode.

The majority of daily trips originating or terminating in the Weston 7 study area involve travel to and from the City of Vaughan (outside of the study area) and the City of Toronto, accounting for 53% and 27% of the total trips, respectively. The primary mode of travel for these trips is by car, making up 99% and 92% of the trips that either start or end in the City of Vaughan and the City of Toronto. The use of public transit is more prevalent for trips to and from the City of Toronto, particularly with the extension of the TTC subway Line 1 to VMC, which is close to the Weston 7 study area.

The internal trips within the study area constitute 3% of the total daily trips. The preferred mode of travel for the internal trips continues to be the car, accounting for 91% of the trips. The remaining 9% of trips are attributed to active transportation.

The remaining daily trips either originate from or are destined for other municipalities in York Region (7%), the Region of Peel (10%), and other locations within the Greater Toronto and Hamilton Area (GTAH) (2%). Similarly, car is the dominant mode of travel for these trips given the significant travel distance and the absence of frequent transit service between these areas and the study area. Figure 10 illustrates the daily travel pattern, including trip distributions and modal shares, as obtained from the 2016 TTS data.

Figure 10: Weston 7 daily travel patterns from 2016 TTS data



A transportation model of the study area and the nearby roadway network was developed to assess the roadway traffic performance under the existing condition. Aimsun, a multi-modal traffic modelling software, was employed to carry out the traffic operation assessment. This model was later used to assess the future transportation network and determine the infrastructure needs that support the Weston 7 Secondary Plan.

The transportation model evaluates the roadway operations at the microsimulation level, tracking the trajectories of the individual vehicles across the modelled transportation network. This requires the estimation of traffic demand from distinct origins to destinations.

Methodology Used to Estimate Existing Traffic Demand

The estimation of traffic demands was initiated using the York Region Travel Demand Forecasting (YRTDF) model. The YRTDF model forecasts the passenger vehicle travel demands and patterns during the morning peak hour across multiple planning horizons (including 2016, 2031, and 2041) in the Greater Toronto and Hamilton Area. The procedure for applying the YRTDF model to generate the travel demand is summarized below and illustrated in Figure 11. The forecasted travel demands were then imported into Aimsun for calibration. A summary of the steps used includes:

1. The traffic demands (used in Aimsun) were estimated based on the 2016 travel trips from the YRTDF model, specifically focusing on a subarea bounded by Langstaff Road to the north, Keele Street to the east, Steeles Avenue to the south, and Pine Valley Drive to the west.

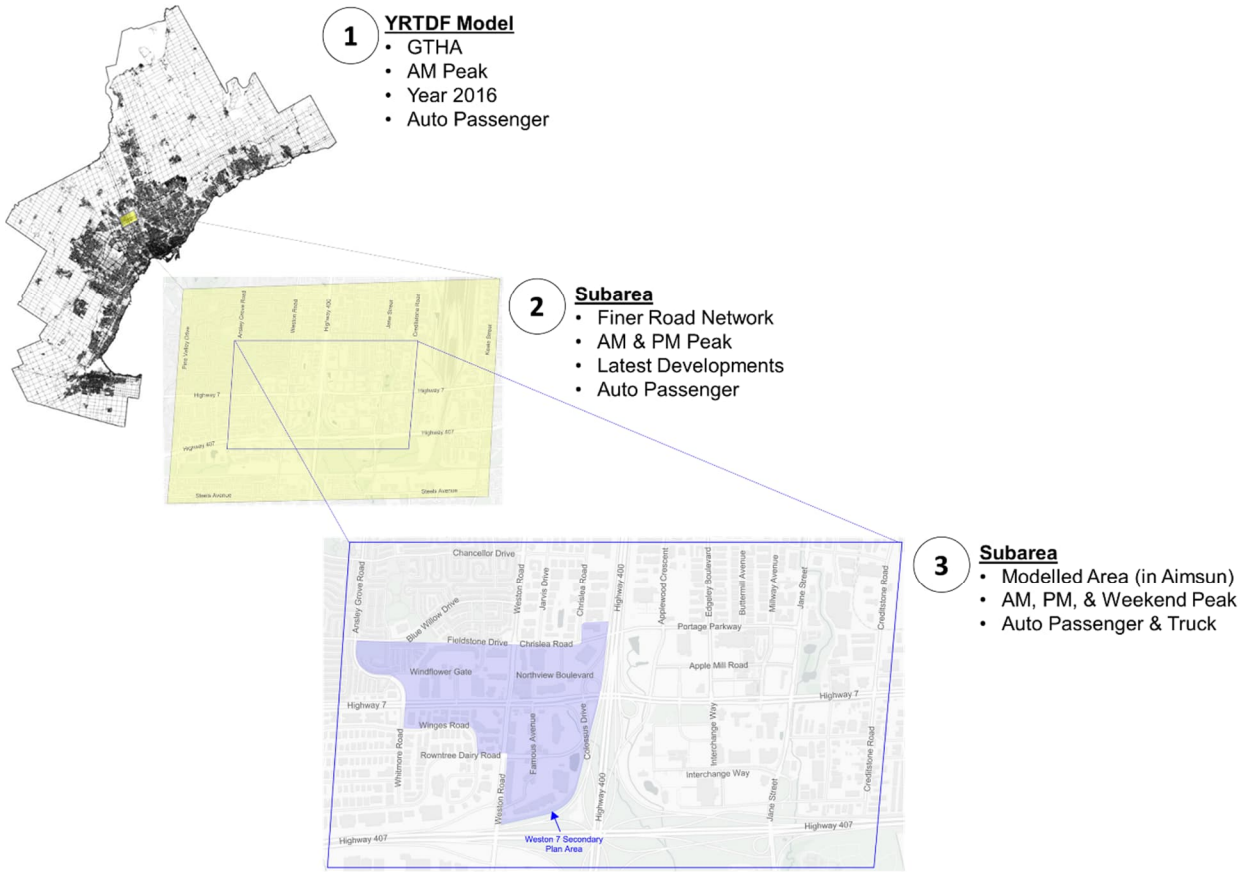
2. The YRTDF model was revised within the pre-defined subarea to incorporate a more comprehensive transportation network and account for the latest developments.

3. The travel patterns were transposed to capture afternoon peak conditions, given that the YRTDF model specifically forecasts travel demand during the morning peak hour.

4. The AM and PM peak passenger vehicle traffic demands were extracted for a smaller subarea (within the pre-defined subarea (in Step 2)), bounded by Chancellor Drive to the north, Creditstone Road to the east, Highway 407 to the south, and Ansley Grove Road to the west, aligning with the modelled area (in Aimsun).

5. The travel patterns during weekend conditions were extrapolated from the PM peak travel patterns, while the demand matrices for heavy vehicles were assumed to be a proportion of the overall auto trips.

Figure 11: Traffic Demand Forecasted for the Existing (2019) Conditions

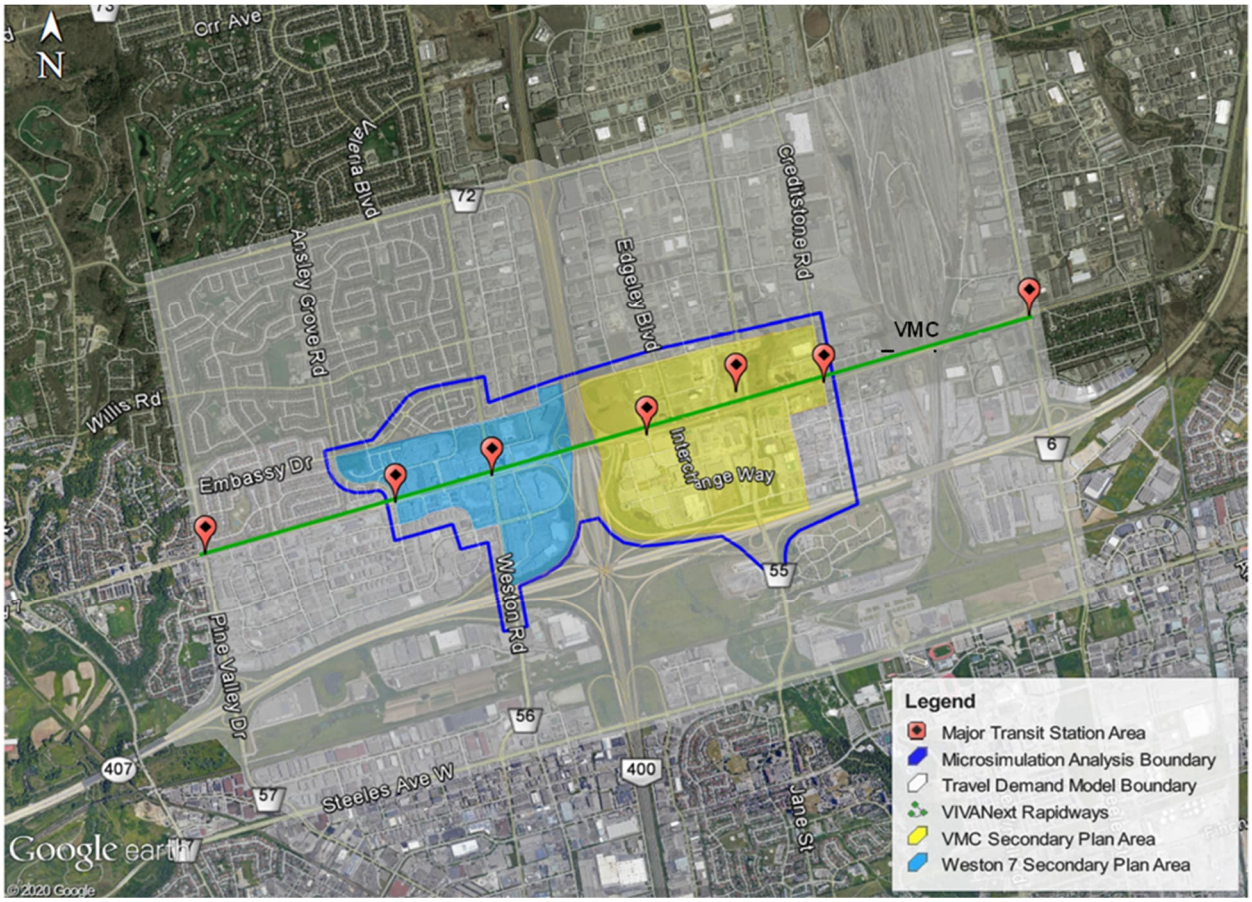


Modelling Approach

A transportation model of the study area, shown in Figure 12, was developed in Aimsun. This model takes into account the existing road network, encompassing factors such as lane configurations, storage lengths for turning lanes, traffic controls, and the transit right-of-way, within the boundaries of both the Weston 7 and VMC Secondary Plan areas. Following this step, since the vehicle demands derived from the YRTDF model are merely estimated forecasts based on a series of theoretical assumptions, the origin-destination demands must be adjusted and calibrated to the observed 2019 and the 2020 intersection turning counts, with specific considerations for time of day and vehicle class. The observed travel time and speed data were also employed to ensure accuracy of the model.

The assessment of roadway performance was conducted under the weekday morning (7:00 AM – 10:00 AM) and afternoon (3:00 PM – 6:00 PM) peak periods as well as the weekend (12:00 PM – 3:00 PM) peak period. It was also established that the transportation models represent traffic conditions for the year 2019 as the model was primarily calibrated to the 2019 observed data, reflecting the pre COVID-19 conditions.

Figure 12: Traffic Analysis Model Boundaries



Evaluation

The average vehicular delay, level of service (LOS), and queues were evaluated at intersections under the 2019 existing conditions using the calibrated Aimsun models. The evaluation of the existing traffic operations was limited to the Weston 7 study area.

The vehicular LOS (simply referred to as LOS) is a qualitative measure that describes operational conditions of a roadway facility. LOS was assessed at both stop-controlled and the signalized intersections per the Highway Capacity Manual (HCM) criteria. HCM defines six levels of service, LOS 'A' through LOS 'F', determined by the control delay, caused by the presence of a traffic control device. The highest possible rating is LOS 'A', where each vehicle encounters an average control delay of 10 seconds or less. LOS 'F' is assigned when the average control delay exceeds 50 seconds at unsignalized intersections or 80 seconds at signalized intersections. LOS 'E' is the point at which remedial measures are considered, depending on the nature and extent of the delays. Average control delays falling between LOS 'A' and LOS 'D' are generally considered an acceptable LOS for intersections in urban areas. Table 3 summarizes the LOS criteria for signalized and stop-controlled intersections.

Table 3: HCM Intersection LOS Criteria by Control Delay

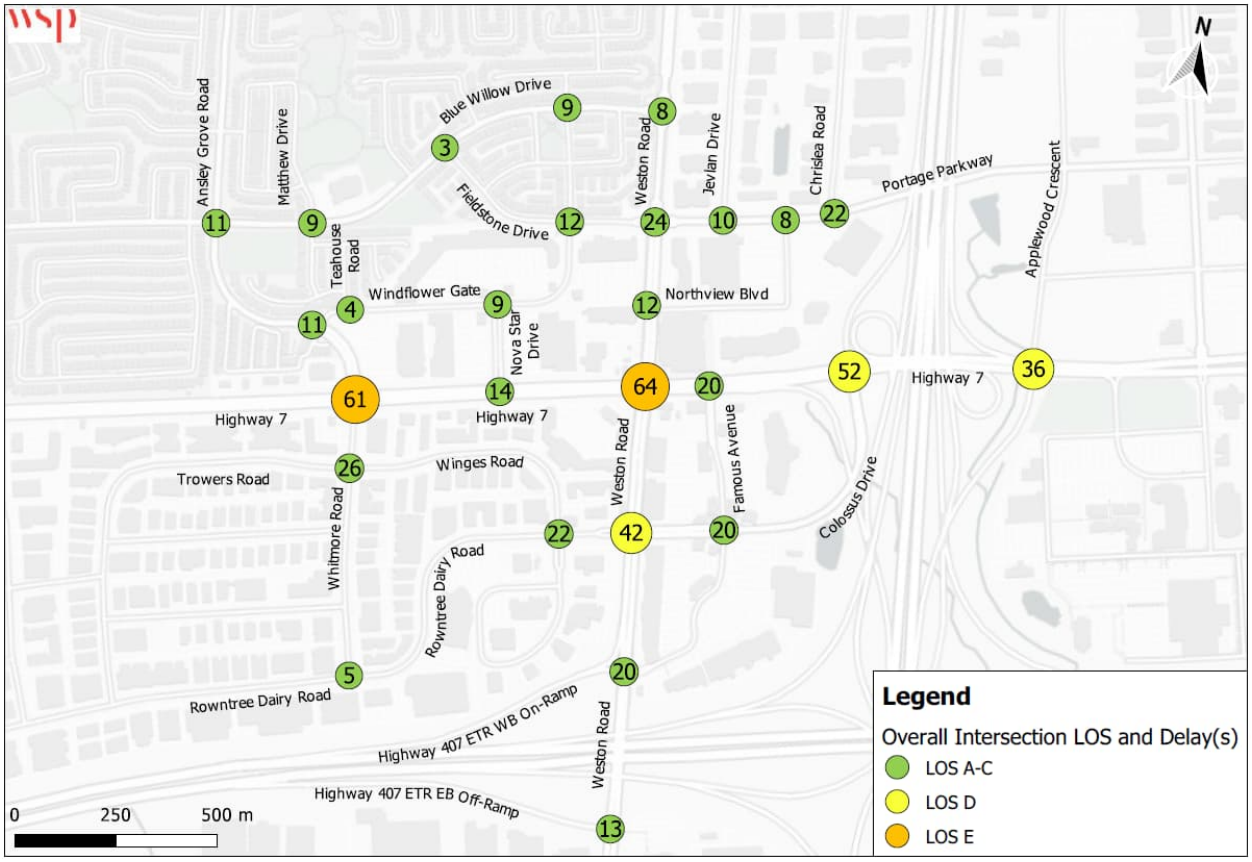
LOS	Average Control Delay (Seconds/Vehicle)		Traffic Operation
	Signalized	Stop-Controlled	
A	≤ 10	≤ 10	Acceptable Operation
B	> 10 and ≤ 20	> 10 and ≤ 15	
C	> 20 and ≤ 35	> 15 and ≤ 25	
D	> 35 and ≤ 55	> 25 and ≤ 35	
E	> 55 and ≤ 80	> 35 and ≤ 50	Marginally Acceptable – Occasional Queuing
F	> 80	> 50	Undesirable – Persistent Queueing

The average (control) delays, LOS, and queues were obtained for the entire intersection and every intersection movement under the weekday morning (8:00 AM – 9:00 AM), afternoon (4:00 PM – 5:00 PM), and weekend (1:00 PM – 2:00 PM) peak hours.

AM peak hour overall intersection average control delay and LOS is presented in Figure 13 for the Weston 7 study area. During the morning peak hour, intersections within the study area maintain an acceptable overall LOS 'D' or better, except for the intersections at Highway 7 and Ansley Grove Road, as well as Highway 7 and Weston Road. The overall average control delays exceed 1.0 minute at these intersections, which is equivalent to LOS 'E'. This is attributed to the long delays experienced by the left-turning traffic, especially on Highway 7, due to high turning volumes, long traffic signal cycle lengths (140 to 150 seconds),

and fully-protected traffic signal phasing. The average control delay for the left-turn movements on Highway 7 is 1.0-8.0 minutes at Ansley Grove Road and 1.2-1.5 minutes at Weston Road. At the intersection of Highway 7 and Weston Road, the northbound and the southbound left-turning traffic also encounter average delays of up to 1.0 minute as substantial volumes of traffic move through this intersection.

Figure 13: Overall Intersection Delay and LOS – Existing Conditions – Weekday AM Peak Hour



PM peak hour overall intersection average control delay and LOS is presented in Figure 14. In the PM peak hour, Highway 7 operates at an overall intersection LOS 'E' at Weston Road and the Highway 400 off-ramps. The average intersection control delay varies between 1.0-1.3 minutes at these locations.

The intersection of Highway 7 and Weston Road operates similar to the conditions observed during the AM peak hour, with increased delays for the left-turn movements. The left-turning traffic experiences an

average control delay of 3.0-3.5 minutes on Highway 7 and 1.7-2.5 minutes on Weston Road. The control delays are greater in the afternoon peak given the higher vehicular traffic.

The majority of the intersection movements operate at a reasonable LOS at the Highway 400 ramp terminals during the afternoon peak hour despite the overall intersection operating under LOS 'E'. The northbound right turn traffic from Colossus Drive onto Highway 7 and the southbound right turn traffic from Applewood Crescent to Highway 7 experience very long average control delays. This contributes to an overall increase in intersection delay and a deterioration of the LOS. These movements encounter extensive delays given the operation of the traffic signal under split phasing and the prohibition of right-turn-on-red, leading to a reduction in the movement capacity.

Figure 14: Overall Intersection Delay and LOS – Existing Conditions – Weekday PM Peak Hour

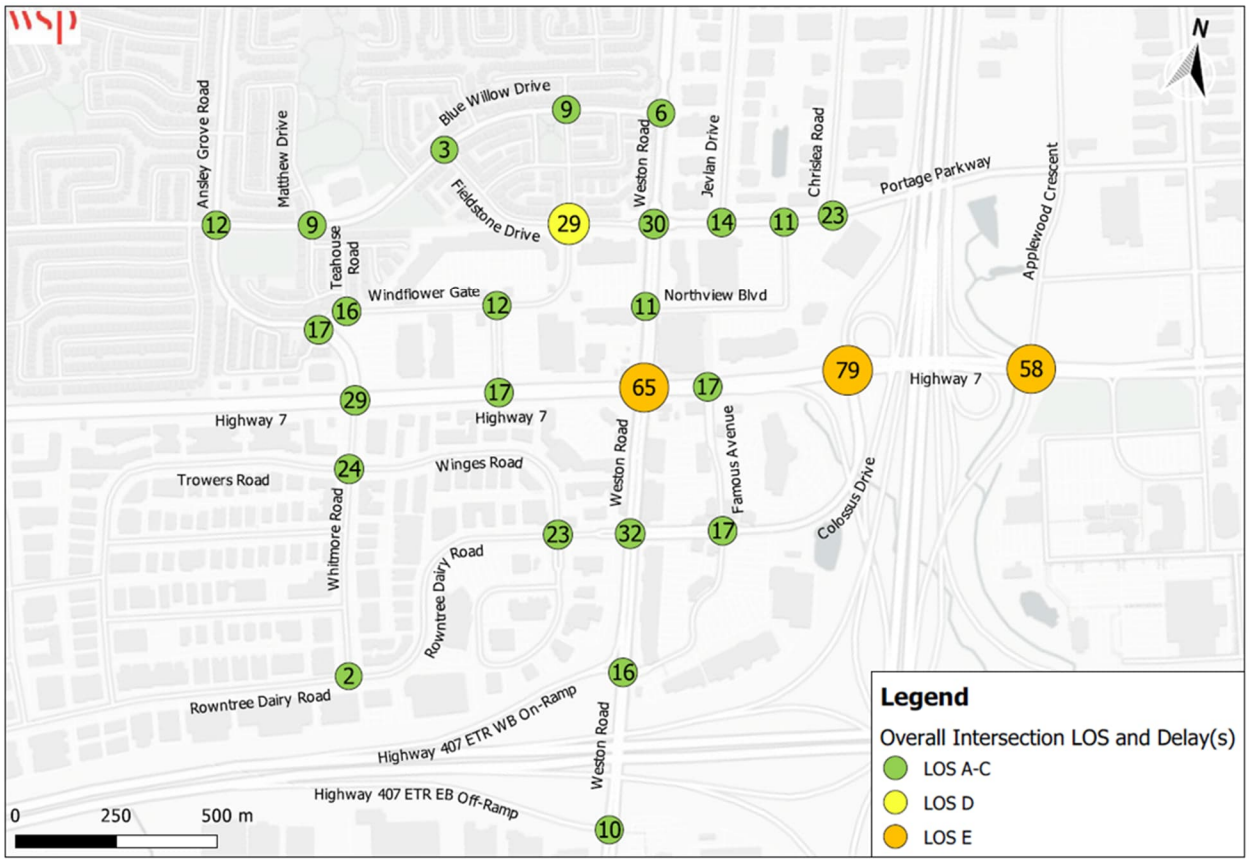


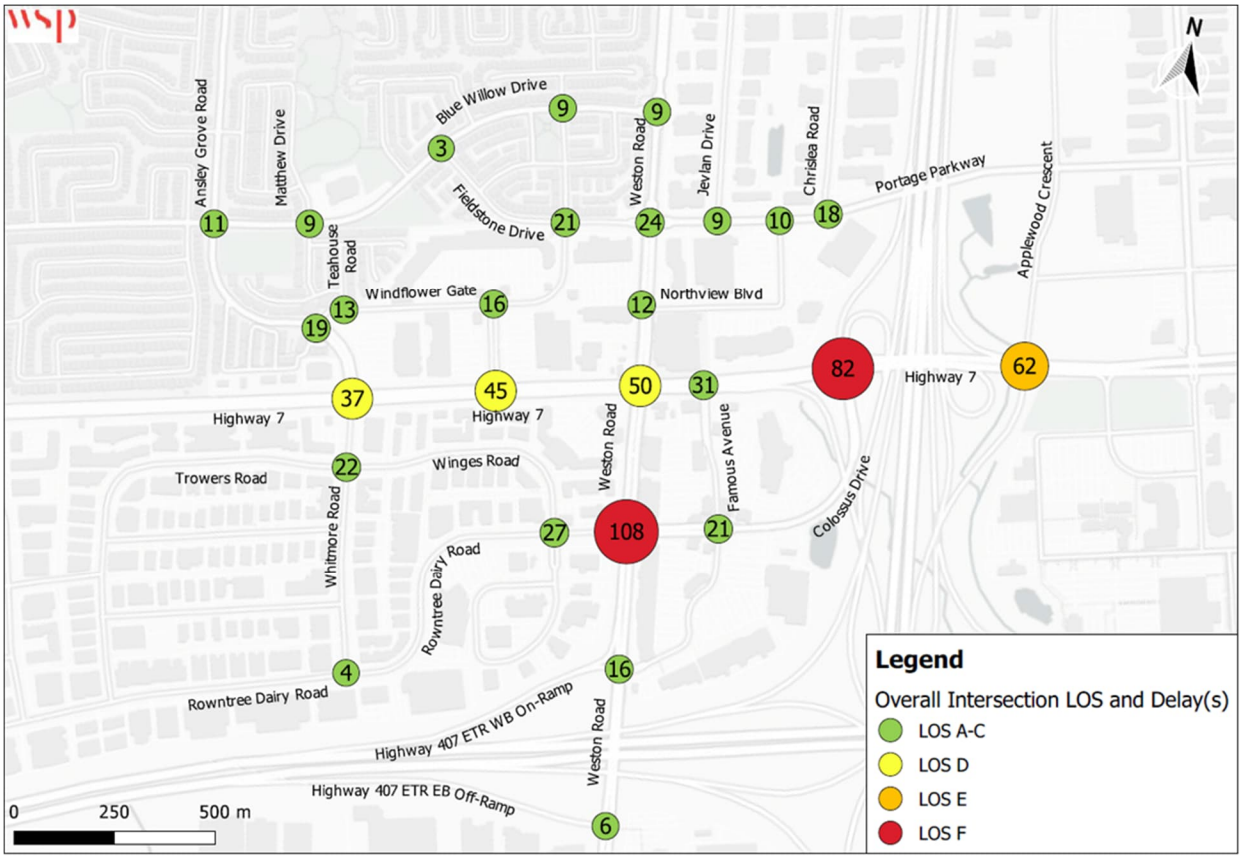
Figure 15 illustrates the overall intersection performance for the weekend peak hour. The Highway 400 ramp terminal intersections and the intersection of Weston Road and Colossus Drive operate at an overall LOS 'E' or 'F'.

The greatest intersection control delay, which is approximately 2 minutes, occurs during the weekend conditions at the intersection of Weston Road and Colossus Drive. The traffic performance on the northbound approach significantly contributes to the overall intersection delay. The delay for the northbound left turn is 2 minutes, while northbound through and right-turning traffic experience a delay of 4 minutes. This is mainly due to queues extending from the Highway 7 and Weston Road intersection and impeding the natural progression of the northbound traffic at the intersection of Weston Road and Colossus Drive. The insufficient green-time duration for the northbound approach at the Weston Road and Colossus Drive intersection further exacerbates the delays.

The Highway 400 ramp terminals operate at LOS 'E" or 'F'. Similar to the weekday afternoon peak hour, the right-turn movements from Colossus Drive and Applewood Crescent experience long delays, increasing the overall intersection delay.

The intersection of Highway 7 and Weston Road is still a busy intersection on the weekend but does operate under slightly more satisfactory LOS during the weekend peak hour compared to the weekday peak hours. However, the intersection is near capacity and a marginal escalation in vehicular demand may degrade the overall intersection performance. The left-turn movements continue to operate at LOS 'E' or 'F', and the average control delay for the northbound through lane groups reaches 1 minute, equivalent to LOS 'E'.

Figure 15: Overall Intersection Delay and LOS – Existing Conditions – Weekend Peak Hour



Evaluation Summary

The following conclusions were drawn from the simulation of the 2019 traffic demand under the existing weekday morning and afternoon and weekend peak hours.

- The intersection of Highway 7 and Weston Road currently operates near capacity across the weekday and weekend peak periods. This is mainly attributed to the high volumes of traffic and geometry of the intersection. In addition, the capacity of the movements in conflict with the Highway 7 dedicated transit right-of-way, particularly the left-turns, are further reduced to ensure safe operation of the Viva Rapidway. Consequently, the left-turning traffic may form queues upstream on Highway 7 and Weston Road, spilling back into the through lanes, and affecting the capacity of these lanes.

- The extended cycle lengths and the operation of left-turn movements under fully-protected phasing, instigated by the center-running transit guideway on Highway 7, lead to prolonged delays for left-turning traffic on Highway 7 within the study area.
- The Highway 400 off-ramps at Highway 7 operate at LOS E or F during the weekday PM peak and weekend peak hour, though operations are acceptable in the AM peak hour. Queues do not yet extend onto the Highway 400 mainline.
- The traffic entering Highway 7 from Colossus Drive and Applewood Crescent may encounter extensive delays due to high traffic demand and the complications with the traffic signal operations and the imposed turn restrictions during the weekday afternoon peak period.
- Traffic operations during the weekend peak period demonstrates high control delay at the intersection of Weston Road and Colossus Drive, mainly caused by the northbound movements operating with insufficient green time and downstream constraints at the Weston Road / Highway 7 intersection – the network chokepoint.

Ultimately, while the majority of the intersections maintain an acceptable LOS, with an overall control delay of less than 55 seconds, throughout the weekday and weekend peak periods, certain traffic movements, particularly along Regional roads (Highway 7 and Weston 7), encounter prolonged delays and queues. The intersection of Highway 7 and Weston Road can be identified as a bottleneck for certain movements approaching this intersection, especially the left-turn movements, across all peak periods. Presenting a strategy (including traffic signal optimization) to enhance the traffic performance at this intersection is a challenge as the intersection services high volumes of roadway traffic, pedestrians, and cyclists and a dedicated rapid transitway.

Roadway Safety Review

A review of the roadway safety was undertaken for the Weston 7 study area to identify the locations susceptible to collisions under the existing conditions. This included a network screening process, reviewing collision history data primary on collector and local corridors within the study area as the future network modifications are predominantly concentrated on these corridors, with the intent of maintaining the current geometry along major arterials.

The collision data, within the Weston 7 study area, were obtained from the police crash reports recorded from 2015 to 2019. A total of 200 collisions were recorded on collector and local corridors within the study area over the course of 5 years. Table 4 presents a summary of the characteristics of collision data, while

the distribution of collisions across the major collectors, minor collectors, and local corridor classes is as follows:

- 84 collisions occurred on major collectors (Ansley Grove Road, Portage Parkway, Whitmore Road).
- 89 collisions occurred on minor collectors (Blue Willow Drive, Chrislea Road, Fieldstone Drive, Northview Boulevard, Rowntree Dairy Road, Windflower Gate, and Winges Road).
- 27 collisions reported on Colossus Drive, a local roadway.

Table 4: Historical Collision Data Characteristics on Collector and Local Corridors

Corridor Class	Total Collision[1]	Proportion of Toal Collisions				
		Location		Severity		Clear, Daylight, & Dry Surface
		Intersection	Midblock	Property Damage	Non-fatal Injury	
Major Collector	84	58%	42%	83%	17%	54%
Minor Collector	89	55%	45%	73%	27%	63%
Local	27	93%	7%	73%	27%	63%

[1]Total collision recorded over 5 years from 2015-2019

A total of 49 out of 84 collisions (approximately 58%) were recorded at intersections along major collector corridors. The intersection crash rates were low, ranging from 0.12 to 0.28 collisions per million entering vehicles (MEV). The remaining 35 collisions were recorded at midblock. The major collector intersection at Portage Parkway and Chrislea Road encountered 14 collisions over the 5-year period. The primary impact type at this intersection was rear end (36%), followed by angle and turning movement, each comprising 29% of the total collisions. The midblock sections on Whitmore Road encountered 18 collisions within the span of 5 years. The primary impact types was turning movement, accounting for 50% of the total collisions.

A total of 49 out of 89 collisions (approximately 55%) were recorded at intersections along minor collector corridors. Similarly, these intersections experienced low crash rates ranging from 0.03-0.33 MEV. The remaining 40 collisions were recorded at midblock. The midblock sections on Chrislea Road encountered 15 collisions during the 5-year period. The primary impact types for these collisions were turning movement (27%), followed by angle and rear end, each accounting for 20% of the total collisions.

A total of 25 out of 27 collisions (approximately 93%) were reported at intersection of the Colossus Drive and Famous Avenue. The primary impact type for these collisions was turning movement (44%), followed by angle (30%) and rear-end (22%).

Overall, the reported collisions were low across the collector and local corridors within the Weston 7 study area with majority resulted in property damage and non-fatal injuries. There are no clear association observed between the frequency of the collisions and the environmental factors such as lighting, weather, and road surface conditions. This demonstrates that, at present, the collector and local corridors within the Weston 7 study area are not identified as locations susceptible to collisions and in need of safety improvements. However, monitoring collision records on these corridors could prove beneficial for a proactive approach in identifying future safety needs.

Despite the low crash rates on collector and local corridors, the intersection of Highway 7 and Weston Road is identified as the third-highest collision frequency location in the Region of York and City of Vaughan according to the 2022 York Region's Traveler Safety Report. This can be attributed to both the substantial vehicular traffic volumes and the geometric characteristics of the intersection. It is anticipated for the frequency and severity of the collisions to decline as York Region monitors the safety of all Regional roads and intersections while implementing safety measures within the framework of the York Region's Traffic Safety Program.

3.4.2 Existing (2020) Level of Service – Pedestrians and Cyclists

The Pedestrian Level of Service (PLOS) was assessed across the Weston 7 study area, following the City of Ottawa's Multimodal Analysis Guidelines, with the intent to appraise the quality of pedestrian facilities under existing conditions. This evaluation is then employed to determine the necessary improvements for the future.

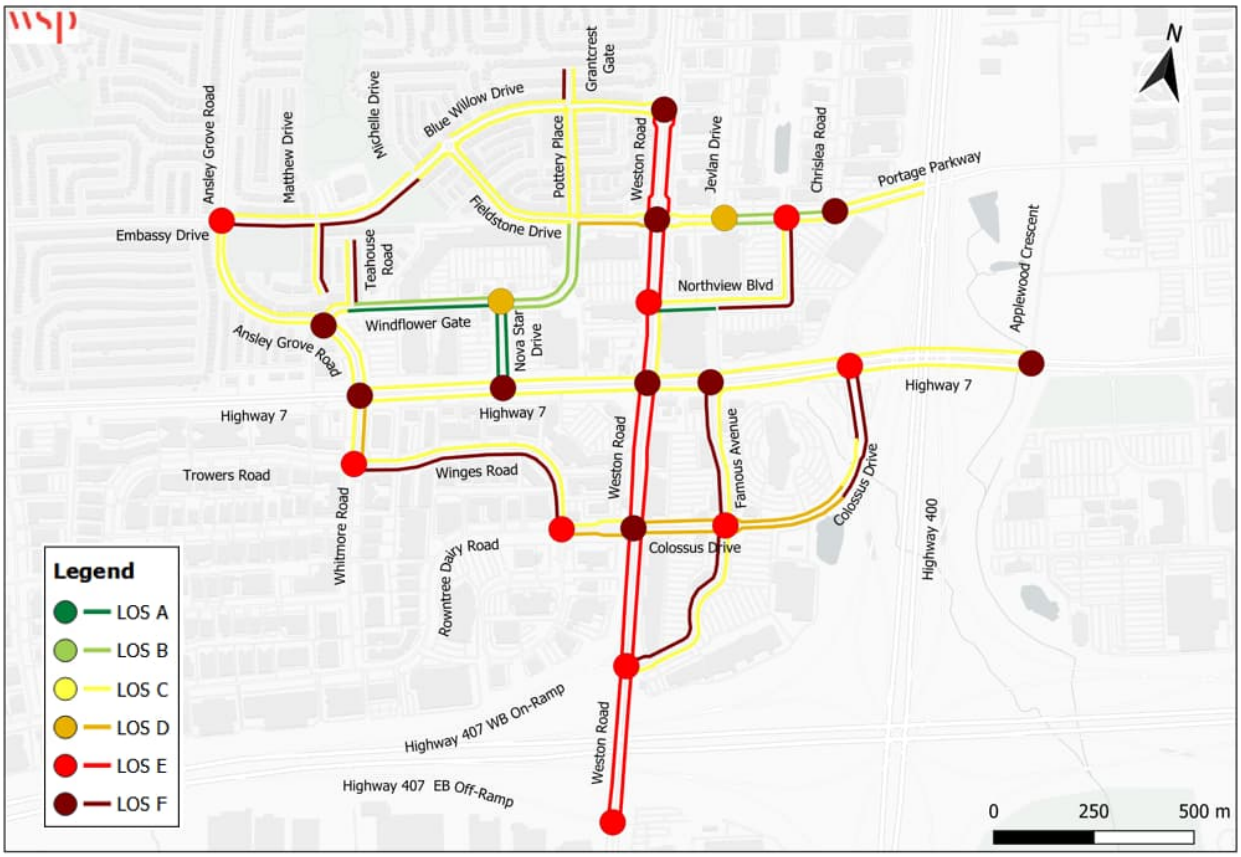
The PLOS is categorized into six classes ranging from A to F and is evaluated along the roadway segments and at the signalized intersections. Segment PLOS were determined by considering factors such as facility width, horizontal separation from roadway right-of-way, and adjacent roadway traffic volumes, on-street parking, and operating speeds. Intersection PLOS were established based on length of the crossings, crosswalk type, corner radius and signal timings, including signal phasing, split timings, and cycle length. The findings from the PLOS analysis are summarized below and visually represented in Figure 16.

- Under the existing conditions, most of the study area segments have PLOS 'D' or better. However, the roadway segments with no pedestrian infrastructure (such as the southside of Winges Road)

result in segment PLOS 'F'. Also, the Weston Road segments have an existing PLOS 'E' as the sidewalks and boulevards available are not wide enough to ensure the safety and comfort of pedestrians adjacent to this busy roadway operating at high speed.

- The PLOS at intersections is generally unfavorable due to the extensive length of crossing distances and the insufficient effective pedestrian green time. For instance, pedestrians crossing Highway 7 must traverse a minimum of 6 traffic lanes (plus turning lanes where allowed), 2 designated bus lanes, and 2 dedicated cycle tracks with a potential wait of up to 2.5 minutes, equivalent to one cycle length, for the next available pedestrian green time. Therefore, the signalized intersections located within the study area have PLOS "E" or "F", except for the intersections at Windflower Gate and Nova Star Drive, and Portage Parkway and Jevlan Drive, holding an existing PLOS "D".

Figure 16: PLOS – Existing (2020) Conditions



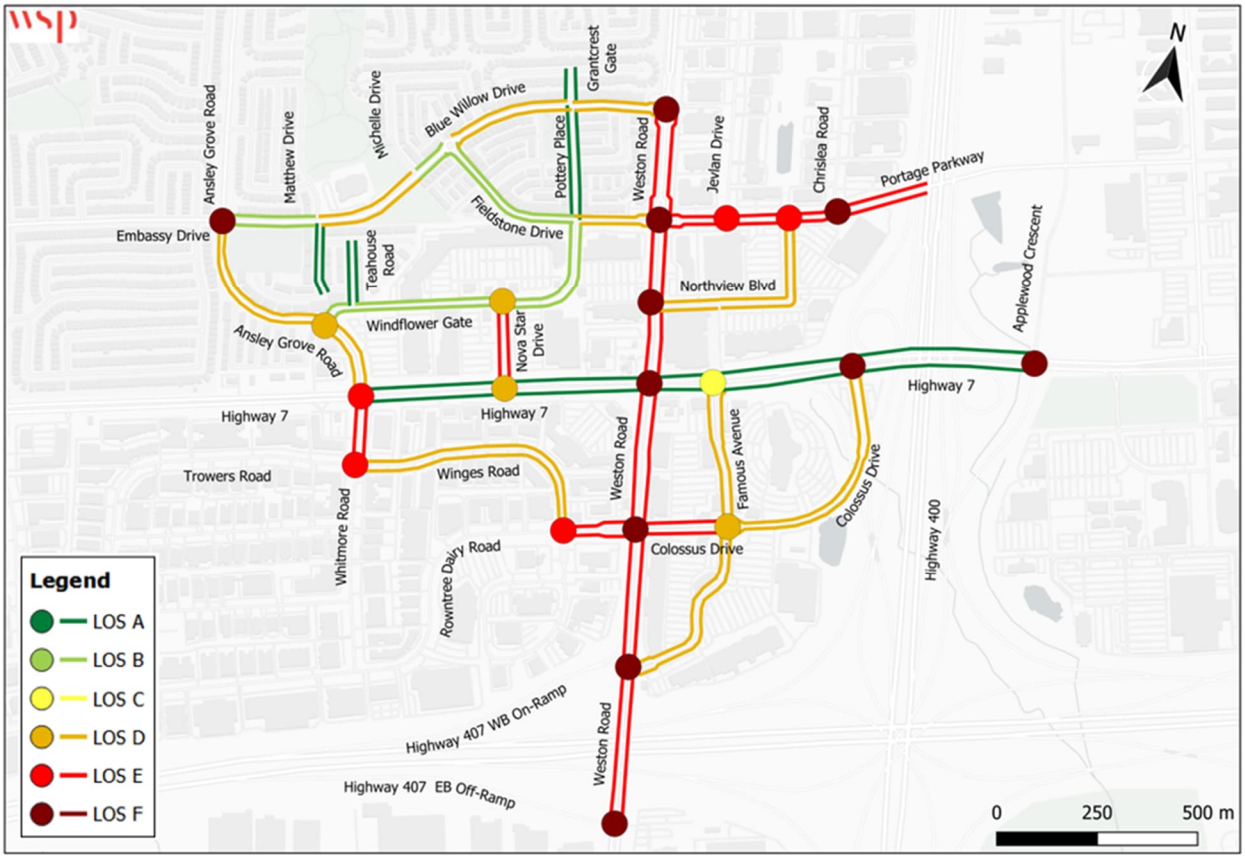
The Bicycle Level of Service (BLOS) was assessed for the Weston 7 study area in line with the methodology defined in the City of Ottawa's Multimodal Analysis Guidelines. BLOS follows the basic criteria used for the PLOS and is categorized into 6 classes varying from A to F. Similarly, BLOS is assessed at both intersections and along roadway segments. The segment and intersection BLOS take into account the following factors.

- Segment BLOS considers the type of facility, number of travel lanes, vehicular operating speed and parking characteristics. It also considers the blockage of cycling facilities by commercial deliveries, and median refuge width at unsignalized crossings. The segment overall BLOS represents the worst quality section of the segment.
- Intersection BLOS specifically identifies protected intersections which include left turn cycling infrastructure, e.g., the bike box; the number of lanes crossed; and the right-turn characteristics, such as the length of turning lane and the turning speed. The intersection overall level of service for bicycles is based on the lowest score approach.

The findings from the PLOS analysis are visually represented in Figure 17.

The overall existing environment for cyclists is mixed and disconnected, with some facilities on Highway 7 but limited facilities connecting north or south. The roadway segments along Weston Road, Portage Parkway, Colossus Drive, Whitmore Road and Nova Star Drive have BLOS 'E'. Due to lack of specific cycling infrastructure at the study area intersections, the existing BLOS is 'E/F' for the intersections along Highway 7, Weston Road, Portage Parkway, Winges Road, and Ansley Grove Road.

Figure 17: BLOS – Existing (2020) Conditions



3.5 Archaeological Assessment

A Stage 1 Archaeological Assessment was undertaken for the Weston Road and Highway 7 Secondary Plan area.

The Stage 1 archaeological assessment included a review of previous archeological research, historic maps, aerial imagery, land registry documents, and local histories. A property inspection was conducted to better understand the current conditions of the study area. The property inspection was conducted on November 26, 2020, and all work was conducted on public lands.

The resultant archeological recommendation was made based on the results of background historic research, an understanding of the geography and natural environment of the study area, and the property

inspection to confirm the presence and/or absence of indicators of archaeological potential as outlined in Standards and Guidelines for Consultant Archaeologists. Given the results of the Stage 1 archaeological assessment, the study area was found to have been significantly previously disturbed. Based on these findings, no further archaeological assessment is recommended. The Stage 1 archaeological assessment is provided in Appendix B.

3.6 Cultural Heritage Assessment

A Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment was undertaken for the project. This work was undertaken to identify municipally, provincially, and federally recognized properties within the Secondary Plan study area in order to evaluate the impacts that the project may have on cultural heritage resources.

A property visit was conducted on June 28, 2021, which confirmed that there are no built heritage resources (BHRs) or cultural heritage landscapes (CHLs) with known or potential cultural heritage value or interest (CHVI) within the study area.

This report has resulted in the following recommendations:

1. No built heritage resources or cultural heritage landscapes with known or potential cultural value or interest were identified within the Weston 7 Secondary Plan area. No further heritage reporting is required as part of the Weston 7 TMP project.

2. Should future work require expansion of the Weston 7 Secondary Plan , a qualified heritage consultant should be contacted to confirm the impacts of the proposed work on known or potential BHRs and CHLs.

The complete Cultural Heritage Report is provided in Appendix C.

4 Developing the Vision Statement

Phase 1 of the MCEA process for master plans requires developing a problem or opportunity statement. This chapter highlights some of the constraints and opportunities that the study area faces and then presents the vision.

4.1 Constraints and Opportunities

With an understanding of the existing conditions, the next step is to identify multimodal opportunities and constraints. Using feedback gathered from City staff, technical agencies and stakeholders, and from public consultation, the following section describes the opportunities and constraints of providing multi-modal transportation facilities to accommodate the forecast growth in population and employment.

4.1.1 Active Transportation Network

Active Transportation (AT) which includes human powered transportation such as walking, rolling, and cycling, is a vital component of a multi-modal transportation system that enhances mobility options and accessibility for people of all ages and abilities. Overall, members of the public and stakeholders expressed the need for better active transportation infrastructure.

Constraints

Identified constraints include:

- A general lack of pedestrian signal heads at crosswalks and intersections;
- A lack of cycling facilities in general. While cycling facilities are provided along Highway 7, there are no cycling connections to and from the corridor;
- Sidewalks are provided on one side of the street only along several corridors; a sidewalk connection is missing from the car-pool parking to Highway 7 on Colossus Drive (East and West side);

- Crossing opportunity gaps were noted, including a lack of pedestrian connections between condo and retail uses on the south side of Northview Boulevard; and
- Highway 400 and 407 ETR ramps, which create a major barrier for pedestrians and cyclists.

These constraints in the study area make it a challenge for people to use active transportation as a first mode of travel.

Opportunities

Opportunities to increase and improve the active transportation network include:

- Creating a finer-grid active transportation network through redevelopment to reduce walking / cycling distances to destinations;
- Links to a future South York Greenway Pedestrian and Cycling Corridor, located south of Highway 407-ETR. The South York Greenway is planned as an active transportation route that will extend east-west across York Region;
- Bike share and eco-mobility hubs that could potentially be introduced into the transportation system to improve connectivity;
- Separated all-ages-and-abilities cycling facilities on streets;
- A direct weather-protected crossing of Highway 400 that connects with TTC subway;
- Increased transit frequency along the BRT Rapidway, improving connectivity to TTC subway and destinations in York Region;
- Additional multi-modal connections across Highway 400;
- Additional multi-modal connections across Highway 7 and Weston Road
- Parking policies to manage supply and demand of cars; and
- Car share to limit the need for a personal automobile.

Redevelopment presents the best opportunity to address the above constraints. All roads need to have sidewalks on both sides and all arterial and collector roads must have designated, safe cycling facilities.

4.1.2 Transit Network

Following the review of the transit system and schedules within the Study Area, transit constraints and opportunities have been identified that connect key points of interest and support population and employment growth. While the City of Vaughan does not directly control or operate transit service in the Study Area, there are opportunities to advocate for transit service enhancements.

Constraints

The primary constraint is the need to improve first and last mile connections between the study area and Vaughan Metropolitan Centre (VMC) and its TTC subway station. The "first and last-mile" connection defines the beginning or end of an individual's trip, which when connecting to transit, can be by foot, cycle, or another vehicle. While transit connectivity at VMC is excellent – especially to Toronto – the Weston Road / Highway 7 intersection is 1.6km from VMC and requires walking across Highway 400. While this walk may be manageable for some, it can pose a significant and insurmountable barrier for many in the community, especially during winter months or periods of inclement weather.

While the Weston 7 Study Area is served by York Region Transit local and Viva bus services, as well as Brampton's 501 Züm service, corridor bus frequencies are limited, especially during off-peak hours. Moreover, while BRT provides fast connections, it does not provide effective coverage to all areas of the Weston 7 study area.

Opportunities

Opportunities to improve transit include:

- Increasing service frequencies along the Viva-Orange route (or significant portions of the route); and
- Introducing a local transit circulator that would provide coverage-based service to link neighbourhoods within the Weston 7 Study Area to each other and connect to Vaughan Metropolitan Centre and TTC subway. A transit circulator service could provide frequent, and convenient bus service and would ideally utilize Portage Parkway and Colossus Drive and integrate to both maximize coverage area, and avoid duplication with Highway 7 transit services.

4.1.3 Road Network

Constraints

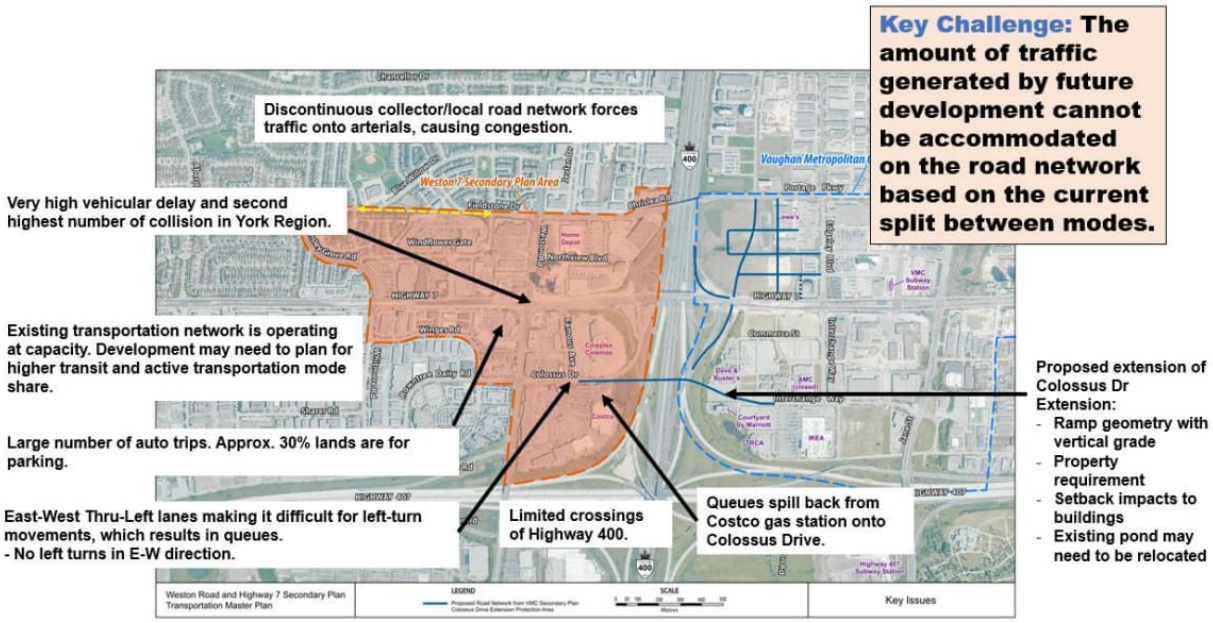
Various road constraints are noted within the Study Area. Presently, there is very high vehicular delay along arterial roadways. Parts of the existing transportation network in the study area are operating near capacity, which indicates that future development will need to plan for higher transit and active transportation mode share. High east-west through traffic volumes in addition to left-and right-turning

vehicular traffic result in queues. An overview of traffic constraints on the road network constraints are shown in Figure 18.

Identified constraints include:

- Significant existing passenger and truck volumes on Highway 7 and Weston Road arterial roads attributable to proximity to Highway 400 and Highway 7 interchange;
- Discontinuous collector and local roadway network. More efficient local access to properties could reduce strain on arterial roads and improve overall circulation;
- Limited vehicular crossing opportunities of the CN yards (east of VMC), and a tolled Highway 407-ETR result in east-west traffic funnelling to Highway 7;
- Study area abuts two major regional freeways, which creates significant connectivity barriers while increasing traffic due to interchanges in the area; and
- Existing land-uses are designed for automobile access and focus around large parking lots.

Figure 18: Traffic Constraints on the Road Network



Opportunities

Opportunities are available to create a new multimodal street network with a finer grid of streets while improving access for all modes. An urban grid allows for greater permeability and reduces travel distances. It also provides greater flexibility in route choice, simplifies orientation, and reduces walking access to transit.

Elements of a revised road network could include:

- Colossus Drive to connect east-west with Interchange Way across Highway 400;
- Additions and realignments to the existing minor collector network;
- Upgrading (and potentially realigning) several existing local roadways to collector roads;
- Establishing existing private roads, such as Famous Avenue, Windflower Gate and Nova Star as public roadways;
- Extending Fieldstone Drive from generally existing Windflower Gate intersection west to with Blue Willow Drive near Blue Willow Public School;
- The addition of various local roads including north-south and east-west connections equally distributed throughout; and
- The addition of several new traffic signals – where warranted – to improve traffic operations and provide at-grade crossing opportunities for pedestrians and cyclists.

4.2 Vision Statement

With these constraints and opportunities in mind, a Vision Statement was developed for the Weston 7 TMP, which is as follows:

"The vision of the Weston 7 Secondary Plan transportation network, is to accommodate and support future growth and transformation by enhancing the sustainable and multi-modal transportation system with a network that supports all users and all modes of transportation, accessibility, and improve connectivity, leveraging existing rapid transit infrastructure and service within and to and from the broader area."

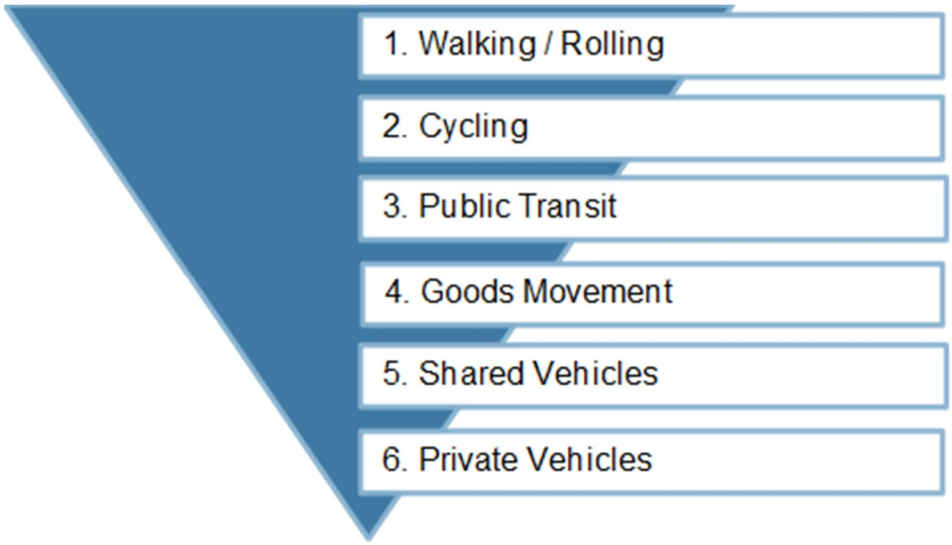
The vision rests on four key principles including:

The Weston 7 Secondary Plan area is one of the City of Vaughan's primary growth centres and will develop into an urban, intensified, mixed-use community. While the area is currently dominated by big box retail and light industrial uses, Weston 7 is planned to be distinct mixed-use centre with accommodation for housing, pedestrian-scaled retail and office space. Integration of transit and active transportation as part of a robust and multi modal transportation network is a fundamental component of this mixed-use centre, as reflected in the vision statement for Weston 7's transportation future.

Weston 7's multimodal transportation network will be expected to support a projected growth of 64,900 people and jobs with a full build out of the Secondary Plan area assumed for analysis purposes as the year 2051. To accommodate travel demand, Weston 7's transportation solution multi-modal network must be is planned to prioritize active transportation and public transit for travel to, from and within the development area, wherever possible.

The presence of the Highway 7 Viva Rapidway (with station stops at Weston Road and Ansley Grove Road) as well as the nearby Vaughan Metropolitan Centre subway station along the TTC's Line 1 (Yonge – University) subway is vital to the multimodal orientation of the Secondary Plan area. However, rapid transit elements are only one component of a truly multimodal network. To best leverage the Viva Rapidway and subway's potential, transportation network design should generally follow the proposed mode share priority structure displayed in Figure 19.

Figure 19: Weston 7 Modal Priorities



To achieve the Vision and support the evolution to more sustainable mobility choices, significant changes in transportation are needed in line with the mode prioritization structure. The figure below displays the current situation, the ultimate vision, and what is needed to achieve the vision.

5 Alternative Network Development and Assessment

5.1 General Overview and Purpose

This section describes the alternatives explored in this study and presents the analysis of those alternatives from a multimodal lens.

Several improvement alternatives for a full build-out transportation network were developed and assessed to address problems and opportunities highlighted in prior sections. Alternative network development occurred in two stages. The first round of alternative development and assessment (Stage 1) assessed the impact of limited improvements (Alternative 1) and a revised multimodal network (Alternative 2) against a Baseline scenario (Alternative 0), which incorporates background improvements only. The second round of alternative development and assessment (Stage 2) followed additional technical analysis and also incorporated stakeholder feedback. Stage 2 resulted in an additional alternative (Alternative 3) being developed and assessed.

A Multiple Account Evaluation (MAE) – a systematic method of analyzing, evaluating, and assessing alternatives that encompasses both quantitative and qualitative accounts – is employed to provide guidance on which transportation network alternative is preferred for the Weston 7 Secondary Plan Transportation Master Plan from a multi-lens perspective.

5.2 Alternative Network Development

Alternatives were developed in two stages to identify the preferred multi-modal network.

5.2.1 Stage 1 – 2051 Network Planning Solutions Assessment

Stage 1 of the alternative development process was intended to identify, at a high level, a preferred network alternative by evaluating the alternatives against each other and a baseline alternative, under the assumption of full build-out of the Weston 7 SP. Growth forecasts and land-use based assumptions were collected in early 2021 and are constant across all alternatives. Please note that growth forecasts and land-use assumptions may have evolved since 2021. The assumptions are summarized as follows:

- Full build-out for Weston 7 SP (64,900 people and jobs)
- Full build-out of Vaughan Metropolitan Centre based on growth forecasts of approved developments, plus the originally approved population and employment estimates of the VMC Secondary Plan where development applications have yet to be submitted or are not yet approved. (105,500 people and jobs)
- In all other zones and areas of the macroscopic model, growth forecasts are based on the 2041 planning horizon as assessed by the 2016 York Region Transportation Master Plan and Travel Demand Model.

The future baseline and network alternatives assume the implementation of York Region planned road improvements from the 2016 York Region Transportation Master Plan and Travel Demand Model, including:

- Langstaff Road widening between Weston Road and Creditstone Road;
- Steeles Avenue widening west of Jane Street;
- Pine Valley Drive widening between Highway 7 and Steeles Avenue;
- Weston Road widening north of Steeles Avenue;
- Keele Street widening north of Steeles Avenue;
- A new Langstaff Road connection over the CN Macmillan Yard;
- A full interchange at Highway 400 / Langstaff Road;
- A dedicated transit corridor along Steeles Avenue east of Jane Street; and
- A Jane Street BRT Rapidway between Highway 7 and Major Mackenzie Drive with 10-minute BRT service headways.

For the purposes of evaluation consistency, all alternatives are assessed under the weekday AM peak period (7:00AM – 10:00AM) and weekday PM peak period (3:00PM-6:00PM) conditions. Projected vehicular demand is classified as single-occupancy vehicles (SOV), high-occupancy vehicles with 2

passengers (HOV2), high-occupancy vehicles with 3 passengers or more (HOV3+), and heavy vehicles. More details on estimation of traffic demand can be found in the Traffic Report, provided in Appendix D. Stage 1 alternatives are summarized in Table 5.

Table 5: Summary of Stage 1 Network Alternatives

Network Alternatives	Growth and Land Use Assumptions	Transportation Assumptions
Alternative 0: Future Baseline	• 64,900 people and jobs full buildout (2051 and beyond) SP Demonstration Plan (March 2021) • York Region TMP 2016 Forecasts all other zones outside Weston 7 and VMC SP areas. • VMC full buildout scenario under approved Secondary Plan: 105,500 people and jobs	• York Region Planned Roadway improvements, described above.
Alternative 1: Future Baseline and Colossus Drive Extension	• Same as Future Baseline	• Assumes baseline improvements. • Extension of Colossus Drive from Weston 7 Study Area into the VMC, over Highway 400.
Alternative 2: Weston 7 Demonstration Plan Network	• Same as Future Baseline	• Assumes baseline improvements, plus the Colossus Drive Extension from above. • New and extended network of Local and Collector Streets • Active Transportation Links, including sidewalks on both sides all streets. • Controlled Movement Signalization for Pedestrians • Dedicated cycling facilities on all Collector and Major Collector streets.

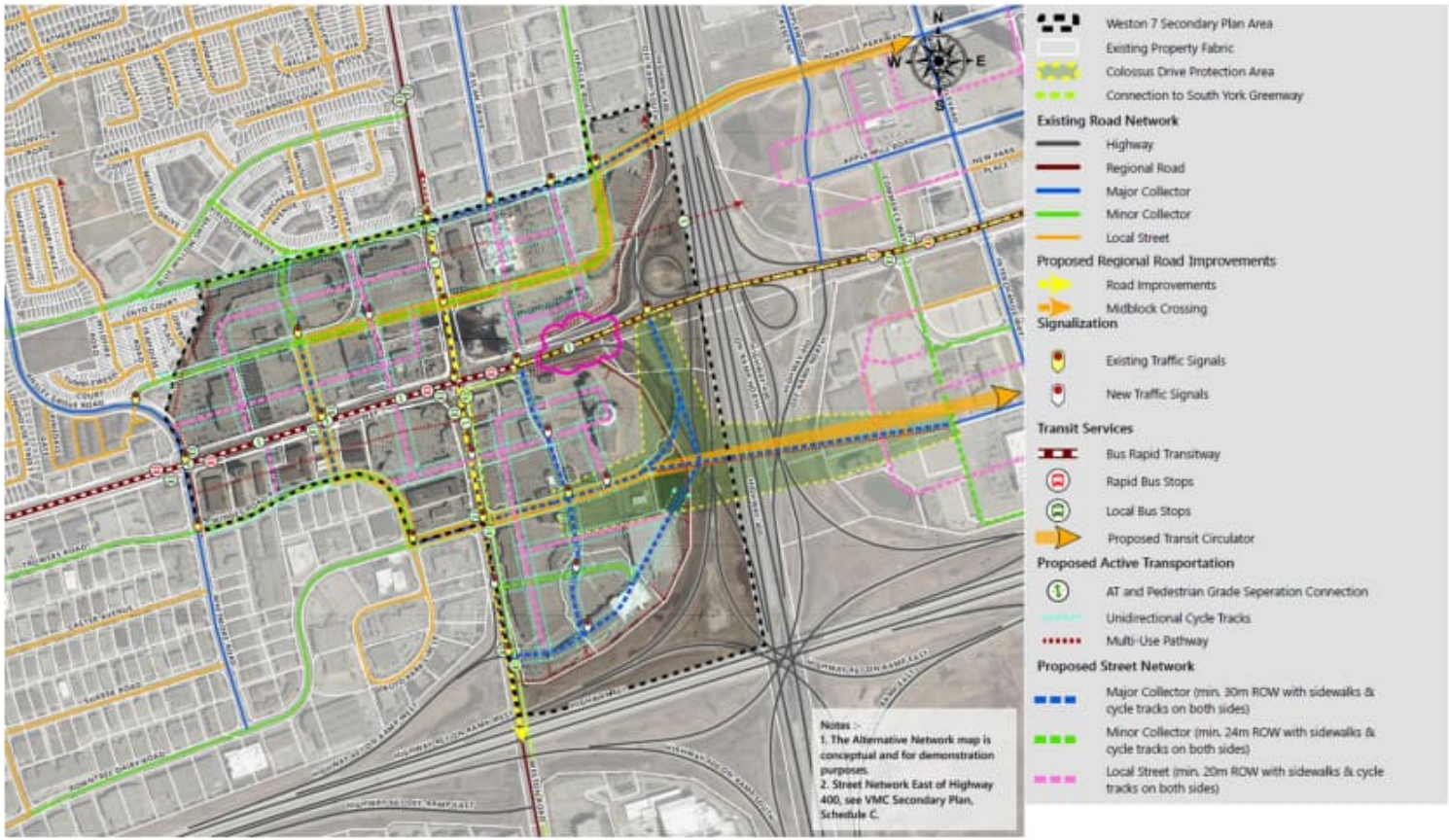
5.2.2 Stage 2 – Alternative Network Refinement

Stage 2 of the alternative network development refined the Alternative 2 from Stage 1 to maximize the potential benefits of the multi-modal network and incorporate feedback from stakeholders and the public. Based on the results of the Stage 1 analysis, Alternative 2 (Figure 20) was further refined to incorporate additional network elements as part of and alongside a range of multimodal network improvements. Alternative 3 (Figure 21) is the culmination of these refinements. Additional network elements and improvements included the following features:

- Extension of Fieldstone Drive west through to connect with Blue Willow Drive;
- New traffic signals along the internal roadway network;
- A new active transportation link connecting the Weston 7 development area across Highway 400 to Applemill Road in VMC;
- Several active transportation grade separated connections across major arterial roadways;
- Additional midblock pedestrian crossings;
- Improved VIVA Rapidway bus frequencies; and
- A new transit circulator with direct service to Vaughan Metropolitan Centre and Highway 407 subway stations.

Figure 20: Alternative 2 - Weston 7 Demonstration Plan

Figure 21: Alternative 3 – Weston 7 Refined Network



5.2.3 Alternative Network Summary

Table 6 details the network improvements assumed in the future baseline and all network alternatives. Baseline improvements are assumed across all alternatives. Alternative 1 additionally incorporates the Colossus Drive extension over Highway 400 as well as the extension of Nova Star Drive between Winges Road and Highway 7. Alternative 2 additionally incorporates a suite of multimodal network improvements including the development of an extensive grid network. Alternative 3 adds additional muti-modal connectivity including active transportation grade-separation, additional signals to ease cross-movements, protected cycling facilities on all corridors, the introduction of a new transit circulator, and improved transit frequencies on BRT routes.

Table 6: Summary of Transportation Improvements Assessed in Each Alternative

	Improvement	Alternative			
		0	1	2	3
Future Background Road Network Improvement	407 ETR widening west of Jane St (8 ➔10 lanes) [1]	X	X	X	X
	Langstaff Rd widening between Weston Rd and Creditstone Rd (4 → 6 lanes) [1]	X	X	X	X
	Steeles Ave widening west of Jane St (4-lane→6 lanes) [1]	X	X	X	X
	Pine Valley Dr widening between Hwy 7 and Steeles Ave (4 → 6 lanes) [1]	X	X	X	X
	Weston Rd widening north of Steeles Ave (4 → 6 lanes)	X	X	X	X
	Keele St widening north of Steeles Ave (4 → 6 lanes) [1]	X	X	X	X
	Langstaff Rd connection over CN Yard [1]	X	X	X	X
	Langstaff Rd full Interchange at Hwy 400 [1]	X	X	X	X
	Bass Pro Mills Road extension [1]	X	X	X	X

Future Transit Improvement	Steeles Ave Transit Corridor (4 lanes + dedicated transitway east of Jane St - only long-distance routes) [1]	X	X	X	X
	Jane St Transit Corridor (4 lanes + transitway between Major Mackenzie Dr and Highway 7 – Viva headway is 10 mins) [1]	X	X	X	X
	Transit Circulator (5-minute service)				X
	Improved Highway 7 Rapidway Frequency (5-minute service)				X
Internal Road Network and Active Transportation Improvements	Colossus Dr connection (extension) over Hwy 400 (4 lanes)		X	X	X
	Active transportation connection over Hwy 400 linking Northview Drive to Apple Mill Rd				X
	5 pedestrian and cyclist grade separated crossings of Highway 7				X
	2 pedestrian and cyclist grade separated crossings of Weston Rd				X
	Unidirectional cycle tracks along all internal roadways				X
	Eastern perimeter Multi-Use Pathway				X
	Western perimeter Multi-Use Pathway				X
	Midblock Multi-Use Pathway connecting Whitmore Rd to east of Weston Rd between Highway 7 and Winges Road				X
	Active Transportation connection to South York Greenway				X
	New signal on Weston Rd north of Colossus Dr and south of Highway 7	X	X	X	X
	New signal on Weston Rd north of Famous Ave and south of Colossus Dr				X
	New signal at the realigned Windflower Gate and Pottery Road / Weston Road intersection				X

	New signal on Famous Ave between Highway 7 and Colossus Dr				X
	2 new signals on Famous Ave south of Colossus Dr				X
	Nova Star Drive extension from Winges Rd to Fieldstone Dr		X	X	X
	Extension of Windflower Gate to the intersection of Weston Rd and Northview Blvd			X	X
	Extension of Northview Blvd east and north to the intersection of Portage Pkwy and Chrislea Rd			X	X
	New local road from Northview Blvd to intersection of Chrislea Rd and Jevlan Dr			X	X
	New local road connecting Windflower Gate to Highway 7 east of Nova Star Dr and west of Weston Rd			X	X
	New local road connecting Highway 7 between Nova Star Dr and Ansley Grove Rd			X	X
	New local roads between Winges Rd and Weston Rd and between Whitmore Rd and Nova Star Dr			X	X
	New local road south of Highway 7 between Nova Star Dr and Weston Rd			X	X
	New local road extending northwards from Colossus Drive (east of Famous Avenue)			X	X
	Realignment of Famous Ave east south of Colossus Drive			X	X

[1] Background roadway and transit improvements outside of the study area considered as part of the origin-destination traffic demand estimation.

[2] Proposed roadway network improvements outside of the Weston 7 study area but enclosed by the model boundary

5.3 Future Roadway Performance

The roadway traffic performance was assessed in the context of a full buildout future scenario, extending to 2051 and beyond, and a phased scenario for the year 2041. The transportation network, initially described in Chapter 4Setting the Stage: Planning Context and Existing Conditions under the existing conditions, was refined to incorporate the improvements proposed during the MAE process. The results of this assessment, including the overall network travel times, distance travelled, and the roadway level of service, served as a metric within the MAE process, aiding in the determination of the preferred alternative.

This section summarizes the assumptions that were included in the development of the transportation model as well as the key performance metrics or results that were included as input into the assessment of the network planning alternatives. A detailed summary of the traffic evaluation may be found in the Traffic Report in Appendix D.

5.3.1 Future 2051 Traffic Conditions

The vehicular traffic operations were evaluated across the network planning alternatives as part of the MAE for the planning year 2051. Aimsun software was employed to develop a detailed model of each alternative, and the model outcomes were ultimately compared to help determine the preferred alternative from a roadway performance perspective.

Methodology Used to Project 2051 Travel Volumes

The evaluation of the transportation network (in Aimsun) under the full buildout scenario requires forecasting the 2051 traffic demand, similar to the existing conditions. The 2051 vehicular traffic was estimated through an in-depth and extensive procedure. Summary of the methodology on how the YRTDF model was applied in generating the travel demand forecast is outlined below.

1. The 2051 traffic demands were estimated based on the passenger vehicle demands from the 2041 YRTDF model, which is limited to the morning peak hour. The YRTDF model was updated to: 1) include the transportation network improvements beyond the Weston 7 study area, as noted earlier in Section Stage 1 – 2051 Network Planning Solutions Assessment) decrease the tendencies in parking utilization through parking fare adjustments and imposing limits on residential parking space requirements.

2. The 2051 Weston 7 and VMC employment and population data were also utilized to estimate the vehicle demand for the entire buildout of the Weston 7 Secondary Plan area. The Weston 7 study area will accommodate 64,900 residents and jobs by the year 2051. Meanwhile, the VMC is expected to embrace 105,500 residents and jobs by the year 2051. The estimated traffic demand from the employment and population forecasts were integrated into the YRTDF model.

3. The final traffic demands (utilized in Aimsun), categorized by time of day and by vehicle classification, were established through the methodologies outlined in Chapter Alternative Network Development and Assessment for the existing conditions.

Modelling Approach

A transportation model of the study area, encompassing both the Weston 7 and the VMC Secondary Plan areas, was developed in Aimsun (shown in Figure 12) to evaluate future roadway performance under the forecasted 2051 traffic demand. The (existing) roadway network was adapted to integrate the proposed developments in the Weston 7 and VMC Secondary Plans. Furthermore, the road network was refined to incorporate the specific improvements outlined in section Alternative Network Development and Assessment for each network planning alternative as developed through the two-stage process noted previously and summarized below. Table 7 details the transportation network improvements under the network alternative scenarios proposed for both stages of the evaluation process.

- Stage 1 – The evaluation of the network improvements started by developing two different network alternatives, and the traffic performance results were compared against a baseline scenario.
- Stage 2 – A network alternative, Alternative 3, was developed by further improving the transportation network from Alternative 2 in Stage 1.

The transportation models provide insights into the future traffic performance under each network planning alternative. The outcomes from these transportation models were employed as part of the MAE process to determine how traffic performance compares to the baseline and other alternatives and to identify whether the transportation network remains operational amidst the proposed developments. Therefore, a volume to capacity (v/c) ratio, which is a metric for assessing the roadway capacity sufficiency, was conducted to cross-compare traffic performance across the network alternatives and identify the locations where the roadway capacity may be insufficient. In addition to the v/c ratio, the aggregate vehicle travel times and travelled distances covered across the study area were estimated to compare the

overall efficiency of the recommended transportation network alternatives, which is further elaborated in Appendix D.

Table 7: Transportation Network Improvement Under Stage 1 and Stage 2 Evaluation

Improvement By Network Planning Alternative	Stage 1			Stage 2
	0	1	2	3
Large-scaled background roadway & transit network improvements integrated into the 2041 YRTDF Model	✓	✓	✓	✓
New local roads, accesses and intersections required for full buildout of Weston 7 and VMC	✓	✓	✓	✓
Extension of Colossus Drive over Highway 400		✓	✓	✓
Additional improvements on local roads (roadway realignment and extension, additional access points, signal timing adjustments, increase in number of traffic lanes)			✓	✓
Improved active transport network (multi-use path connection over Highway 400, grade separated & at-grade midblock crossings for pedestrians and cyclists)				✓
Improved transit network (lower headway and a transit circulator to VMC subway station)[1]				✓

[1] Not included in the v/c ratio assessment

Evaluation

The v/c ratio was employed as an indicator to compare the traffic performance across the network planning alternatives. The v/c ratios were evaluated at roadway segments and at pre-defined screenlines, which may represent linear features such as roads, rivers, rail lines, or municipal boundaries. The screenlines are used to evaluate cumulative travel demand on the perpendicular roadways crossing the screenline. The v/c ratios were evaluated for the weekday AM and PM peak hours, as these periods represent the peak vehicular demand, providing a more rigorous evaluation of the transportation network.

As part of the MAE process, the analyzed v/c ratios were compared for each proposed alternative, both on a segment-by-segment and screenline-by-screenline basis. The objective of this exercise was to demonstrate that the transportation network under the preferred alternative not only enhances connectivity and capacity for vehicular traffic compared to the baseline scenario with no road network improvements but also demonstrates superior roadway performance in contrast to other proposed alternatives.

The analysis of v/c ratios involved assessing the transportation network in Aimsun at a macroscopic level, emphasizing the collective behavior of traffic flow. The v/c ratios were determined based on the proportion of demand to roadway capacity across different segments of the road infrastructure. The demand and roadway capacity of roadways crossing the screenlines were aggerated and the corresponding v/c ratios were evaluated.

The determination of the LOS and the operational status for a specific roadway segment can be derived from the evaluated v/c ratios. The traffic analysis adopted the LOS classification identified in the HCM (Special Report 209). The LOS classifications based on the v/c ratio can be found in Table 8. The following sections elaborate on the performance of the transportation network at screenlines and roadway segments for each network planning alternative.

Table 8: HCM LOS Criteria by v/c Ratio

LOS	v/c Ratio	Traffic Operation
A-C	< 0.80	Good
D	0.80 ≤ v/c < 0.90	Unstable
E	0.90 ≤ v/c < 1.00	Congested
F	≥ 1.00	Very Congested

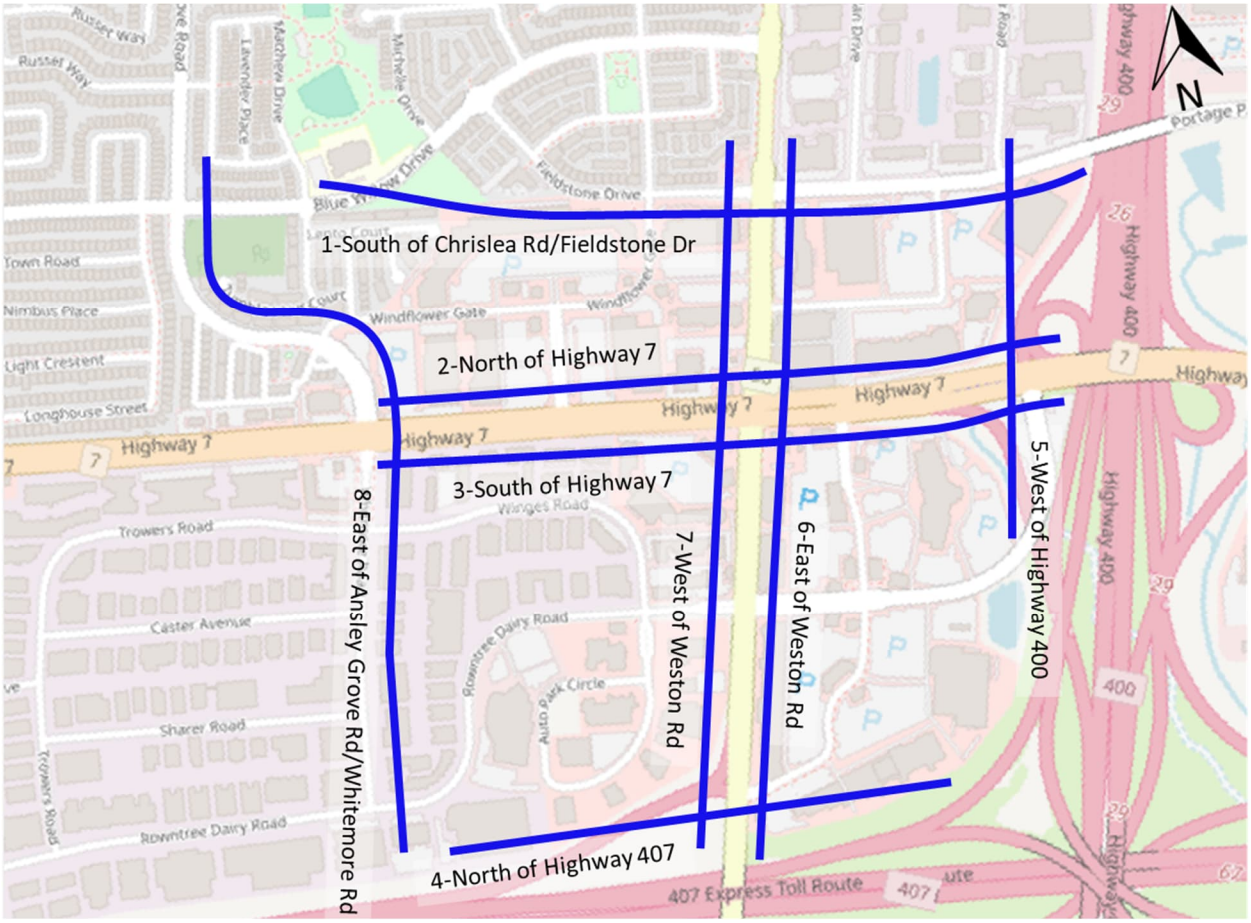
Screenline Analysis

To assess the transportation needs serving the Weston 7 area, eight screenlines were identified within the study area as illustrated in Figure 22.

- East-west screenlines – these screenlines run parallel to Highway 7 and capture the traffic flow moving north or south within the study area. These screenlines are situated:
    - south of Chrislea Road/ Fieldstone Drive, north of Highway 7, south of Highway 7, and north of Highway 407.

- North-south screenlines – these screenlines run parallel to Weston Road and capture the traffic flow moving east or west within the study area. These screenlines are situated:
    - west of Highway 400, east of Weston Road, west of Weston Road and east of Ansley Grove Road and Whitmore Road.

Figure 22: Screenline Areas



The v/c ratios were evaluated for each network planning alternative during both weekday morning and afternoon peak hours. A comparative analysis of the v/c ratios across different network planning alternatives is illustrated in Table 9 and Table 10 for the AM and PM peak hour, respectively.

The v/c ratios are generally lower in the morning given lower vehicular demand and affirming that the afternoon peak hour represents more constrained condition. The highest v/c ratios are observed on Highway 7 west of Highway 400 and on Weston Road near Highway 407 in the southbound direction during the morning peak hour. Although the v/c ratios on Highway 7 at the Highway 400

ramp terminals remain high during the afternoon peak hour, the northbound direction exhibits higher v/c ratios on Weston Road. It can be concluded that the transportation network lacks sufficient capacity in accommodating the east-west traffic demand over Highway 400 under the 2051 conditions. Capacity constraints are also apparent for the northbound and southbound vehicular demands, particularly south of Highway 7, where the presence of few north-south collectors exacerbates congestion on Weston Road. A summary of the traffic operation at screenlines under different network planning alternatives is presented below.

Alternative 0 (Baseline) – The screenlines are above or near capacity west of Highway 400, north of Highway 407, and north of Highway 7 in the AM peak hour. In the PM peak, the roadway capacities are exceeded for the screenlines parallel to Weston Road, south of Highway 7 in the northbound direction as well as the screenline west of Highway 400.

Alternative 1 – This network planning alternative demonstrates performance similar to the baseline scenario (Alternative 0) for the most part. The extension of Colossus Drive improves the v/c ratio for the screenline west of Highway 400, with all v/c ratios below 1.00 except for the westbound direction during the afternoon peak. The remaining critical screenlines, operating at a v/c ratio of greater than 1.00, are maintained from Alternative 0.

Alternative 2 – The v/c ratios further improve in comparison to Alternative 1 with provision of supplementary local roads and access points. The v/c ratio at the screenline north of Highway 7 decreases from 0.97, indicating operation near capacity under Alternative 1, to 0.84 in the southbound direction. The v/c ratios at the screenlines north and south of Highway 7, initially exceeding 1.00, have now been decreased to values below 0.90. The screenline north of Highway 407 still operates at a v/c ratio of greater 1.00 in the southbound direction during the AM peak and in the northbound direction during the PM Peak as observed in Alternative 0 and Alternative 1. This alternative also capitalizes on the extra capacity facilitated by the Colossus Drive overpass (introduced in Alternative 1) and sustains v/c ratios comparable to that of Alternative 1 at the screenline west of Highway 400.

Alternative 3 – The v/c ratios are either sustained or exhibit slight improvement compared to Alternative 2 across the majority of screenlines, attributed to the implementation of a more refined grid network. The v/c ratios at the screenline west of Highway 400 are reduced to below 0.90 during the morning peak for both travel directions. These v/c ratios are also lower compared to Alternative 2 during the PM peak hour; however, the vehicular demand continues to exceed the screenline capacity in the westbound direction.

The marginal increase in the v/c ratio at the screenline north of Highway 7 during the morning peak is linked to the change in travel patterns facilitated by a finer collector network, with roads like Nova Star Drive attracting more traffic. The v/c ratios at the screenline north of Highway 7 replicate the values from Alternative 2 for both peak hours.

Table 9: Screenline Analysis Results – AM Peak Hour

East-West Screenlines	Alternative 0		Alternative 1		Alternative 2		Alternative 3	
	NB	SB	NB	SB	NB	SB	NB	SB
1-South of Chrislea Rd	0.46	0.63	0.44	0.60	0.37	0.52	0.35	0.47
2-North of Highway 7	0.45	0.97	0.47	0.97	0.41	0.84	0.42	0.85
3-South of Highway 7	0.78	0.81	0.76	0.71	0.55	0.60	0.53	0.58
4-North of Highway 407	0.77	1.24	0.77	1.24	0.77	1.24	0.77	1.24
North-South Screenlines	Alternative 0		Alternative 1		Alternative 2		Alternative 3	
	WB	EB	WB	EB	WB	EB	WB	EB
5-West of Highway 400	1.05	1.08	0.91	0.96	0.94	0.96	0.88	0.87
6-East of Weston Rd	0.65	0.74	0.65	0.73	0.61	0.69	0.59	0.69
7-West of Weston Rd	0.64	0.88	0.64	0.89	0.59	0.82	0.59	0.82
8-East of Ansley Grove Rd	0.59	0.66	0.59	0.66	0.56	0.63	0.52	0.59

Table 10: Screenline Analysis Results – PM Peak Hour

East-West Screenlines	Alternative 0		Alternative 1		Alternative 2		Alternative 3	
	NB	SB	NB	SB	NB	SB	NB	SB
1-South of Chrislea Rd	0.68	0.52	0.68	0.51	0.60	0.44	0.57	0.40
2-North of Highway 7	0.98	0.61	1.00	0.63	0.88	0.53	0.92	0.55
3-South of Highway 7	1.03	0.75	1.04	0.64	0.78	0.54	0.76	0.50
4-North of Highway 407	1.49	0.74	1.49	0.74	1.49	0.74	1.49	0.74
North-South Screenlines	Alternative 0		Alternative 1		Alternative 2		Alternative 3	
	WB	EB	WB	EB	WB	EB	WB	EB
5-West of Highway 400	1.58	0.94	1.32	0.82	1.37	0.82	1.27	0.76
6-East of Weston Rd	0.69	0.68	0.69	0.69	0.68	0.68	0.66	0.69
7-West of Weston Rd	0.91	0.79	0.91	0.79	0.84	0.71	0.84	0.72
8-East of Ansley Grove Rd	0.74	0.68	0.74	0.68	0.70	0.64	0.66	0.61

Arterial Segment Analysis

Alternative 0 (Future Baseline)

The v/c ratios were assessed for the major arterials and collectors within the Weston 7 study area, and the respective LOS was determined based on the classification defined in Table 8 The traffic operational conditions, including v/c ratios and LOS, for the baseline scenario (Alternative 0) under the 2051 vehicular demand are presented in Figure 23 and Figure 24 for the morning and afternoon peak hours, respectively.

The arterial LOS and v/c ratios align with the outcomes derived from the screenline analysis. The vehicular demand exceeds the capacity of Highway 7 in both travel directions at the Highway 400 ramp terminals

during both peak hours. This is attributed to the high volume of traffic attracted to and generated by Highway 400, with the exclusive access point to Highway 400 being through Highway 7. The v/c ratios vary from 1.09 to 1.36 in the morning peak hour and from 1.09 to 1.63 in the afternoon peak hour near the Highway 400 ramp terminals. Moreover, the v/c ratios on Weston Road exceeds 1.00 in the southbound direction during the morning peak and in the northbound direction during the afternoon peak, demonstrating insufficient capacity to manage the vehicular demand. These v/c ratios are greater in proximity to Highway 407 and during the afternoon peak hour. The v/c ratios along Weston Road at the Highway 407 ramp terminals are 1.45 during the morning peak in the southbound direction and 1.75 for the afternoon peak in the northbound direction.

Portage Parkway also operates at LOS 'F', indicating a very congested roadway, at the Highway 400 overpass during both AM and PM peak hours. The v/c ratio surpasses 1.00 for both directions of travel, 1.27-1.29 in the eastbound direction and 0.98-1.03 in the westbound direction during the morning peak. In the afternoon peak, the v/c ratio reaches 1.13-1.22 in the eastbound direction and 1.48-1.53 in the westbound direction.

Certain approaches at the intersection of Highway 7 and Weston Road operate beyond the roadway capacity. The v/c ratios for the southbound and eastbound approaches are 1.33 and 0.95, while in the afternoon peak, with the travel pattern reversed, the northbound and westbound approaches operate at v/c ratios of 1.22 and 1.20. This demonstrates a very congested intersection.

Colossus Drive also operates near or above capacity during the weekday peak hours. This collector provides access to the development sites south of Highway 7 and play a role in relieving congestion around the intersection of Highway 7 and Weston Road.

Figure 23: Arterial v/c Ratios for Network Planning Alternative 0 – Future (2051) Conditions – Weekday AM Peak Hour

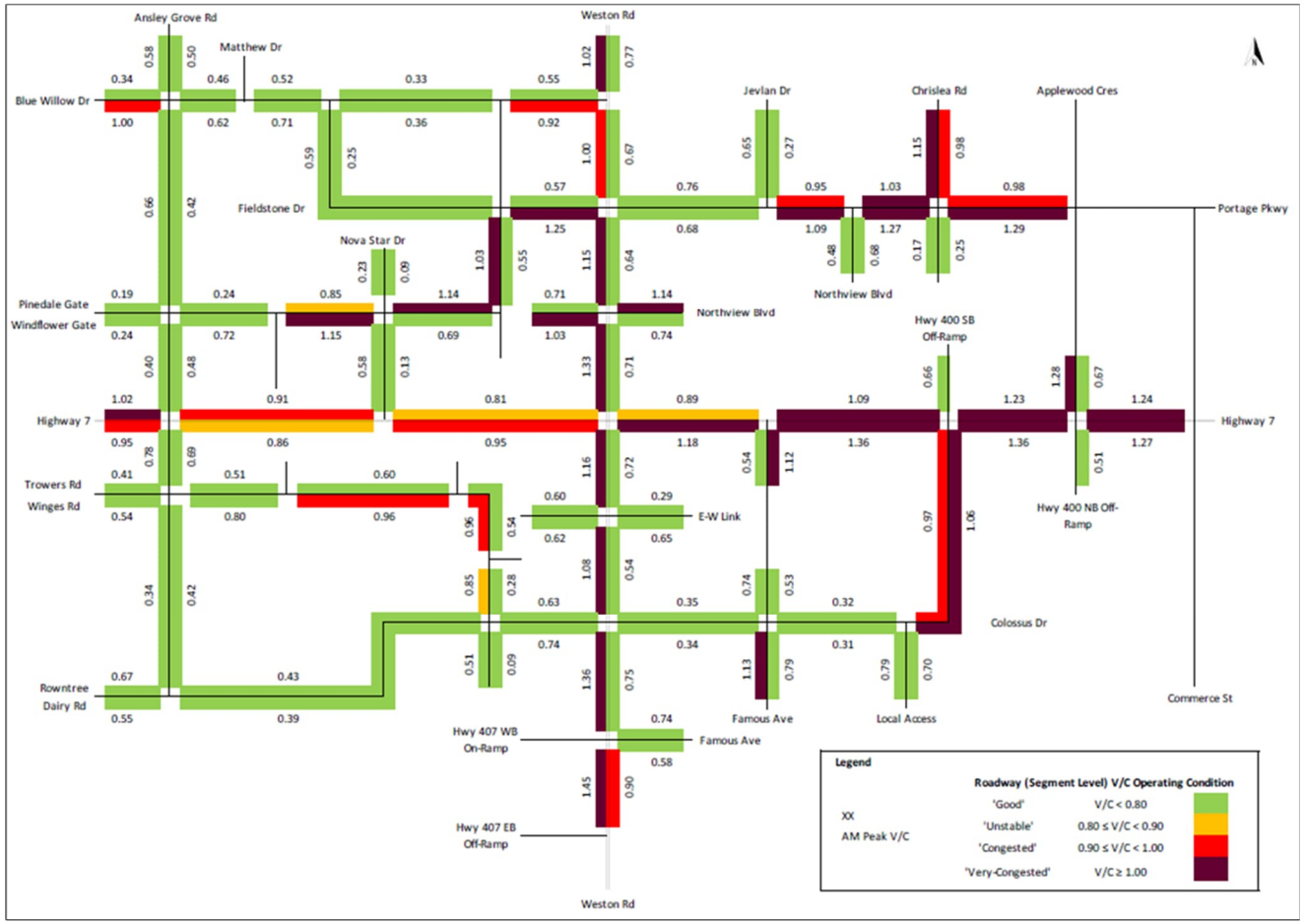
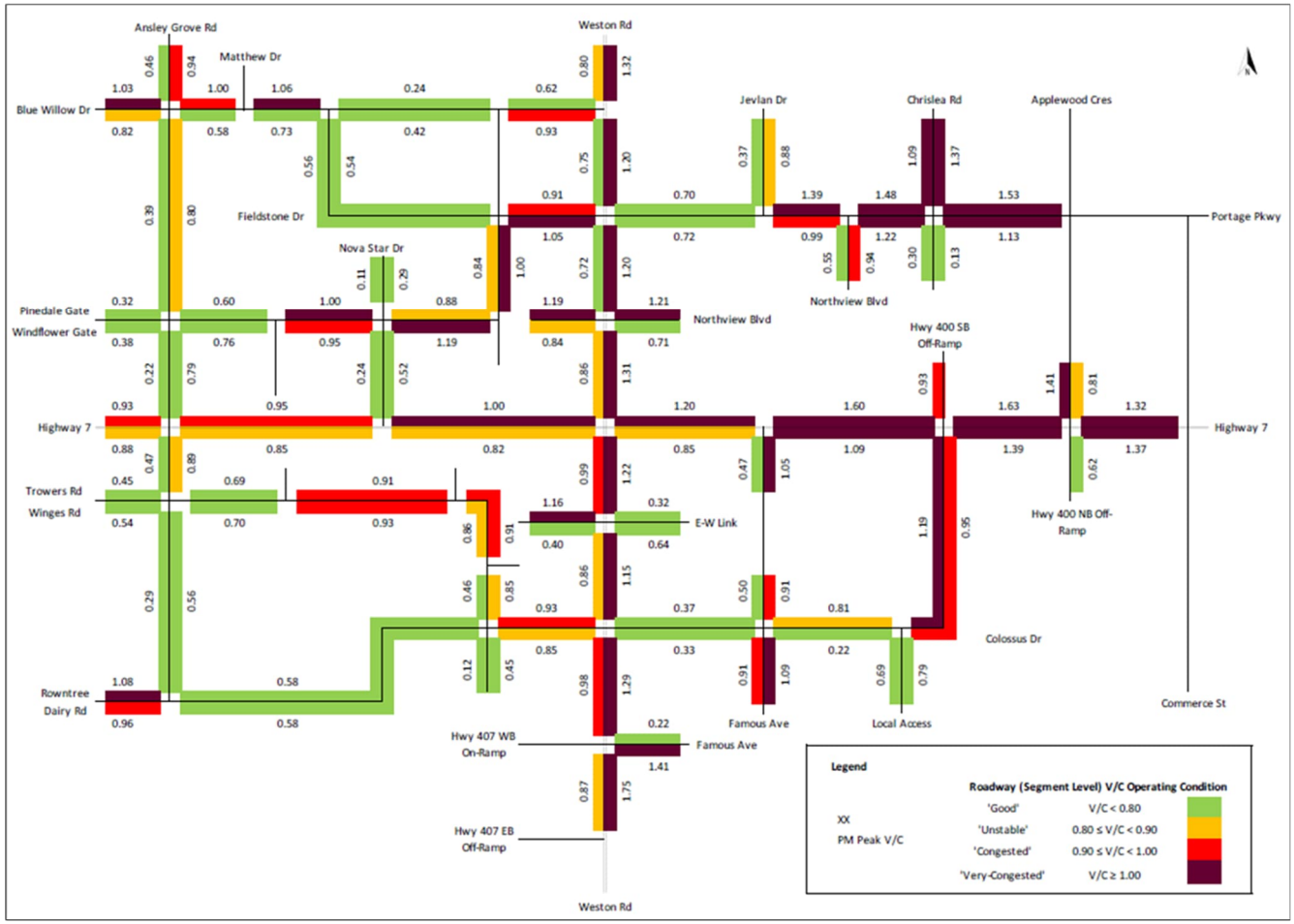


Figure 24: Arterial v/c Ratios for Network Planning Alternative 0 – Future (2051) Conditions – Weekday PM Peak Hour



Alternative 1

The v/c ratios and the LOS were assessed across major arterials and collector roads under the network planning Alternative 1, where Colossus Drive was extended over Highway 400. The evaluated v/c ratios and the corresponding LOS are depicted in Figure 25 for the morning peak hour and Figure 26 for the afternoon peak hour.

The Colossus Drive extension alleviates some of the congestion on Highway 7 at Highway 400. The v/c ratio on Highway 7 reduces to 0.99-1.21 (from 1.09-1.36) in the morning peak hour and 0.97-1.42 (from 1.09-1.63) in the afternoon peak hour. Although these v/c ratios are an improvement over Alternative 0, Highway 7 still operates under an oversaturated condition (v/c > 1) during peak hours in both travel directions as Highway 7 continues to be heavily utilized, especially accommodating through trips.

Weston Road maintains a performance similar to the baseline scenario (Alternative 0). During the morning peak, it operates under a highly congested condition in the southbound direction, and in the afternoon peak, the northbound direction faces similar congestion. This aligns with expectations, given that Alternative 1 focuses on extending Colossus Drive, primarily enhancing east-west capacity, without addressing additional north-south capacity.

The extension of Colossus Drive over Highway 400 is effective in mitigating east-west congestion along Portage Parkway, particularly during peak hours. The v/c ratio ranges from 0.76 to 1.12, as opposed to 0.98-1.29 from Alternative 0, during the morning peak hour. The v/c ratios decrease in the afternoon peak from 1.13-1.53 (from Alternative 0) to 1.02-1.30. Even though the traffic demand exceeds the roadway capacity particularly in the eastbound direction during the morning peak and in the westbound direction during the afternoon peak, the reduction in v/c ratios highlight the positive impact of the Colossus Drive extension on alleviating congestion on Portage Parkway.

Traffic performance at the intersection of Highway 7 and Weston Road is similar to Alternative 0. The operational characteristics of the intersection legs on Weston Road closely resemble those observed in the baseline scenario as no enhancements were made to the north-south road network. Highway 7 sustains a LOS 'E' or 'F,' comparable to the Alternative 0, despite the marginal decreases in v/c ratios.

The Colossus Drive extension over Highway 400, featuring four vehicular lanes (two per direction), is highly utilized during both peak hours. The v/c ratio ranges from 0.81-0.86 in the eastbound direction, representing an unstable condition classified under LOS ‘D’. The v/c ratio is expected to reach 1.01,

indicating a very congested state in the westbound direction during the afternoon peak hour. Moreover, the section of Colossus Drive that links to Highway 7 no longer experiences oversaturation following the extension of the roadway over Highway 400.

Figure 25: Arterial v/c Ratios for Network Planning Alternative 1 – Future (2051) Conditions – Weekday AM Peak Hour

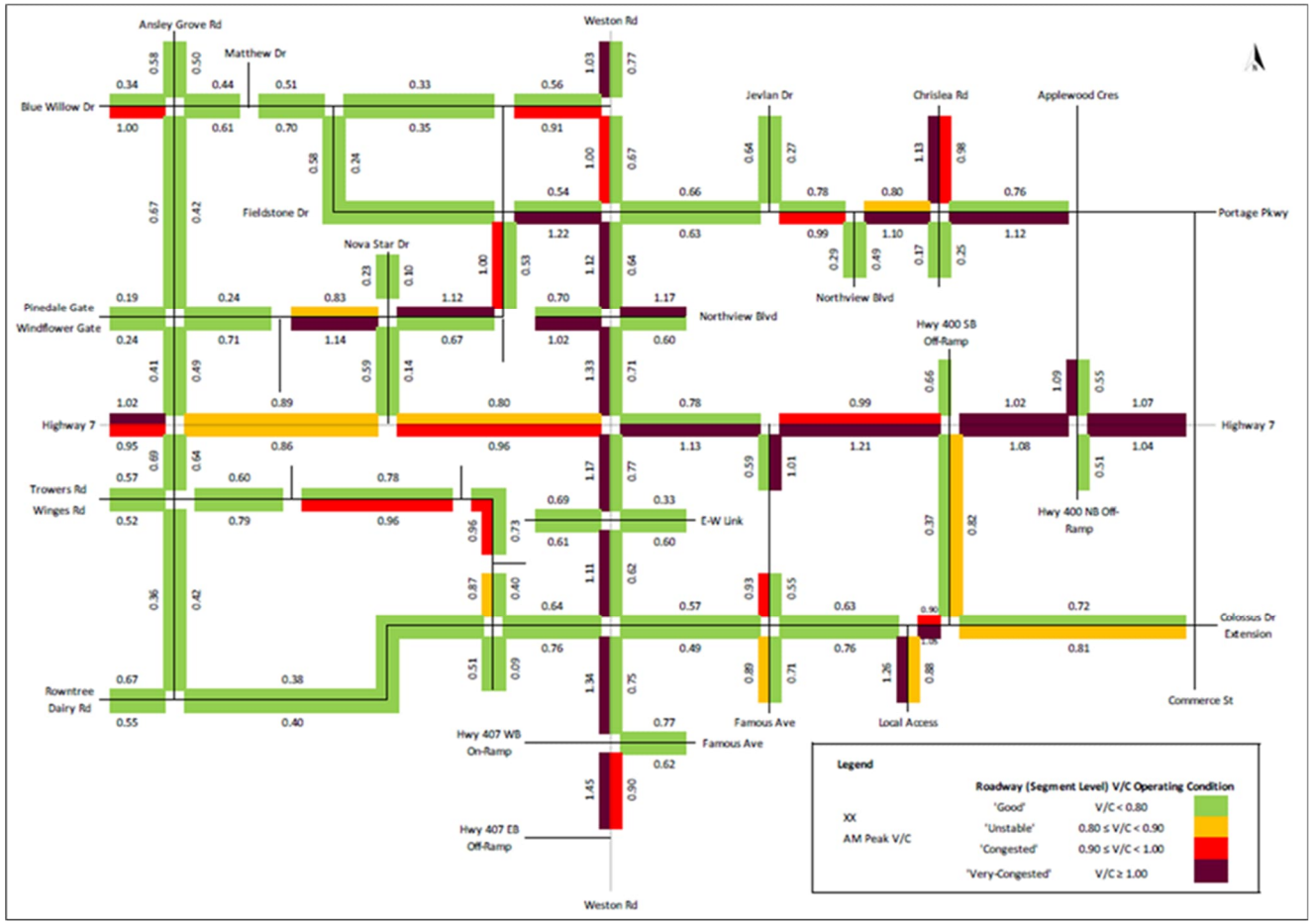
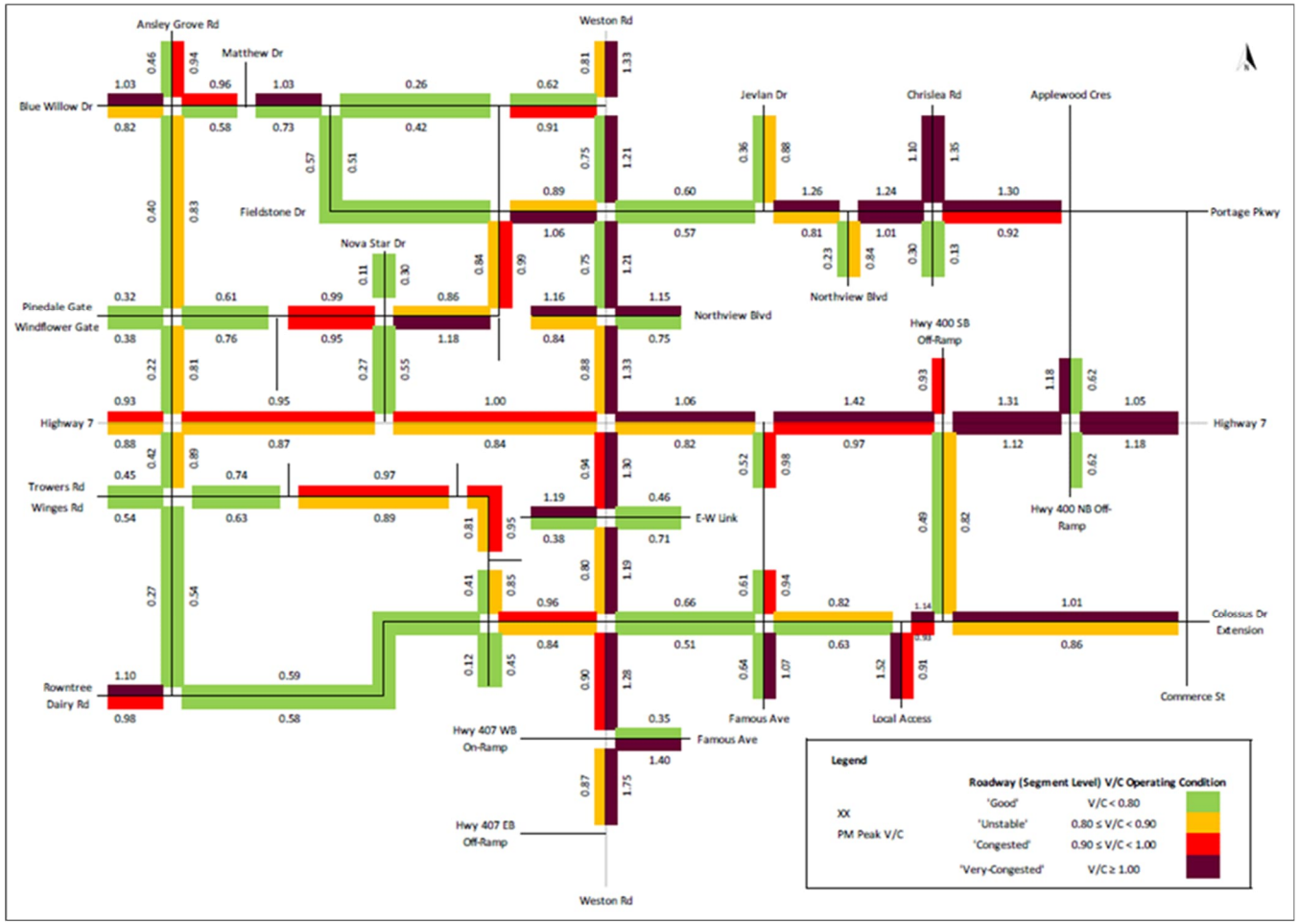


Figure 26: Arterial v/c Ratios for Network Planning Alternative 1 – Future (2051) Conditions – Weekday PM Peak Hour



Alternative 2

The v/c ratios and the LOS were evaluated for key arterials and collector roads under the network planning Alternative 2, which included the extension of Colossus Drive and improvements to local roads. The evaluated v/c ratios and the corresponding LOS are depicted in Figure 27 for the morning peak hour and Figure 28 for the afternoon peak hour.

The majority of arterial sections on Highway 7 and Weston Road maintain the LOS observed in Alternative 1, with a slight reduction in v/c ratios. The demand on Highway 7 still exceeds the roadway capacity at Highway 400 with v/c ratios of 0.96-1.21 in the morning peak and 0.97-1.29 in the afternoon peak. Likewise, Weston Road experiences significant congestion in the southbound direction, with v/c ratios ranging from 1.00 to 1.45, during the morning peak. Congestion persists in the northbound direction, with v/c ratios ranging from 1.06 to 1.75, during the afternoon peak.

The v/c ratios and the LOS further improves on Portage Parkway under the network planning Alternative 2, particularly west of Chrislea Road. The v/c ratios reduce to a range of 0.65-0.88, as opposed to 0.80-1.10 from Alternative 1, in the morning peak and decreases to 0.71-0.98, as opposed to 1.01-1.24, in the afternoon peak. This is primarily attributed to a finer local road network south of Chrislea Road and extension of Northview Boulevard to Chrislea Road. The Portage Parkway overpass maintains the LOS from Alternative 1 with the vehicular demand surpassing the roadway capacity.

The intersection legs at Highway 7 and Weston Road maintain a comparable LOS to Alternative 1. By introducing access roads to Highway 7 and Weston Road under Alternative 2, a portion of traffic is redirected from the heavily congested intersection, resulting in slightly lower v/c ratios.

The Level of Service (LOS) for the Colossus Drive overpass and its connection to Highway 7 remains consistent with Alternative 1, exhibiting minor fluctuations in v/c ratios. The v/c ratio for the eastbound direction on the Colossus Drive overpass ranges from 0.81 to 0.84, indicative of an unstable roadway condition. The v/c ratio remains below 0.80 for the westbound direction, indicating a stable condition during the morning peak, but the roadway capacity is exceeded during the afternoon peak.

The majority of improvements in LOS are visible across the local roads within the development blocks. For instance, the v/c ratio reduces from 1.18, reflecting oversaturation, to 0.72, indicating a stable condition, along the arterial segment on Windflower Gate from Nova Star Drive to Fieldstone Drive during the afternoon peak hour. These performance improvements are mainly credited to the incorporation of new

access roads connecting major arterials and collectors, along with the adoption of a more grid-like transportation network.

Figure 27: Arterial v/c Ratios for Network Planning Alternative 2 – Future (2051) Conditions – Weekday AM Peak Hour

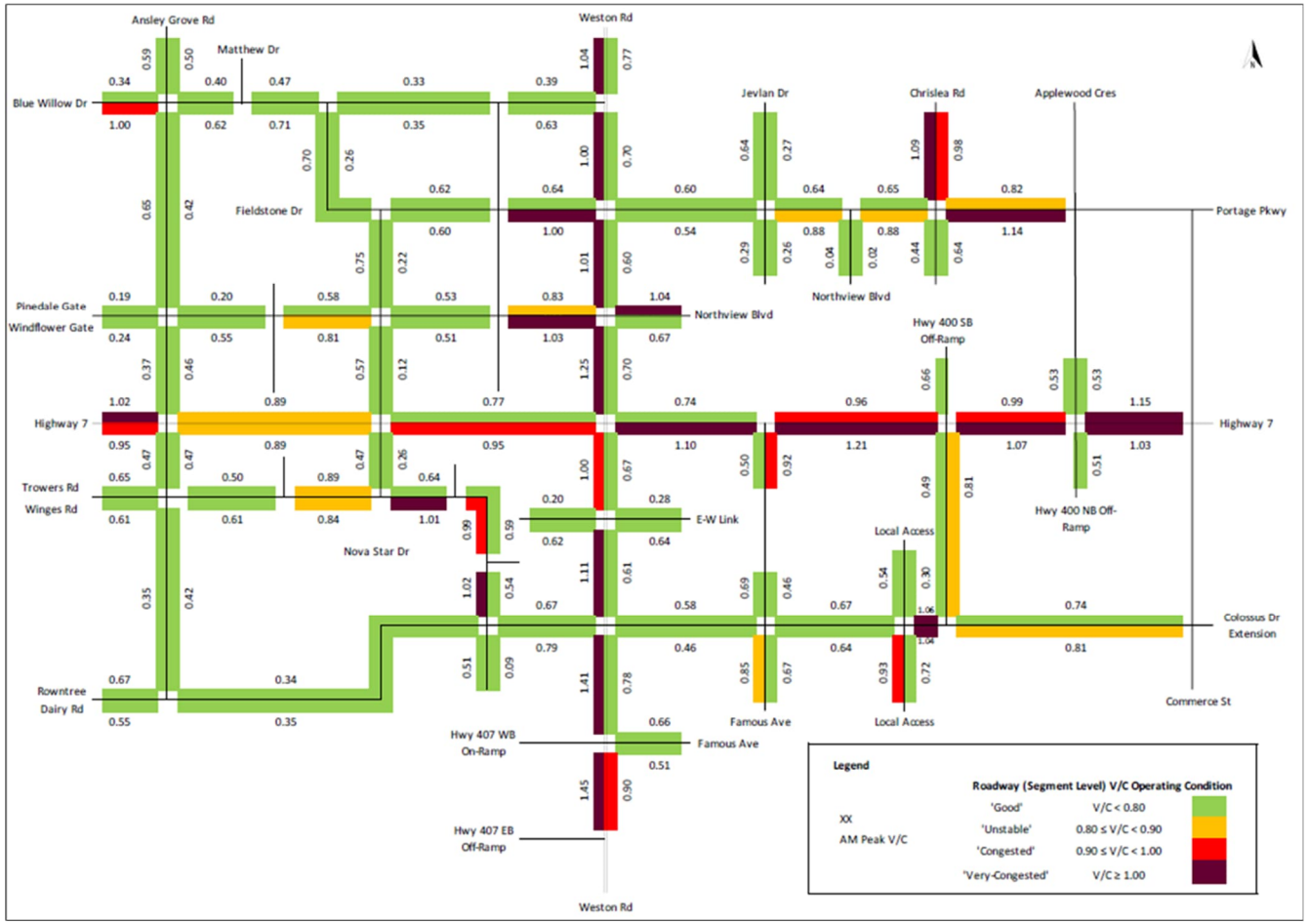
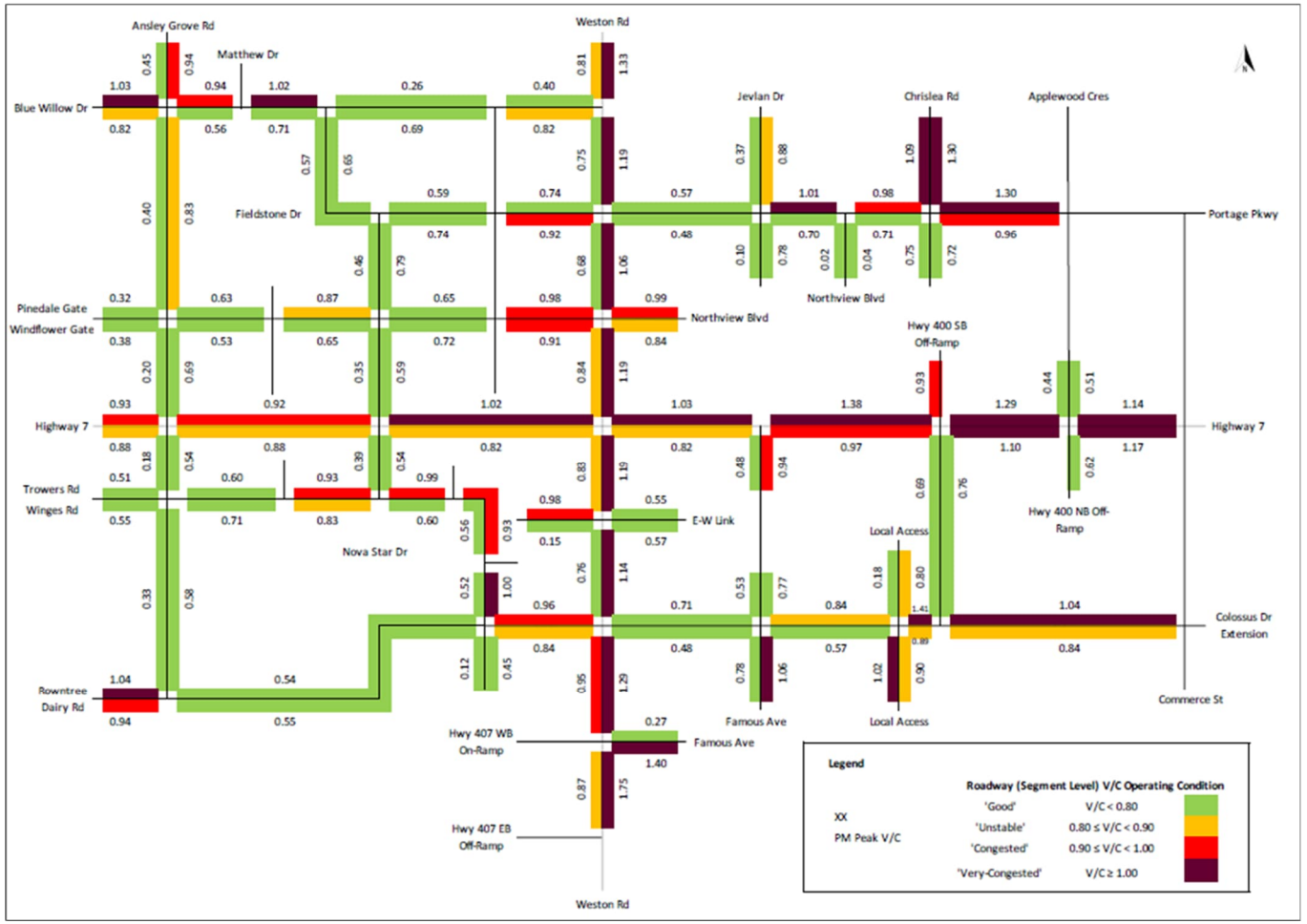


Figure 28: Arterial v/c Ratios for Network Planning Alternative 2 – Future (2051) Conditions – Weekday PM Peak Hour



Alternative 3

The transportation network undergoes additional enhancements under Alternative 3, refining the local network within the development blocks and improving the active and transit network. The v/c ratios and the LOS under the network planning Alternative 3 are presented in Figure 29 and Figure 30 for the morning and afternoon peak hour, respectively. It is important to highlight that the Aimsun model does not incorporate improvements in active transportation, including the new link connecting the Weston 7 development area across Highway 400 to Apple Mill Road in VMC.

The operational measures for Highway 7 and Weston Road demonstrate a comparable performance under Network Planning Alternative 3 as Alternative 2. The v/c ratios at the Highway 400 ramp terminals range from 0.97 to 1.16 during the morning peak hour and from 0.90 to 1.35 during the afternoon peak hour. The congestion pattern on Weston Road during the morning peak, with a v/c ratio ranging from 1.01 to 1.45 in the southbound direction, and during the afternoon peak, with a range of 1.07 to 1.75, follows a similar trend observed in previous network planning alternatives. The observed v/c ratios show subtle variations in comparison to those recorded in Alternative 2.

The suggested roadway network under Alternative 3 does not enhance the LOS on Portage Parkway when compared to Alternative 2. The v/c ratios continue to exceed 1.00 across the overpass, both in the eastbound direction during the morning peak and in the westbound direction during the afternoon peak.

The operational performance of the arterial segments near the intersection of Highway 7 and Weston Road closely resembles that of Alternative 2. This similarity arises due to the comparable design of access roads connecting development blocks and regional roads in both network planning Alternatives 2 and 3.

The traffic operation along Colossus Drive remains relatively consistent with Alternative 2. The LOS on the Colossus Drive overpass improves from LOS 'D,' reflecting an unstable condition, to LOS 'C,' indicating stability. This improvement is likely due to the grade separation of the overpass and the north-south link between Famous Avenue and Highway 7. The traffic demand remains higher than the capacity of the Colossus Drive overpass in the westbound direction during the afternoon peak.

The intersection legs at Highway 7 and Weston Road maintain a comparable LOS to Alternative 1. By introducing access roads to Highway 7 and Weston Road under Alternative 2, a portion of traffic is redirected from the heavily congested intersection, resulting in slightly lower v/c ratios.

The operations of the roadway network are comparable between Network Planning Alternatives 2 and 3 along major arterials and collectors. This is mainly because the Aimsun model does not account for the active transportation improvements, which constitute the most substantial difference between these network planning alternatives. In addition, the roadway improvements integrated into the model predominantly benefit the local traffic and lack the capacity to significantly alleviate congestion on Highway 7 and Weston Road.

Similar to Alternative 2, the local road network within the development blocks in Alternative 3 effectively serves traffic at a satisfactory and stable level of service. However, Alternative 3 introduces a more grid-like and refined local road network, offering increased route options.

Figure 29: Arterial v/c Ratios for Network Planning Alternative 3 – Future (2051) Conditions – Weekday AM Peak Hour

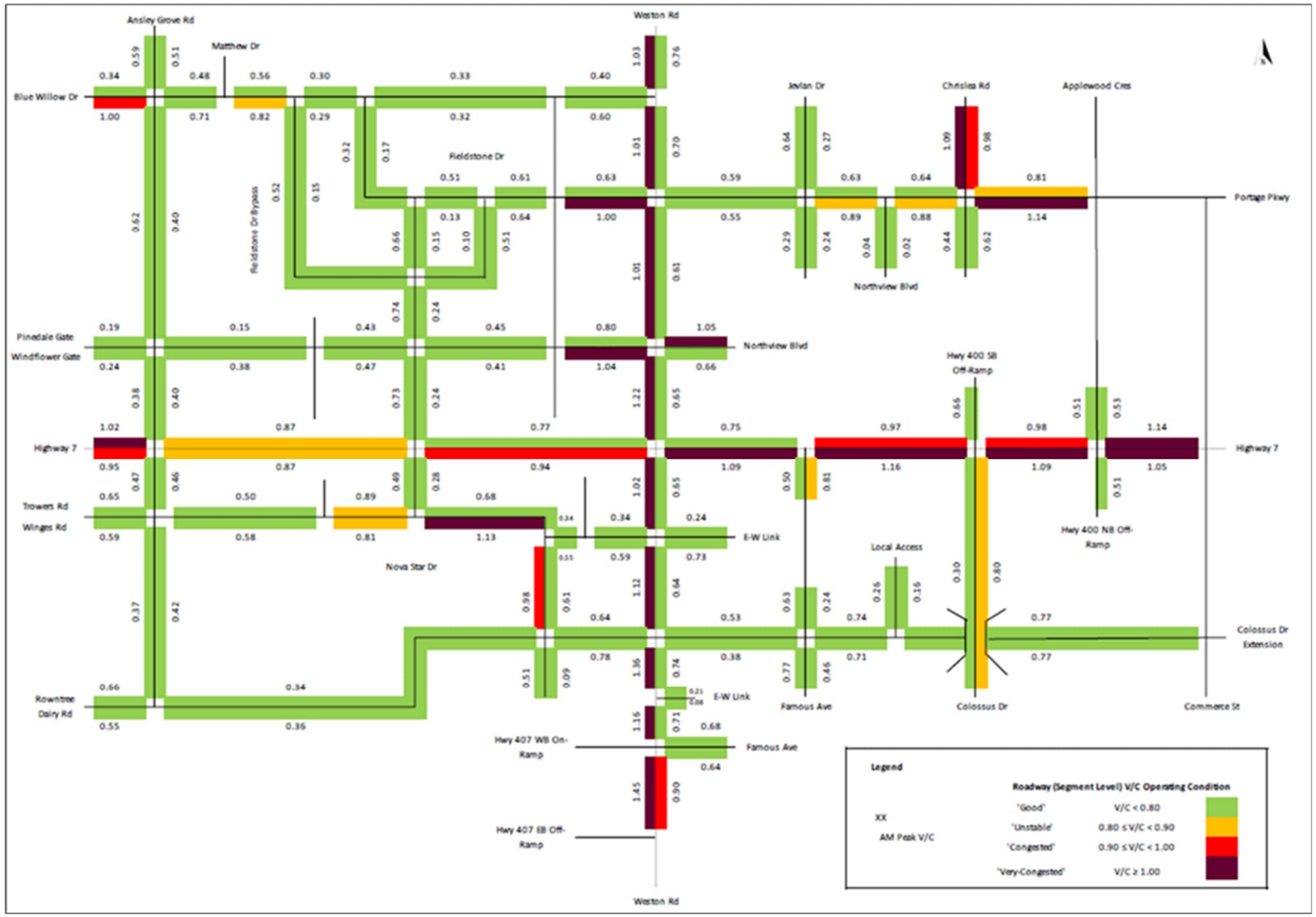
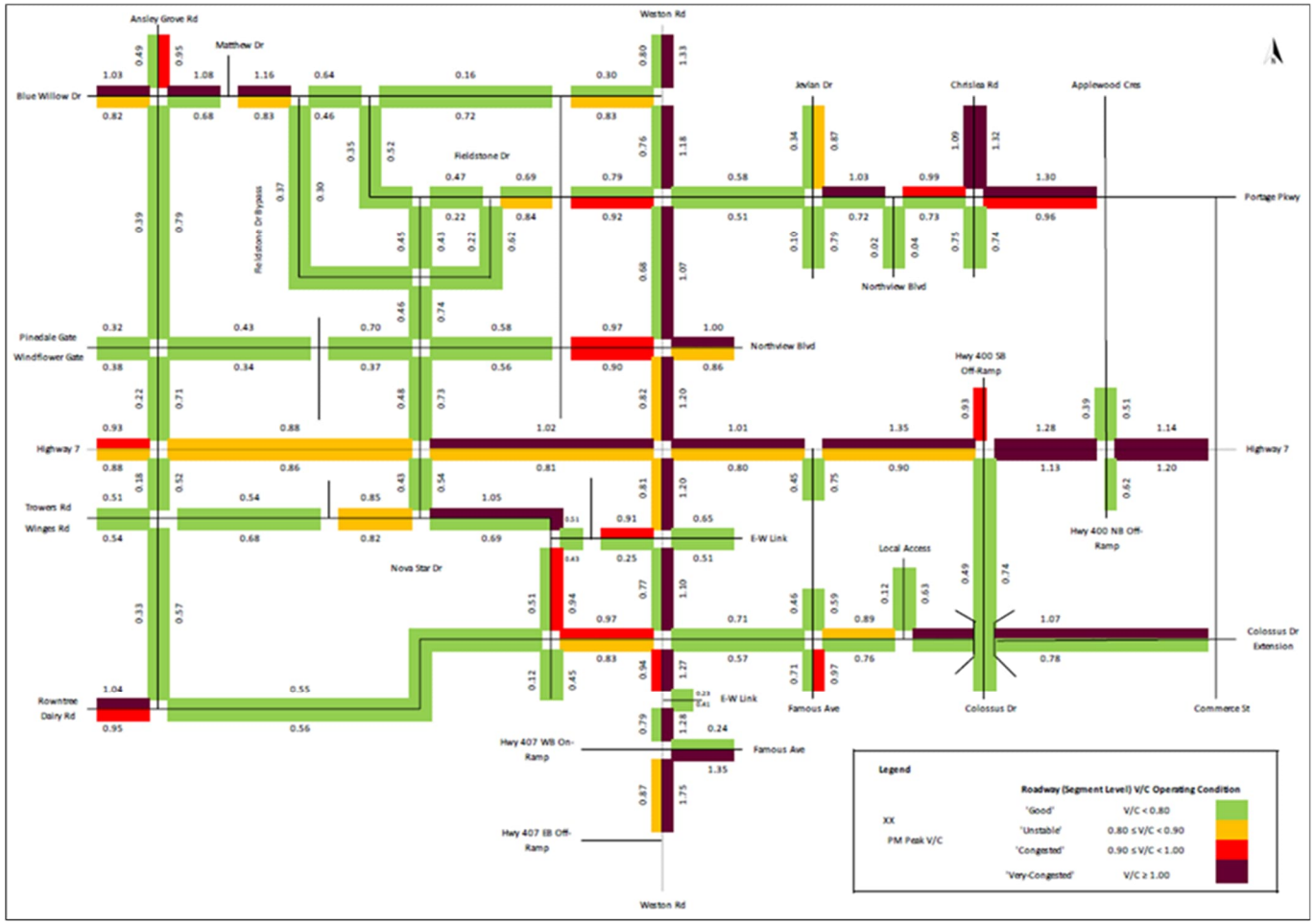


Figure 30: Arterial v/c Ratios for Network Planning Alternative 3 – Future (2051) Conditions – Weekday PM Peak Hour



Evaluation Summary

The roadway capacity constraints are apparent across all network planning alternatives, and a closer look at the v/c ratio analysis reveals the following insights.

- There is insufficient roadway capacity in the southbound direction during the morning peak and in the northbound and westbound directions during the afternoon peak within the Weston 7 study area.
- The vehicular demand on major arterial roads, Weston Road and Highway 7, consistently exceeds the available roadway capacity along multiple segments of the roadway within the study area. The v/c ratios on Weston Road exceed 1.0, indicating an oversaturated traffic condition, for the most part in the southbound and northbound directions during the morning and afternoon peak hour, respectively. Similarly, there are roadway segments on Highway 7 and Portage Parkway in both travel directions, particularly near Highway 400, that experience v/c ratios of greater than 1.0.

Despite the mentioned deficiencies in roadway capacity across all network planning alternatives, Alternative 3, the preferred alternative, delivers greater capacity, predominantly on the local network. This results in lower v/c ratios on major arterials and local roads, leading to improved LOS, especially within the development blocks.

Recognizing the potential for roadway congestion under Alternative 3, it is imperative to acknowledge that the roadway performance corresponds to just one component within the broader framework of the MCEA process. The development of the preferred Alternative 3 involved considering additional components of the MAE framework, including multi-modal connectivity, transit utilization, adherence to city planning policies, safety for active travel modes, environmental factors, and transportation equity. Alternative 3 further stands out by effectively addressing various aspects of the MAE framework with the integration of a new active transportation overpass over Highway 400, along with mid-block active transport crossings, the integration of a new transit circulation, and the improvement of transit headways. While this part of the TMP focuses on the roadway performance component, Chapters Multiple Account Evaluation and Stage 2 MAE Results explore the remaining components of the MAE framework, outlining their significance in the MAE process.

In addition, the Alternative 3 transportation network might encourage more individuals traveling to/from the Weston 7 area to utilize the active transport infrastructure or public transit services. This shift could decrease the reliance on private vehicles, ultimately reducing demand on roadways and alleviating congestion.

5.3.2 Future 2041 Traffic Conditions

The roadway performance was also assessed within the framework of a phased scenario projected for the year 2041. This exercise was carried out to assist in determining vehicular operational constraints prior to the full buildout in 2051. While the outcomes of the 2041 phased scenario were not directly incorporated into the MAE process, the conclusions derived from the analyses were leveraged to identify policy needs (such as potential parking restrictions) and the essential physical modifications to the road network in preparation for the full buildout, which ultimately guided the development of the preferred transportation network.

The evaluation of traffic performance was conducted under the 2041 vehicular demand over the road network defined in Alternative 2, which was developed as part of the Weston 7 Demonstration Plan. The deficiencies in traffic performance identified within the 2041 scenario served as a guide for the development of the road network in the preferred Alternative 3. However, due to the anticipated growth in vehicular demand and the constraints in refining major arterials, resulting in substantial congestion on roadways within the Weston 7 area, the proposed refinements in Alternative 3 were predominantly directed towards active transportation and transit, and the roadway network improvements were restricted to Secondary Plan roads, improving access to major arterials. Therefore, as the adjustments to the road network are local in nature, the traffic performance is expected to be comparable under Alternatives 2 and 3, in line with the findings from section Future 2051 Traffic Conditions.

Forecasted Traffic Demand

Traffic demand for the 2041 horizon was forecasted through the procedure employed in evaluating traffic conditions for the buildout year of 2051 and beyond, as outlined in section Future 2051 Traffic Conditions. The vehicle demands were forecasted based on the passenger vehicle forecasts from the 2041 YRTDF model and the 2041 employment and population projections from the Weston 7 Demonstration Plan. The Weston 7 employment and population is anticipated to grow to about 26,000 by 2041. This is equivalent to 40% of Weston 7's total full build-out population and job projection for the year 2051 and beyond. Appendix D contains the assumptions made regarding employment and population within the VMC study area.

A review of the 2041 YRTDF model indicates that the transit mode share during the morning peak period ranges from 29% to 50% of the total auto driver, passenger, and transit trips. There are a total of 6,300 peak period auto trips of which 100 are intra-area trips (i.e.. trips that start and end within the Weston 7

area), 3,200 auto trips leave the Weston 7 area, and 3,000 come into the Weston 7 area. In addition, 100 of the outbound auto trips are destined to the VMC area, and 90 of the inbound trips come from the VMC area. Additional information on distribution of the 2041 vehicle trips from the YRTDF model can be found in Appendix D.

Modelling Approach

A simulation model of the Alternative 2 network was created in Aimsun to assess the 2041 horizon. This network was similar to the models developed for the 2051 buildout year conditions. The roadway operations were assessed at microsimulation level. The scope of the evaluation was restricted to the Weston 7 area.

The Alternative 2 transportation network is primarily consistent with the recommended road configuration detailed in the Weston 7 Demonstration Plan. The road network was further altered through an iterative process to attain a potential street network that remains operational under the 2041 demand for microsimulation modeling purposes. These modifications, apart from extending Colossus Drive over Highway 400, integrating improvements into the YRTDF model, and introducing access roads and intersections as part of the complete buildout of Weston 7 and VMC, included:

- Extension of collector roads, such as Nova Star Drive and Northview Boulevard;
- Introduction of new traffic lanes, turning lanes, or storage lanes;
- Modification of traffic signal timings and operations;
- Addition of new local roads between development blocks and major arterials; and
- Realignment of collector roads.

The majority of the improvements were proposed to improve connectivity within the development quadrants and to alleviate the congestion at major intersections, especially the intersection of Highway 7 and Weston Road, by providing new access points to major arterials. The network planning Alternative 3 was ultimately developed by refining the Alternative 2 road network to further improve connectivity across development blocks. Since most of the suggested enhancements incorporated within Alternative 3 are of a local nature, the operational performance of the roadway is comparable in vehicular LOS to that of Alternative 2. However, Alternative 3 fosters the use of public transit and sustainable non-auto travel models, supporting pedestrians and cyclists.

Evaluation

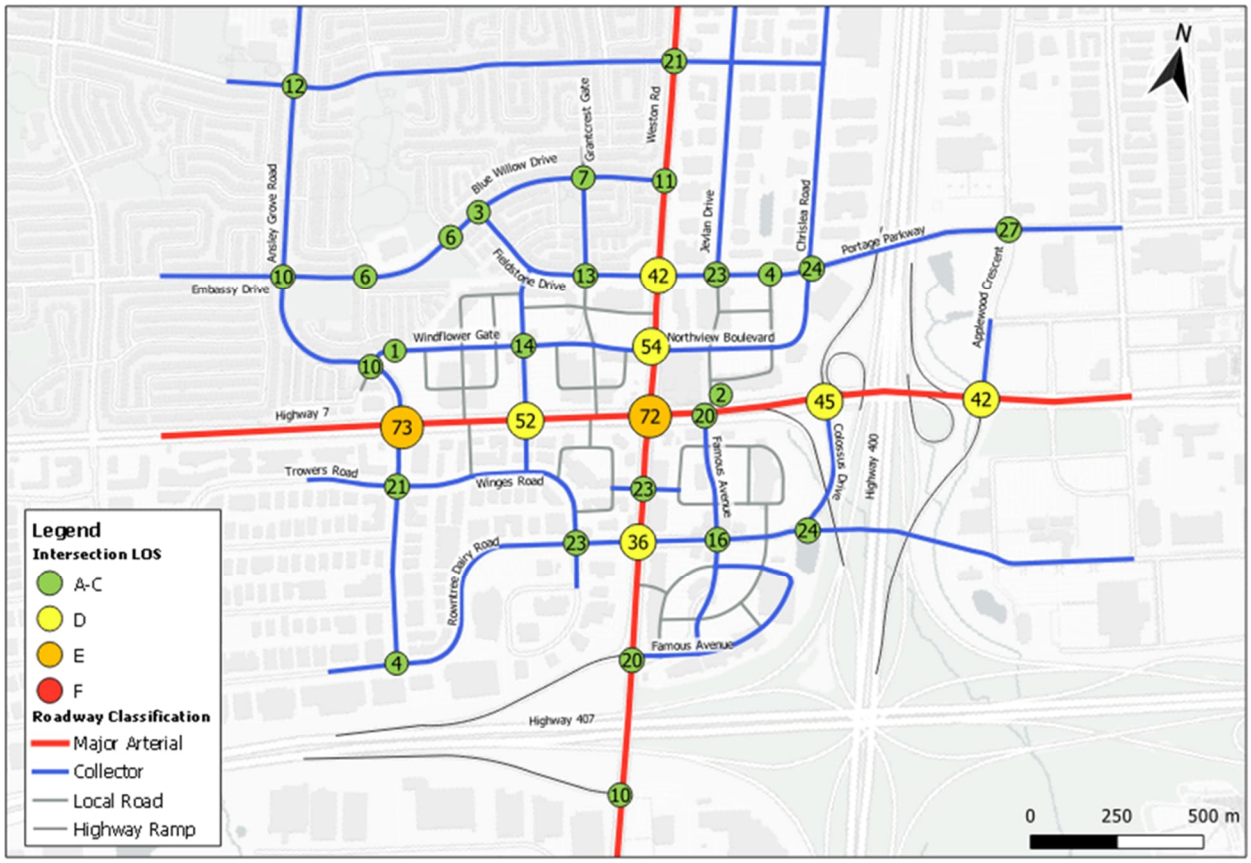
Traffic operations were evaluated at the micro- and macroscopic scales under the forecasted 2041 vehicular demand derived from the ultimate subarea model. This chapter discusses the implications drawn from the microsimulation model results. Additional information, incorporating the results from the macroscopic model, is elaborated upon in the Traffic Report in Appendix D. Consistent with analyses conducted as part of the existing conditions review, the average control delays, LOS, and queues were obtained for each intersection (reflective of a weighted average) and every intersection movement under the weekday morning (8:00 AM – 9:00 AM), afternoon (4:00 PM – 5:00 PM), and weekend (1:00 PM – 2:00 PM) peak hours. The categorization of LOS based on the control delay is explained in section Future 2051 Traffic Conditions. The traffic signal timings were updated at various intersections to improve the flow of traffic and prevent the emergence of potential gridlock.

Weekday AM Peak Hour

The intersection performance follows a comparable pattern to the existing conditions during the morning peak hour. However, overall intersection delays further deteriorate at major intersections, including Highway 7 at Ansley Grove Road and Weston Road. Figure 31 Illustrates the overall intersection control delays and LOS under the future 2041 condition for the weekday AM peak hour.

- At the intersection of Highway 7 and Weston Road, the average control delay for the left-turn movements is in the range 1.4-2.6 minutes, equivalent to approximately 75% increase in vehicular delay compared to the existing conditions. The through movements operate at LOS ‘E’ or ‘F’, except for the southbound approach which is starved by the queue spillback from the southbound turn lane and the upstream intersection.
- The intersection of Highway 7 and Ansley Grove Road continues to operate at LOS ‘E’ with the overall intersection delay exceeding 1.0 minute, similar to the existing conditions. The intersection LOS is influenced by the control delays for the left-tun movements (1.0-3.3 minutes) and the eastbound through lane groups (1.8 minutes).
- The overall intersection delay increases for the intersections on Weston Road north of Highway 7, with the increase in roadway traffic demand, especially in the southbound direction. Subsequently, the southbound queues on Weston Road from the Highway 7 and Weston Road intersection impedes the entry of vehicles from Northview Boulevard and Chrislea Road.

Figure 31: Overall Intersection Delay and LOS – Future (2041) Conditions – Weekday AM Peak Hour



Weekday PM Peak Hour

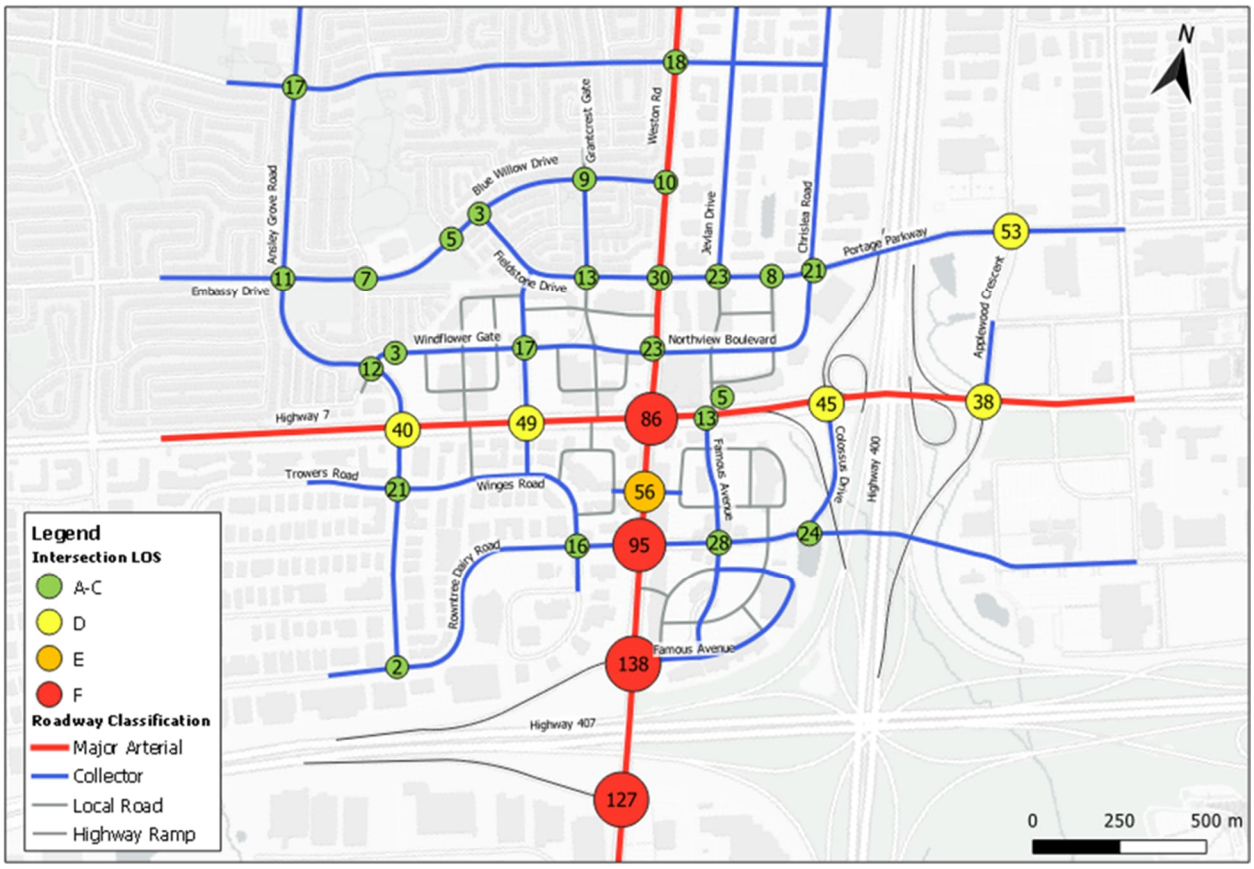
The weekday afternoon peak period continues to exhibit the worst traffic performance, mirroring the conditions that currently exist. The signalized intersections at Weston Road / Highway 7 and south of Highway 7 operate at LOS 'F'. This is primarily attributed to high vehicular volume in the northbound direction and the limited capacity of the Highway 7 and Weston Road intersection. The overall intersection control delays and LOS under the future 2041 condition are shown in Figure 32 for the weekday PM peak hour.

- The LOS degrades at the intersection of Highway 7 and Weston Road due to increased demand, especially in the northbound direction. The northbound approach encounters an average control

delay of 2.2 minutes, demonstrating a noticeable escalation of 1.0 minute compared to the existing conditions. Consequently, the vehicular queues are metered upstream on Weston Road in the northbound direction and extends beyond the Highway 407 ramp terminals, outside of the Weston 7 study area. The overall intersection delays at the intersections of Weston Road and Colossus Drive, and Weston Road and the Highway 407 ramp terminals, vary between 1.6 to 2.3 minutes. The average control delay for the northbound approach at these intersections is approximately 4.0 minutes.

- Vehicles from the side-streets, servicing the nearby development blocks, also experience prolonged delays when attempting to enter Weston Road, impeded by the queues of vehicles on Weston Road. For instance, vehicles using the newly constructed access road south of Highway 7 may experience waiting times of up to 8.5 minutes in the eastbound direction and 2.1 minutes in the westbound direction, destined toward the Highway 7 and Weston Road intersection. The queues are then metred upstream along the collectors within the development blocks and occasionally block the access points to the development sites.
- The LOS also deteriorates at some intersections along major arterials and collectors, given the growth in roadway traffic volume. The LOS at the Highway 400 ramp terminals improves (compared to the existing conditions) as the number of right-turning vehicles from Colossus Drive and Applewood Crescent declines, attributed to the extension of Colossus Drive over Highway 400 and the change in land use.

Figure 32: Overall Intersection Delay and LOS – Future (2041) Conditions – Weekday PM Peak Hour



Weekend Peak Hour

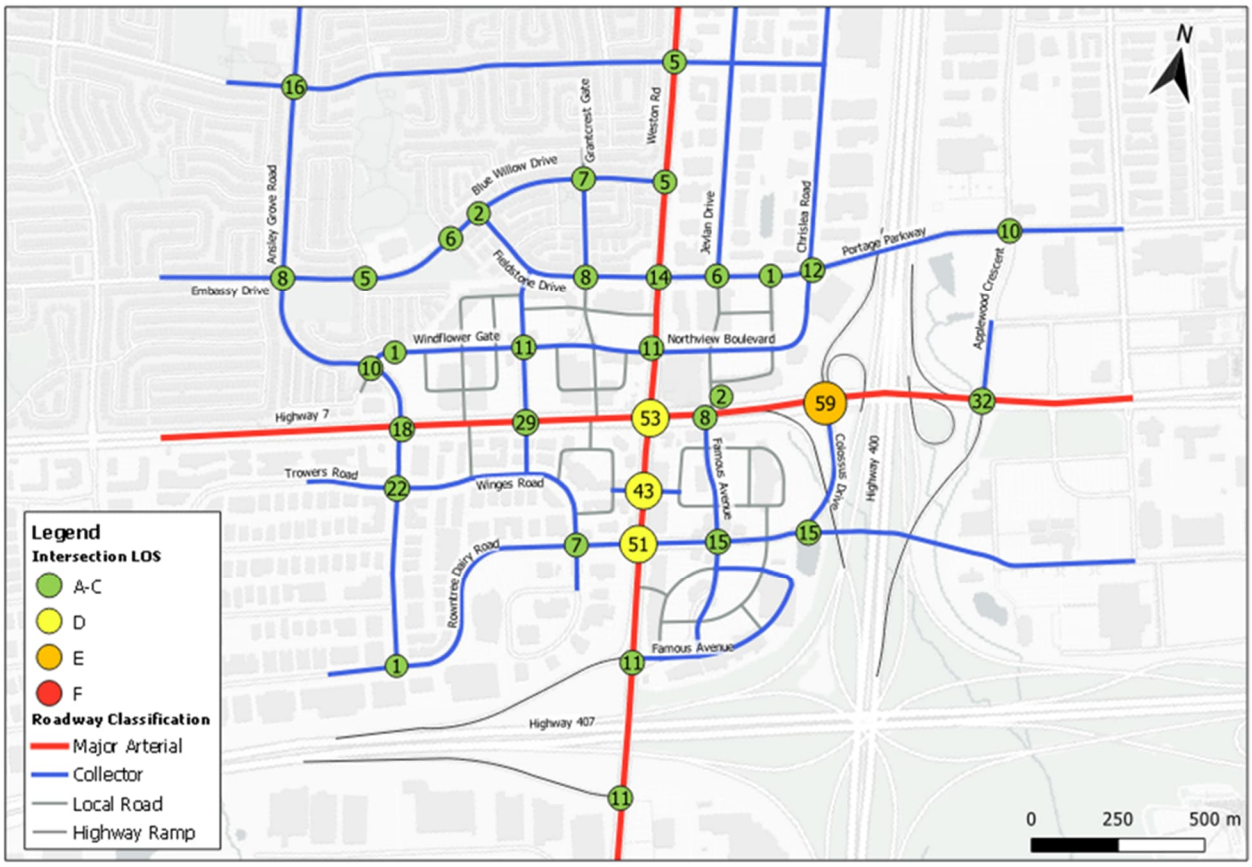
The overall intersection LOS improves across the majority of the intersections on Highway 7 and Weston Rod under the 2041 conditions for the weekend peak hour. This is attributed to the expansion of the Weston Road, extension of Colossus Drive over Highway 400, updates to traffic signal operations (such as cycle lengths, offsets, and green timings), and alterations in traffic patterns due to changes in land use. Figure 33 illustrates the intersection delay and LOS for the weekend peak hour under the future 2041 conditions.

- The intersection at Highway 7 and Weston Road maintains a comparable LOS 'D' to the current conditions. Achieving a reasonable LOS despite the growth in traffic volume is credited to the

adjustment of traffic signal timing. The northbound approach encounters the greatest increase in average control delay, amounting to an increase of 15 seconds.

- The intersection of Weston Road and Colossus Drive operates at LOS 'D' in contrast to the existing LOS 'F'. The average control delay was improved due to shifts in travel patterns resulting from the changes made across the adjacent land use and modifying the traffic signal timings.
- Vehicles entering Highway 7 from Colossus Drive and Applewood Crescent still encounter prolonged delays, averaging 10.4 and 4.0 minutes, respectively. These delays were reduced by changes in travel patterns following extension of Colossus Drive and the adjustments to signal timings.
- Some access roads originating from the development blocks operate at LOS 'E' or 'F' due to adjustments in cycle length and green times, prioritizing major arterials (Weston Road and Highway 7) with higher traffic volume. For example, vehicles using the newly added access road south of Highway 7 encounter delays ranging from 1.0 to 1.8 minutes when entering Weston Road.
- The protected left-turn movements on Highway 7 continue to operate at LOS 'E' or 'F' due to the long duration of the cycle lengths and the operation of the left-turn movements under a fully-protected phasing.

Figure 33: Overall Intersection Delay and LOS – Future (2041) Conditions – Weekend Peak Hour



Evaluation Summary

The following observations were drawn from the simulation of the 2041 traffic demand under the network planning Alternative 2.

- The intersection of Highway 7 and Weston Road operates at or near capacity during peak hours, including weekday morning and afternoon as well as weekends. This is mainly due to high volumes of traffic on Weston Road and Highway 7. This is further compounded by the presence of a dedicated transit right-of-way on Highway 7, cyclists utilizing the cycle tracks along Highway 7, and pedestrians seeking to cross the intersection.

- Traffic congestion is greater during the weekday afternoon peak relative to other peak periods given higher traffic demand. The intersection of Highway 7 and Weston Road operates as a bottleneck during the weekday afternoon peak period, causing extended queues in the northbound direction on Weston Road. Consequently, the northbound queue impedes the progression of vehicles from the development quadrants resulting in queue spillback along collectors and potentially blocking the access to/from future developments.
- Traffic from major arterials often infiltrate the collector roads within the development quadrants to bypass the queues, especially around the Highway 7 and Weston Road intersection. This may intensify the queuing along collector roads, especially during the afternoon peak period.

It is apparent that the 2041 traffic demand exceeds the capacity of the Alternative 2 roadway network, especially during the peak periods. The constraint in roadway capacity is anticipated to persists in the 2051 full buildout conditions, particularly as the population and employment within the Weston 7 and the VMC experience significant growth.

While the phased 2041 traffic operations were assessed under the Alternative 2 road network, Alternative 3 is anticipated to experience a comparable LOS. However, Alternative 3 holds an advantage by fostering improved connectivity within development quadrants and promoting a higher likelihood of selecting non-auto modes of travel.

5.4 Multiple Account Evaluation

Following the performance assessment, alternative network analysis was expanded to include a variety of critical quantitative metrics and indicators alongside qualitative measures that help provide a more holistic understanding of trade-offs between the alternative network concepts. A multiple account evaluation (MAE) was leveraged to explore the differences between the alternatives to assist in the selection of a preferred network.

MAE themes and analysis approaches are summarized in Table 11.

Table 11: Summary of MAE Themes and Analysis Approaches

Theme	Description and General Evaluation Method
Multi-Modal Network Elements	• Describes the supply and coverage of pedestrian, cycling, transit, and internal road network elements • Assessed quantitatively relative to baseline conditions
Travel Demand and Traffic Impacts	• Responds to the need for a multimodal transportation network in the Weston 7 study area and identifies how the alternatives impact both transit and auto demand, as well as traffic performance • Assessed quantitatively relative to baseline conditions
Planning and Policy Context	• Network alternative alignment with provincial, regional, and municipal directions for integrated sustainable transportation, as outlined in their respective guiding policy documents • Assessed qualitatively relative to baseline conditions
Safety for Pedestrians and Cyclists	• Highlights safety implications of network modifications for cyclists and pedestrians • Assessed quantitatively relative to baseline conditions
Natural Environmental	• Assesses emissions and impacts to the natural environment generated by each alternative • Assessed quantitatively and qualitatively relative to baseline conditions
Equity Considerations	• Highlights impacts for defined user-groups to capture advantages and disadvantages across a broad range of publics • Assessed qualitatively relative to baseline conditions

The evaluation methodology is based on a scoring mechanism that is broken down into five-gradations, displayed below. Accounts are then assessed for each improvement alternative against baseline conditions (Alternative 0).

Significantly Improved ●,

Moderately Improved ◕,

Neutral ◑,

Moderately Worsened ◔,

Significantly Worsened ○.

Additionally, the preferred scenario for each account is identified with a '+' sign, if applicable.

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.

5.5 Stage 2 MAE Results

Final MAE results are displayed in Table 12. In summary, Alternative 3 outperforms Alternative 1 and 2 on five out of the six themes including Multi-Modal Network Elements, Travel Demand and Traffic Impacts, Planning and Policy Alignment, Safety for Pedestrians and Cyclists, and Equity Considerations. As for the Nature Environmental perspective, all three alternatives scored the same as no measurable reductions in VKT on the Weston 7 network are anticipated compared to the baseline condition.

Table 12: Multiple Account Evaluation Results

Theme	Account	Indicator	Alternative 0: Baseline	Alternative 1: Baseline and Colossus Drive Extension	Alternative 2: Alternative 1 Improvements + Weston 7 Demonstration Plan Network	Alternative 3: Refined Network
Multi-Modal Network Elements	Local Street Network Connectivity	Total KM of internal roadways	10.4 km	10.6 km ◑	14.3 km ●	15.4 km ●+
	Public Transit Coverage	Percentage of Secondary Plan area within a 10-minute walk (800m) of a subway or BRT station (shortest path distance)	66%	66% ◑	79% ●+	77% ●
		Percentage of Secondary Plan area within a 5-minute walk (400m) of BRT or local transit services (shortest path distance)	66%	66% ◑	76% ●	86% ●+
	Pedestrian Network Connectivity	Total KM of sidewalk, in-boulevard multi-use paths, or multi-use trails	11.4 km	11.8 km ◑	33.6 km ●	39.0 km ●+

	Cycling Network Connectivity	Total KM of cycling facilities, in-boulevard multi-use paths, or multi-use trail	2.7 km	3.2 km ◑	21.0 km ◕	39.0 km ●+
	SUMMARY			◑ No appreciable difference in the multimodal network over baseline conditions	● Network improvements result in significant gains in multimodal connectivity and transit coverage	●+ Network improvements result in the greatest comparable gains in multimodal connectivity and transit coverage
Travel Demand and Traffic Impacts	Auto Travel Demand	Total vehicle trips originating in Weston 7 in the AM peak hour	9,570 trips	9,570 trips ◑	9,570 trips ◑	9,400 trips ◕+
	Transit Travel Demand	Total transit trips originating in Weston 7 in the AM peak hour	8,390 trips	8,390 trips ◑	8,390 trips ◑	8,580 trips ◕+
		Transit mode share for trips originating in Weston 7 in the AM peak hour	41%	41% ◑	41% ◑	42% ◕+

	Traffic Impacts	AM (PM) peak hour critical V/C ratio and direction for Weston Road and Highway 7*	Hwy 7: 1.0-EB (1.2-WB) Weston: 1.3-SB (1.2-NB)	Hwy 7: 1.0-EB (1.1-WB) Weston: 1.2-SB (1.3-NB) ◑	Hwy 7: 1.0-EB (1.0-WB) Weston: 1.3-SB (1.2-NB) ◑	Hwy 7: 0.9-EB (1.0-WB) Weston: 1.2-SB (1.2-NB) ◕+
	SUMMARY			◑ Congestion remains an issue. All network concepts proposed are not capable of accommodating the traffic resulting in volumes exceeding capacity on both Highway 7	◑ Congestion remains an issue. All network concepts proposed are not capable of accommodating the traffic, resulting in volumes exceeding capacity on both Highway 7 and Weston Road	◑+ Congestion remains an issue. All network concepts proposed are not capable of accommodating the traffic generated by, resulting in volumes exceeding capacity on both Highway 7 and Weston Road Alternative 3 sees modest improvements in

				and Weston Road		transit mode share and ridership resulting from the proposed local transit circulator and improved Viva frequencies along Highway 7.
Planning and Policy Alignment	Alignment with Provincial Planning Priorities	Degree of alignment with existing policies (based on a qualitative review)	-	◕ Network aligns with Provincial policies related to the movement of people and goods by reducing pressure at the Highway 7 / 400 interchange	● The network reflects the Provincial Growth Plan Policies, to create livable, sustainable, and accessible communities for all.	●+ The network reflects the Provincial Growth Plan Policies, to create livable, sustainable, and accessible communities for all.
	Alignment with York Region Planning Priorities	Degree of alignment with existing policies (based on a qualitative review)	-	◕ Introducing the Colossus Drive extension as a mechanism to implement a multi-modal	● Significantly supports York Region's vision for communities that do not require a car.	●+ Significantly supports York Region's vision for communities that do not require a car.

			network between Weston 7 and VMC supports Regional and local policy frameworks.		Improved transit coverage increases the attractiveness of non-auto travel options.
Alignment with City of Vaughan Planning	Degree of alignment with existing policies (based on a qualitative review)	-	◕ 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. Extending Colossus Dr improves access to VMC Subway station,	● Comparing to Alternatives 0 and 1, the network has many more components to support active transportation modes and to reduce car-based trips. Network supports the City's adopted Vision Statement for Weston 7 alongside Four Key Principles	●+ Like Alternative 2, the network has many more components to support active transportation modes and to reduce car-based trips. Network significantly supports the City's adopted Vision Statement for Weston 7 alongside Four Key Principles Improved transit coverage increases the attractiveness of non-auto travel options

				aligning with City goals to promote transit usage. Two of the City's objectives – increasing residential units and improving the existing transportation network – are better realized with this alternative.		
Safety for Pedestrians and Cyclists	Safe crossing opportunities	Pedestrian crossing opportunities – average intersection spacing	230 m	230 m ◑	120 m ●+	170 m ●
		Total pedestrian grade-separated crossings	1	2 ◕	2 ◕	10 ●+
	Segregated cycling network development	Percentage of street network with designated cycling facilities	13.2%	15.0% ◑	62.5% ◕	100% ●+

	SUMMARY			◑ Other than a new crossing of Highway 400, there are no significant changes in pedestrian crossing opportunities or cycling network penetration over baseline conditions	◕ Reduction in average intersection spacing results in significantly greater pedestrian crossing opportunities Alternative introduces separated cycling facilities on all arterial and collector facilities	●+ Reduction in average intersection spacing results in significantly greater pedestrian crossing opportunities New grade-separated AT crossings introduced spanning Highway 400, Highway 7 and Weston Road Alternative introduces separated cycling facilities on all roadways
Environmental Impacts	Move people with less energy and pollution	AM (PM) peak hour overall network vehicle KM travelled (VKT)	72,100 km (80,400 km)	71,700 km (80,000 km) ◑ No measurable reductions in VKT on the Weston 7 network are anticipated	71,700 km (80,100 km) ◑ No measurable reductions in VKT on the Weston 7 network are anticipated compared to baseline condition	71,800 km (80,300 km) ◑ No measurable reductions in VKT on the Weston 7 network are anticipated compared to baseline condition

				compared to baseline condition		
Equity Considerations	Structural inequality	Transportation choice and ease of mobility for seniors, those with mobility challenges, and individuals who do not have access to an automobile	-	◑ No change in overall transportation choice compared to baseline conditions	◕ Improved walking / cycling network provides additional active transportation mobility options for those who do not own or cannot operate an automobile	●+ Improved walking / cycling network provides additional active transportation mobility options for those who do not own or cannot operate an automobile Transit circulator provides increased transit coverage, improving non-auto options for those who may find it challenging or a deterrent to walk longer distances to access existing transit services on account of physical ability or inclement weather

6 Future Multimodal Network

The preferred multi-modal network for Weston 7 (Alternative 3) is designed to prioritize walking, cycling, and transit, making them the most appealing modes of travel within both the study area and its surroundings. The network purposefully minimizes the need for local vehicular travel and looks to create a balance that aligns with sustainable forms of mobility. Although the vehicle network has been optimized to the extent possible, it is not expected, nor was it the intent, that free-flow vehicle movement will occur during peak travel hours.

This chapter describes in further detail the preferred multi-modal network through focusing on each mode of transportation individually and providing the supportive policy framework that strengthens the implementation of the infrastructure. The chapter begins with describing the future walking, cycling, transit, and street networks, then discusses the cross sections proposed for the multi-modal network. The chapter concludes with the policy framework to support the infrastructure.

6.1 Active Transportation

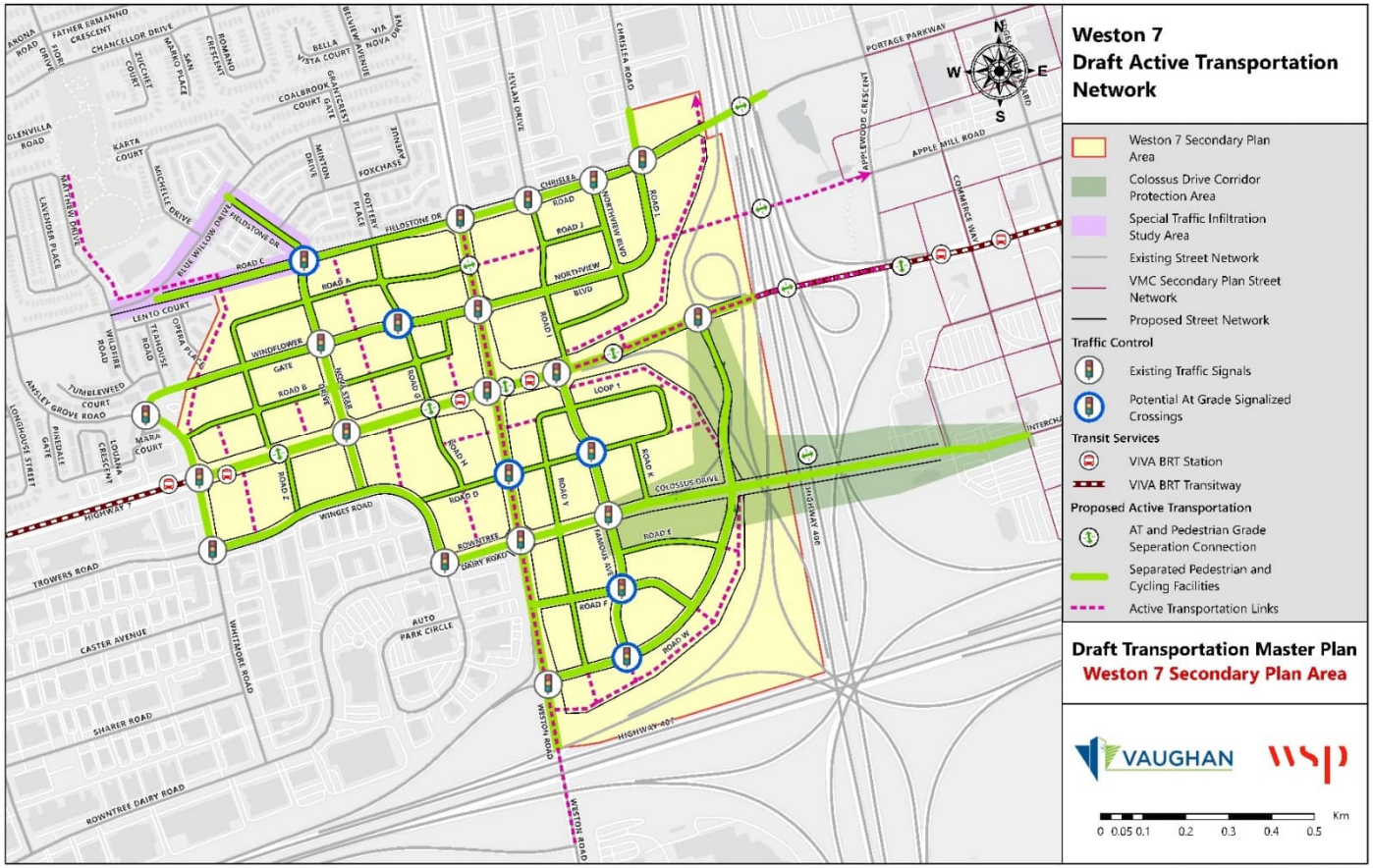
The approach to developing network recommendations for active transportation in Weston 7 focuses on enhancing the ease of walking and cycling. The goal is to make active transportation a more appealing mode of travel for those that live in the area. This is particularly imperative for short-distance trips around the study area and in relation to providing easy connectivity to public transit. To improve walkability for those traveling within the Weston 7 area, sidewalks have been planned on both sides of all public streets. Additionally, cycling facilities are proposed on all streets including those classified as local streets. The proposed sidewalks and cycling facilities are imperative for developing a network where people are willing to walk and cycle. In addition to the sidewalks and cycling facilities the following improvements are recommended:

1. Pedestrian-only paths in select locations;
2. Pedestrian-activated signals across Highway 7 and Weston Road;
3. An active transportation grade-separated crossing of Highway 7 in the vicinity of Famous Avenue, utilizing the change of grade as Highway 7 descends westbound after crossing Highway 400;

4. Recommendations for private developers to construct grade-separated pedestrian crossings to connect buildings, particularly across Highway 7 and Weston Road;
5. A new active transportation-only crossing of Highway 400 connecting new Road L in the Weston 7 Secondary Plan area to Apple Mill Road to the east in the VMC Secondary Plan area. This will provide an additional direct connection and route choice for walking, cycling and micro- mobility modes to the VMC subway station and bus terminal, which are on either side of Apple Mill Road at Millway Avenue. Feasibility studies for this connection will be required;
6. New cycling infrastructure, such as a separated multi-use path or cycling facility on the Portage Parkway bridge over Highway 400.
7. Separated cycling facilities along the new Colossus Drive crossing flyover Highway 400; and
8. Weather protection along the existing Highway 7 median multi-use path over Highway 400, improving the quality of walking and cycling access to VMC subway station.

The above infrastructure improvements will be beneficial for improving active transportation experiences for pedestrians and cyclists. This will be an important aspect for shifting travel behaviours to more sustainable modes. The proposed active transportation network is displayed in Figure 34.

Figure 34: Proposed Active Transportation Network



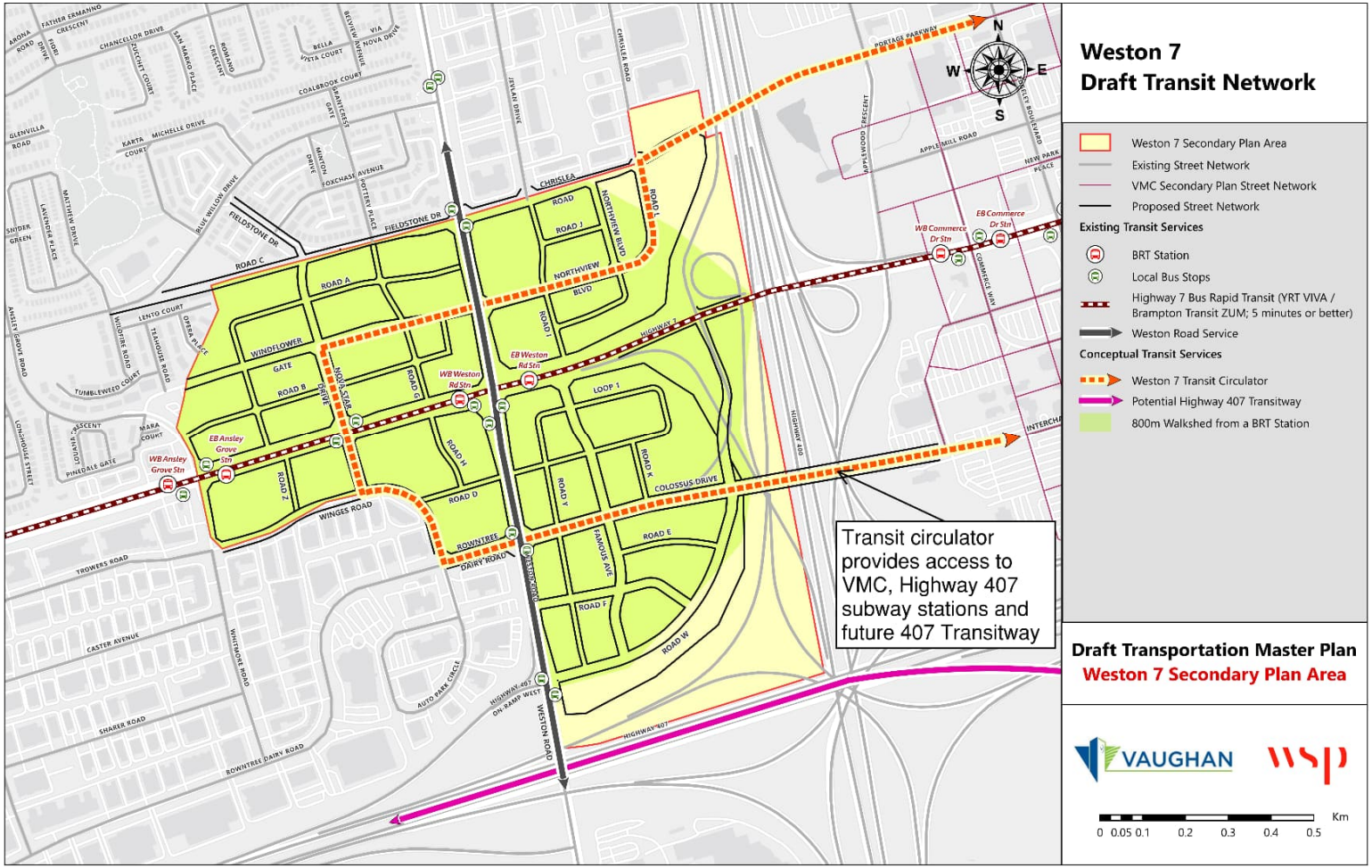
6.2 Transit Network Improvements

The existing transit network includes Bus Rapid Transit on Highway 7 and conventional bus service on Weston Road. Nearby, the VMC subway station is available for service into Toronto, and through the VMC Bus Terminal, passengers can access other parts of Vaughan, York Region, and additional destinations such as Brampton. The preferred transit network seeks to enhance the service and bring more service closer to riders. Improvements to the transit network include:

- Advocating for transit priority lanes on Weston Road to ensure transit vehicles can progress through the significant congestion anticipated along the Weston Road corridor;
- Increasing the frequency of transit along Highway 7 and along Weston Road, with a desired five-minute frequency for Viva BRT bus service in peak hours; and
- Implementing a transit circulator bus route with stops along streets not presently served by transit and connections to the VMC subway station and the 407 / Jane subway station.

The transit priority lanes and the transit circulator are depicted Figure 35.

Figure 35: Proposed Transit Network Improvements



6.3 Street Network Improvements

A main objective of the street network improvements has been to develop a finer grid network with new and improved collector and local streets across the four quadrants of the Study Area. A finer grid network improves connectivity for all modes of travel, as the sidewalks and cycling facilities typically follow the street network. The finer grid is of utmost importance to facilitate the forecasted growth, intensification, and redevelopment of the Study Area and help provide access to properties, which generally will be restricted from arterial roads

A network of new and improved street connections forms part of the multi- modal network in the TMP including major collectors, minor collectors, and local roads. This includes:

- The Colossus Drive extension across Highway 400, providing an additional connection between VMC and Weston 7 Secondary Plan areas, in addition to Portage Parkway and Highway 7 ;
- The extension of Nova Star Drive between Fieldstone Drive and Winges Road;
- Extending Windflower Gate east to align with the existing signalized Weston Road / Northview Boulevard intersection;
- Extending Northview Boulevard to the east and curving north to connect at the existing Portage Parkway / Chrislea Road signalized intersection;
- Fieldstone Drive extension connecting along a straight axis through to Blue Willow Drive;
- Realignment of Famous Avenue and the construction of a new road south from Colossus Drive that connects Weston Road and Highway 7 at the existing Highway 407 SB-off-ramp signal; and
- additions to the local roadway network.

They are consistent with the classifications from the 2023 Vaughan Transportation Plan, which defines each classification as follows:

Local (Intensification Area): Provide access to individual properties in mid- to high-rise residential and mixed-use areas. Local streets generally connect to collector streets and various community amenities. They are typically low-speed and pedestrian and bike-friendly.

Minor Collector (Intensification Area): Provide connections to mid- to high-rise mixed-use areas and retail/commercial properties. They support frequent transit service and typically exhibit slower traffic flow

which can be frequently interrupted by driveway accesses. In general, neighbourhood streets are low-speed and pedestrian and bike-friendly.

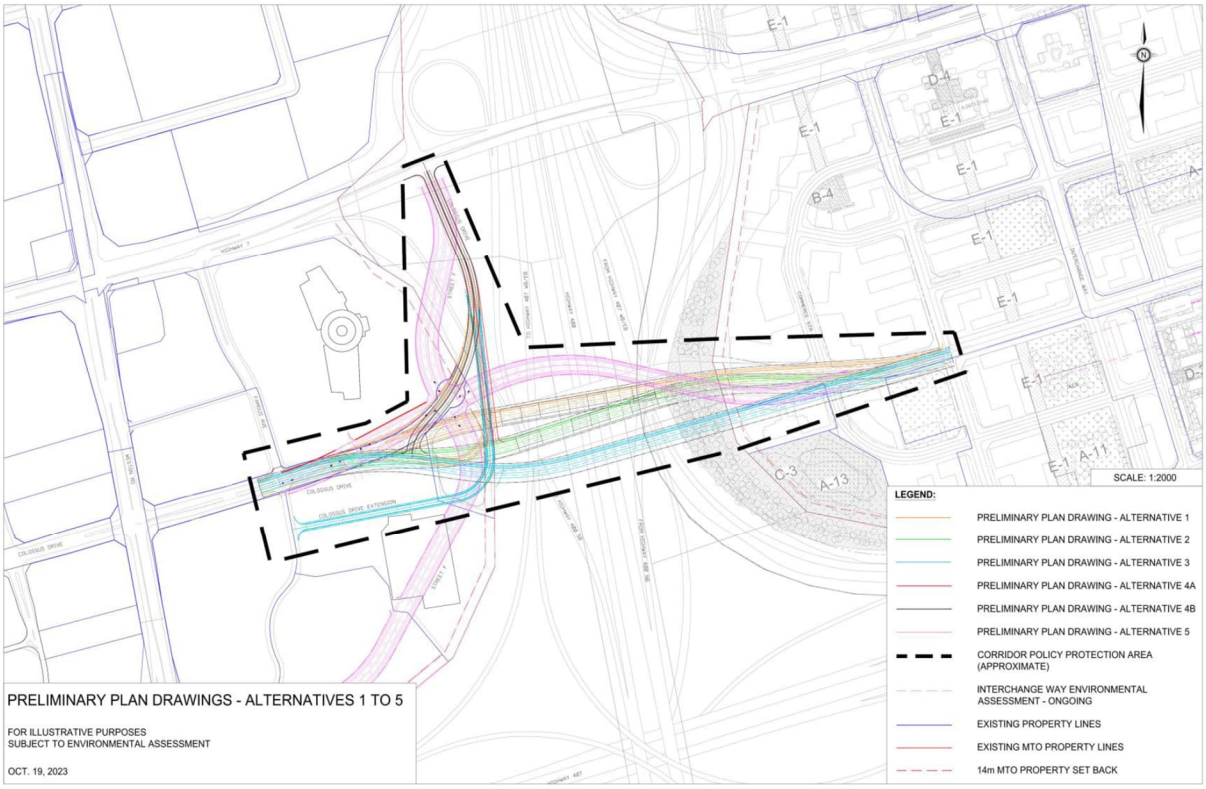
Major Collector (Intensification Area): Street-oriented on at least one side and connects higher density land use in intensifications areas. They are intended to provide people with efficient movement through transit, active transportation, and vehicles. These corridors are typically served by frequent transit.

Research has determined that the annual average daily traffic (AADT) volumes for roads can vary. For the purposes of analysis performed as part of the TMP, the following AADT volume ranges have been used for classification purposes:

- Local Roads: Generally, up to 2,500 vehicles per day;
- Minor Collector: Generally, between 2,501 and 5,000 vehicles per day; and
- Major Collector: Generally, between 5,001 and 20,000 vehicles per day.

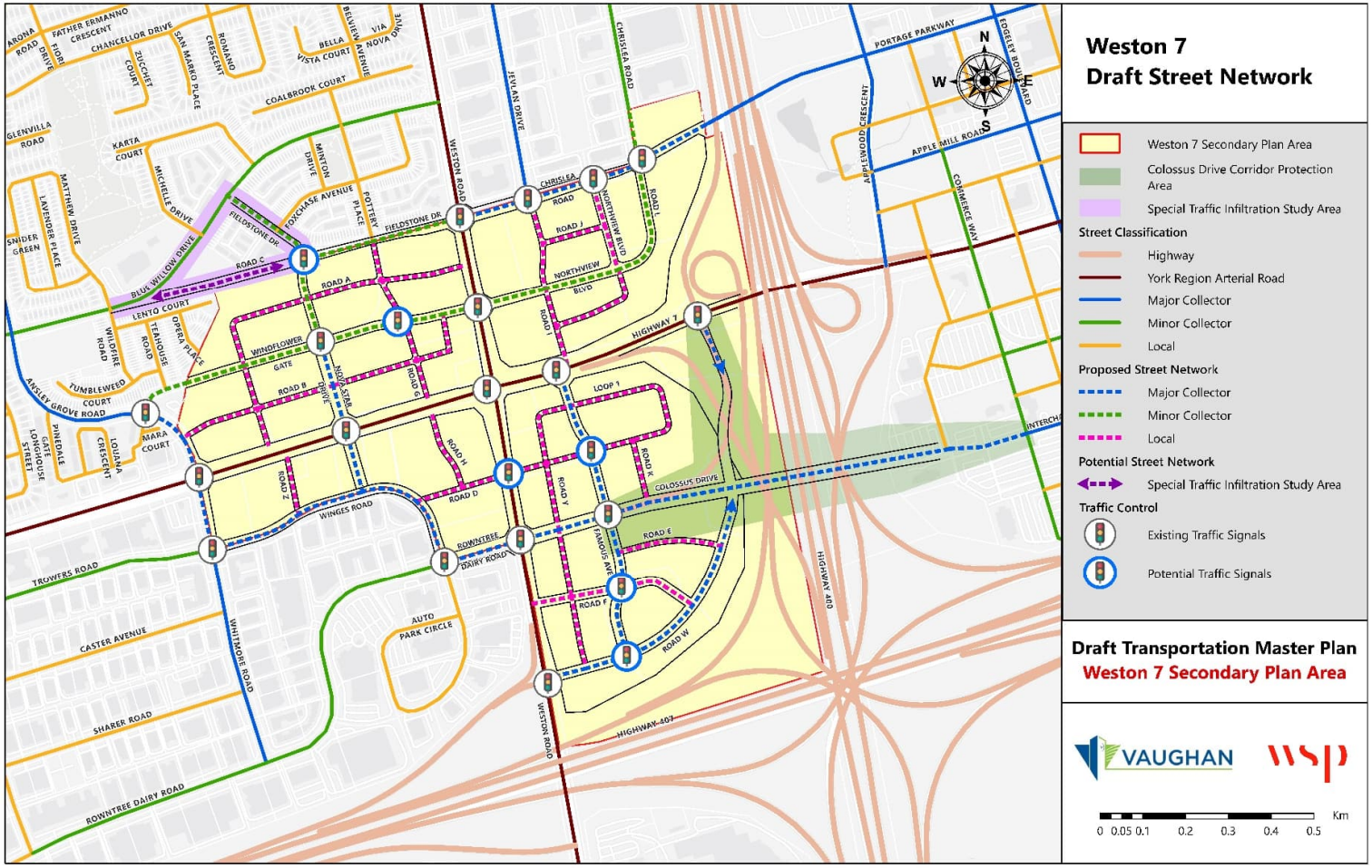
A protection area (shown on Figure 37) has been identified through the TMP and recommended to inform the basis of policy protecting for the corridor in the Weston 7 Secondary Plan. Together with the existing policy protection area in the VMC Secondary Plan area, (Policy 4.3.10) the identified area on the west side will continue to protect a minimum area for the Colossus Drive extension across Highway 400 to Interchange Way in the Vaughan Metropolitan Centre. The ultimate configuration of this new extension/flyover is subject to a separate Environmental Assessment.

Figure 36: Colossus Drive Protection Area



The street network, including the Colossus Drive protection area, are shown on Figure 37.

Figure 37: Proposed Street Network



6.4 Overview of the Street Cross Sections

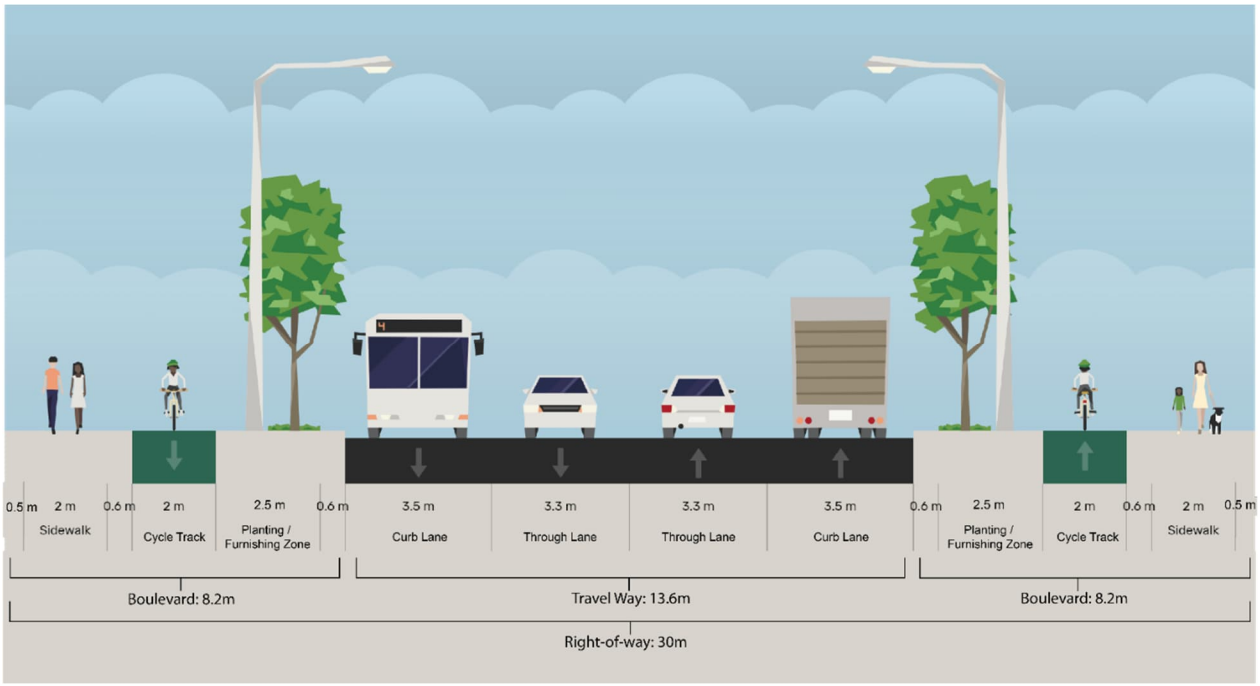
The Weston 7 TMP envisions a network focused around sustainable and multimodal transportation, that put pedestrians first, followed by cyclists, and transit. Key principles include promoting sustainability, improving connectivity, enhancing accessibility, and supporting mobility for all modes of transportation. Creating a multimodal network from the outset of complete streets with forward looking rights-of-way to ensure that space is prioritized for vulnerable road users and positioned to accommodate micromobility is central to supporting the evolution in realizing this vision. The establishment of the critical roles walking and cycling will play for internal circulation.

Street cross sections have been developed setting out the minimum right-of-way, at the typical midblock sections for major collector, minor collector, and local street classification and are developed at a planning stage and are guided by the City of Vaughan's *Complete Streets Design Guidelines*. Cross-sections set out the required elements within the right- of way, providing for their widths, buffers, and separation distances. Street and intersection specific cross-sections for improvements will be identified, assessed, and evaluated through project/road project specific Environmental Assessment studies (or suitable equivalent) and/or in association with development application processes. Advancing the design for all collector (major and minor) and local streets new and/or improved in the Weston 7 Secondary Plan area is to adhere to the guidance of the City's Complete Streets Guidelines.

6.4.1 Major Collector

Major collectors will have a minimum 30 metre right-of-way that contains 4 lanes and boulevard zones on each side. Major collectors feature wide 2 metre sidewalks along with 2 metre cycle tracks on both sides to support active transportation. Figure 38 illustrates a typical mid block section for major collectors within Weston 7.

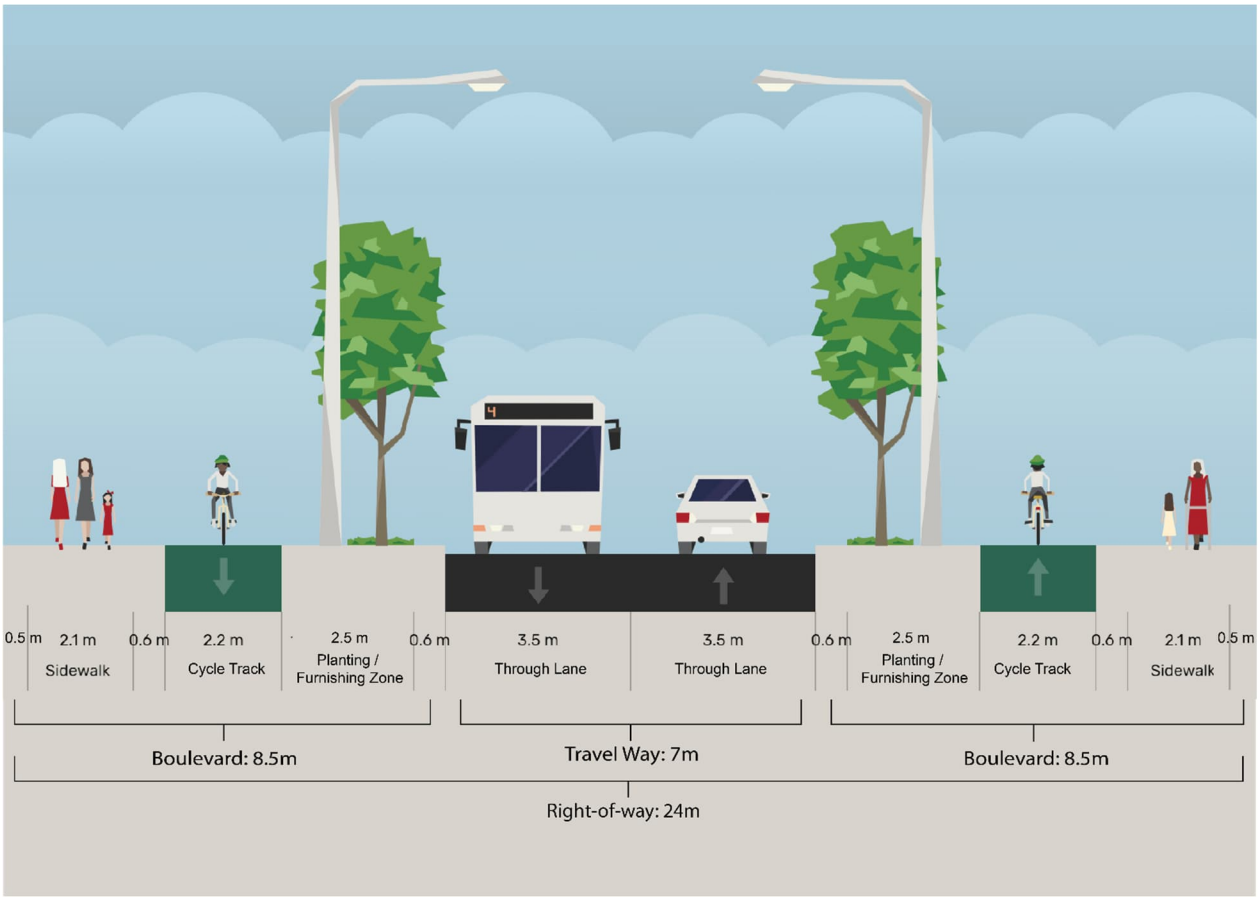
Figure 38: Major Collector Cross Section



6.4.2 Minor Collector

Minor collectors will have a 24-metre minimum right-of-way at typical mid-block section containing 2 lanes and boulevard 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 Weston 7. Figure 39 illustrates the typical mid-block cross-section.

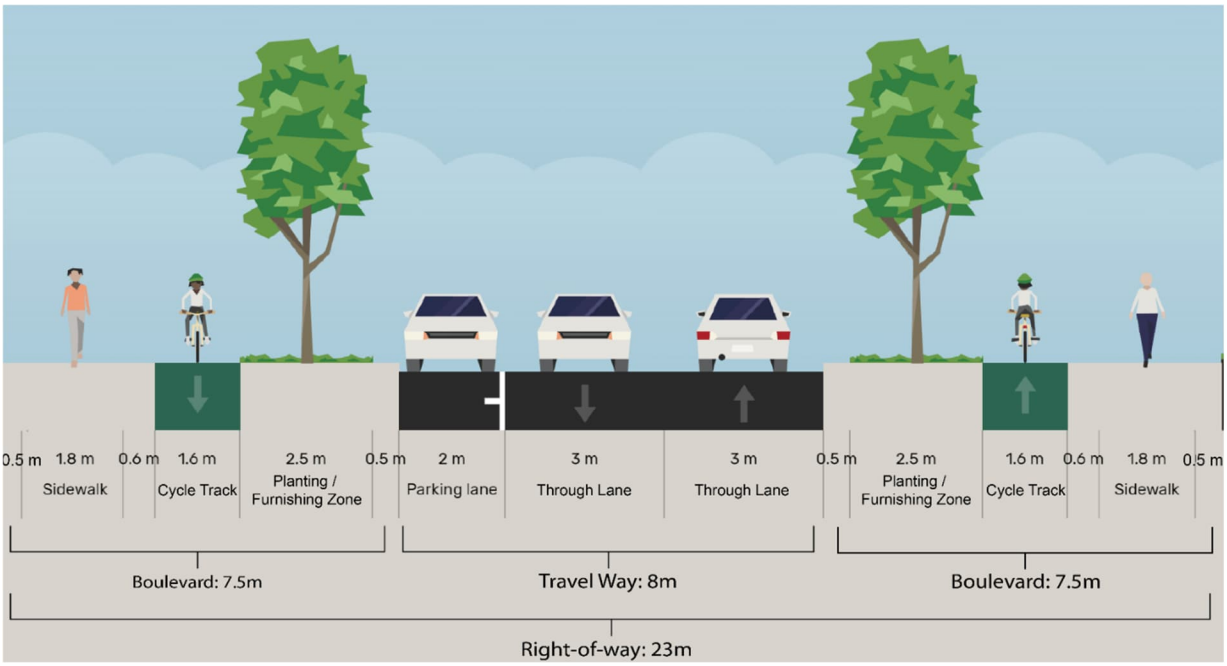
Figure 39: Minor Collector Cross Section



6.4.3 Local Roads

Local roads have a 23-metre minimum right-of-way with 2 travel lanes providing for a parking lane on one side of the road. Local roads provide for sidewalks and cycle tracks on both sides of the road. The typical mid-block section with parking on one side of the road is illustrated in Figure 40.

Figure 40: Local Road Cross Section



6.5 Supportive Policy Initiatives

The infrastructure recommendations are supported by a series of transportation policies to optimize the effectiveness of the infrastructure. These select policy initiatives support the multi-modal network and form part of the plan to achieve the TMP vision of a community based on sustainable transportation measures. The policies in this section are not intended to be exhaustive, rather they are meant to provide a framework of measures that can be effective for the City and the Weston 7 Study Area. The supportive policies profiled include:

- Complete Streets;

- Vision Zero Road Safety;
- Parking Management; and
- Transportation Demand Management.

Together, the infrastructure improvements that are part of the preferred alternative (presented in Chapter Future Multimodal Network), combined with the policies presented in this chapter, make up the plan to implement the preferred transportation network alternative.

6.5.1 Complete Streets

Complete Streets is the concept that the street network should be designed for all users and all modes of transportation. Complete Streets function truly as a network, recognizing that not every mode of transportation needs dedicated facilities on every street. For example, transit vehicles do not operate on every street, but there is a transit network in place that enables people to easily access it.

The City has recently prepared Complete Streets Design Guidelines to identify the elements of the various types of streets in the city. These Guidelines have been used to help develop the street cross sections for the proposed streets in the Weston 7 Study Area.

6.5.2 Vision Zero Road Safety

The Weston 7 Study Area is busy today and is planned to become more vibrant and busier in the future. With road safety already a concern at challenging intersections like Weston Road and Highway 7, the TMP desires to incorporate the concept of a Vision Zero road safety plan to enhance safety.

The City of Vaughan recognizes that no deaths or serious injuries should be considered acceptable consequences of mobility. The contemporary Vision Zero perspective of road safety, along with its safe systems approach, encourages the long-term goal of eliminating road traffic deaths and serious injuries. To this end, the City already has in place a MoveSmart Mobility Management Strategy and has implemented a number of road safety and active and sustainable travel initiatives under this strategy to improve safety on the transportation network.

York Region already has a Traffic Safety Program and is in the process of developing a Traveler Safety Plan. This program and plan should be leveraged by the City to act as a basis for specific road safety measures in the Weston 7 Study Area.

Through Road Safety Action Plans, municipalities can guide interim road safety goals and mitigation measures. Vision Zero envisions these goals and outcomes as a shared responsibility between road users and system designers such as traffic engineers, transportation planners, land-use planners, public health professionals, police enforcement and emergency response teams. Through a mix of collaborative efforts, safe infrastructure design and policies (which account for human error and vulnerability), key directives for a Vision Zero plan are proposed:

- Focus in KSI (Killed-and-Serious-Injury) collision analysis;
- Design a road system that accounts for human error and vulnerability;
- Implement the safe system approach, which considers the multiple influences of road safety; and
- Understand road safety as a shared responsibility between system designers and users.

While this TMP is for the Weston 7 Study Area in specific, the City should consider preparing a City-wide Vision Zero road safety plan. Adopting Vision Zero requires a long, mid, and short-term understanding of road safety, so that interventions that reduce (and eventually eliminate) road traffic deaths and serious injuries can be appropriately monitored and evaluated. Adaptable interventions are a key element to the longevity of Vision Zero plans. The Vision Zero Road Safety Action Plan should be contextual, flexible and contain achievable steps that will impact change in road safety.

Vision Zero supporting policy recommendations include:

- Using the York Region Traveller Safety Plan as a foundation, develop a Vaughan Road Safety Action Plan. The plan will provide City-specific road safety goals and directives for preferred countermeasures, community initiatives, pilot studies, and education programs. This plan should be evidence-based by utilizing the collision analysis database to inform its content. To strengthen the Road Safety Action Plan's resiliency, it should be developed collaboratively across disciplines and contextually to the unique conditions of the City's transportation framework. A successful Road Safety Action Plan will:
- Integrate and align efforts from existing educational initiatives;
    - Evaluate the results of the KSI collision analysis to develop a well-suited initial Vision Zero objective for Vaughan.
    - Have contextual implementation measures for Vaughan which are based on a review of existing strategies; and

    - Integrate multi-disciplinary initiatives that influence road safety (such as the walking school bus, enforcement education programs and traffic calming).
- Coordinate efforts with York Region to strengthen programs and continue to align objectives and data-collections methods.
- Develop a monitoring and evaluation framework for Vision Zero and the Road Safety Action Plan which allows for the continual update of the plan as conditions evolve.

6.5.3 Review of Parking Zoning By-Law

The existing parking zoning by-law was reviewed and reimagined as a tool that is available in managing the parking supply in the study area, recognizing that the preponderance of available parking today induces the auto-oriented travel behaviour seen. The parking zoning by-law review was undertaken on the basis that a reduction in parking rates and the subsequent supply of parking would help achieve the desired and necessary travel behaviour shift to more sustainable, non-auto modes of travel.

With this mandate in mind, significant parking reductions should be explored based on an understanding of the goals of the Weston 7 Secondary Plan, societal changes, and current trends in parking requirements in the GTA and a high level of the non-auto mode of travel planned for this area. Traffic modelling results indicate congested conditions under existing and future horizons. This drives coordinated effects across multiple aspects of the TMP to enable travel using non-auto modes and to limit the availability of parking to discourage auto trip making where appropriate. A reduction of parking minimums and maximums below the current Zoning By-law rates is appropriate given the updated urban development and transportation context established through the Secondary Plan and TMP. The suggested parking requirements are further supported by active transportation and transit connections to support the first and last mile trips from the VMC subway station, Highway 7 BRT, and other transit hubs. Table 13 shows the suggested minimum and maximum parking rates for Weston 7. These rates are based on the transportation network providing convenient connections from all Weston 7 blocks to the VMC Subway Station and bus terminal.

Table 13: Weston 7 Reduced Parking Rates

Reduced Parking Requirements			
Land Use	Existing	Reduced Rate	Policies
Residential Uses (Spaces per Dwelling Unit)			
Residential Apartment Resident	0.8 min to 2.0 max	0 min to 0.4 max	100% of required parking should be EV ready.
Residential Apartment Visitor	0.2 min	0.1 min to 0.15 max	25% of required parking should be EV ready.
Non-residential Uses (Spaces per 100 sq.m of Gross Floor Area)			
Office	1.4 min to 3.0 max	0.5 min to 1.5 max	25% of required parking should be EV ready.
Retail, Service Commercial	2.0 min to 4.5 max	0.7 min to 4.0 max	
Parking Reductions Shared parking: Minimum parking requirements for mixed-uses to be calculated based on By-law 001-2021 Section 6.8: Mixed-use Development Shared Parking Reductions. Shared parking reductions do not apply to maximum parking requirements. Car-pool and car-share parking: Minimum parking requirements may be reduced by applying By-law 001-2021 Section 6.9: Additional Parking Reductions. Since zero minimum parking requirements are proposed for the apartment resident parking in Weston 7, these pathways for parking reduction will no longer be applicable for that category. For other uses, the provisions continue to apply.			

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 Bicycle parking to be provided per By-law 001-2021 Section 6.5: Bicycle Parking Spaces Requirements.

The Weston 7 Parking Strategy (attached in Appendix E) also includes suggestions to the possibility of a phased approach to parking rates. Further details on the full build out parking requirements can also be found in the Weston 7 Parking Strategy.

Resident Parking Requirements

The apartment resident parking requirement is proposed to be reduced from 0.8 spaces to 0.4 spaces per unit in the interim with a further transition to no minimum parking in the ultimate phase. The maximum requirement is also proposed to be reduced from 2.0 to 0.8 in the interim to 0.4 in the ultimate phase.

Residential Visitor Parking Requirements

The apartment visitor parking requirement is proposed to be reduced from 0.2 to 0.1 spaces per unit in the interim, with a further transition to no minimum parking in the ultimate phase. A maximum requirement of 0.15 spaces per unit is proposed to be introduced in the interim and further reduced to 0.10 spaces per unit in the ultimate phase.

Non-Residential Parking Requirements

Minimum parking requirements are reduced drastically to support commercial uses geared toward a local employee and customer base that may rely more heavily on foot traffic and do not have a need for as much parking.

In the ultimate phase, it is proposed that non-residential uses transition to zero minimum parking with more restrictive parking maximums. The ultimate parking maximum is proposed to align with the current parking minimums. The trigger to transition should be carefully considered based on emerging trends in

travel preferences. The ultimate parking rates should be refined as needed and TDM measures may be explored to further support businesses in Weston 7.

Parking Reductions

The City's Zoning By-law provides pathways to reduce parking through shared parking, provision of car-pool parking for non-residential uses, and car-pool parking for residential uses. It is recommended that these provisions continue to apply in Weston.

Electric Vehicle Parking Requirements

Considering the emerging trends and also as a progressive and future-ready strategy, higher electric vehicle (EV) requirements are recommended for Weston 7. The EV-ready requirements are as follows:

- 100% of resident parking spaces in residential developments;
- 25% of visitor parking spaces in residential developments; and
- 25% of all parking spaces in non-residential developments.

Bicycle Parking Requirements

The current bicycle parking requirements in the City's zoning by-laws are generally in line with best practices for bicycle provision. It is recommended that zoning requirements continue to be applied. It is expected that future zoning by-law reviews will include updates to bicycle parking requirements to align with emerging trends and monitoring of bicycle parking demand.

6.5.4 Transportation Demand Management

Transportation demand management (TDM) consists of specialized policies, programs, innovative mobility services, and products with the goal of reducing vehicle travel during peak travel hours. These initiatives encourage people to use sustainable modes of transportation, rather than driving alone, or make fewer trips by car during peak travel hours (diverting the trips to other, less busy periods of travel). The City already has in place a Transportation Demand Management Guideline and Toolkit that is required for submission as part of new development applications. The Guideline and Toolkit is designed to identify and implement site-specific measures that will encourage residents, visitors, or employees to travel sustainably and reduce the reliance on single-occupancy vehicles.

The City is also involved in pointA, a Smart Commute organization for Vaughan and North Toronto. pointA works with businesses and organizations to help their employees commute to work in sustainable ways, through efforts such as ride matching and promotional events such as Bike-to-Work days.

TDM will be an essential element of the overall success of the TMP. The heavy emphasis on walking, cycling, and transit infrastructure is in and of itself a TDM measure. The City may consider additional TDM measures specific for the Weston 7 Study Area, such as designating a TDM "champion" to coordinate TDM measures for this area. This champion could be responsible for overseeing the implementation of a number of TDM measures, including:

- Charging for car parking Study Area-wide to discourage driving;
- Emergency ride home programs for sustainable commuters;
- Priority parking spaces for carpools;
- Discounted transit passes;
- Secured bike parking and e-bike charging in convenient locations;
- Changeroom and shower facilities for cyclists in office buildings;
- Encouraging telecommuting programs and flexible work hours; and
- Arranging Weston 7-specific ridesharing programs, Bike-to-Work days, and other events to draw attention to sustainable transportation options.

6.6 Mitigation of Traffic Impacts on Existing Neighbourhoods

The City is committed to mitigating the potential impacts of traffic infiltration on existing communities surrounding the Weston 7 area. To address these concerns, the Fieldstone Drive Extension has been designated as a "Special Traffic Infiltration Study Area" and will undergo a special study alongside a future Environmental Assessment (EA). This approach will ensure that the extension is thoroughly evaluated for its impacts on both the environment and community.

Additionally, major improvements including new alignments and extensions will be subject to future EA studies conducted by the City. These studies will involve comprehensive evaluations of potential environmental and community impacts, ensuring that all factors are carefully considered. The EA process will provide opportunities for community feedback, ensuring that residents' concerns are addressed appropriately.

Furthermore, directing traffic away from existing communities is important for minimizing congestion and preserving the local character and quality of life in adjacent communities. To achieve this, a range of engineering and design solutions can be implemented to effectively discourage cut-through traffic in existing neighborhoods. Mitigation strategies that can be applied to prevent traffic infiltration into existing communities are presented below.

Traffic Calming Measures

Traffic calming measures are designed to reduce speed and volume of traffic, making roads safer and discouraging non-local traffic from utilizing residential streets as shortcuts. By implementing infrastructure such as speed bumps, curb extensions and bollards, these measures make it less convenient for through traffic to use neighborhood roads as shortcuts. Additionally, traffic calming enhances pedestrian safety by slowing down vehicles, which may be beneficial in improving the quality of life of the community.

Signage and Pavement Markings

Signage and pavement markings are useful for the flow of traffic on roads and can direct traffic away from existing communities by providing guidance and deterrents for non-local drivers. For example “Local Traffic Only” signs can be implemented to restrict access to residential streets, signaling to drivers that certain roads are not intended for through traffic. Speed limit signs and pavement markings such as “No Through Traffic” can discourage speeding and through traffic and reinforce that certain roads are not meant for non-local traffic.

Intersection Modifications

Intersection modifications can be beneficial in directing traffic away from existing communities by reducing the appeal of residential streets for through traffic. Turn restrictions can discourage shortcuts by preventing certain turn movements, making it less convenient for drivers to shortcut through existing neighbourhoods to bypass congestion on main roads. Additionally, restricting turns during peak hours can reduce traffic volumes through residential areas during high-traffic times. Curb extensions at intersections can also decrease the capacity of residential streets, making them less attractive to drivers. Furthermore, roundabouts can be introduced to slow down traffic and discourage cut-through driving as they require more time and attention to navigate compared to traditional intersection control methods.

Advanced Signal Control

Advanced signal control can be applied to optimize traffic flow on main roadways that are intended for higher-capacity movement. This will be helpful in deterring the use of residential roads as shortcuts. Adaptive signal control systems which adjust traffic signals in real-time based on current traffic conditions can be implemented at key intersections. These real-time adjustments can help mitigate bottlenecks on major roads, disincentivizing shortcuts along local roads.

7 Implementing the Plan

The Weston 7 TMP provides recommendations for a preferred multi–modal transportation network. This chapter focuses on the implementation strategy and sets out a framework for phasing the recommended improvements in an orderly and contiguous manner.

The Weston 7 TMP followed the Municipal Class Environmental Assessment and satisfies Phases 1 and 2 of the Municipal Class Environmental Assessment process for Master Plans. It has identified a group of interrelated transportation projects and improvements forming the preferred multi-modal network.

Within the overall implementation of the Weston 7 Secondary Plan, the implementation framework for the transportation network proposed by the Weston 7 TMP is a structured approach to planning, protecting, and positioning the area to accommodate the expected people and jobs. It is structured around:

- Required implementation of broader City and Regional transportation improvements which are necessary to provide the capacity to accommodate a growth threshold of 15,840 people and 10,051 jobs, consistent with the findings of the transportation analysis.
- Provision of a Weston 7 Secondary Plan multi-modal transportation network of recommended transportation projects and improvements, including:
    - A highly accessible and dense Active Transportation (AT) network that is formed by public on- and off-road facilities, publicly accessible private links and grade separated connections of Highway 7, Weston Road, and Highway 400. This network will remove barriers and provide for a seamless grid of connected routes, enabling shorter distance trips for walking and cycling within Weston 7 and for connecting to and from transit, including the Weston BRT station and the VMC Subway Station.
    - 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 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.

7.1 Phasing

Transportation analysis was completed to understand the requirements and timing of required transportation infrastructure. Key findings indicate that improvements to City and Regional transportation facilities are necessary to provide capacity to accommodate growth up to the 2041 interim horizon, or 15,840 people and 10,051 jobs.

Details on the analysis are provided in Appendix D. Table 14 identifies the necessary broader area City and York Region improvements and their respective phasing.

Table 14: Required Broader Area Improvements

Timing	Project	Jurisdiction
2031	Colossus Drive extension over Highway 400	City of Vaughan
	Bass Pro Mills extension from Highway 400 to Weston Rd	City of Vaughan
2041	Langstaff Rd widening between Weston Rd and Creditstone Rd (4-6 lanes)	York Region
	Langstaff Rd connection over CN Yard	York Region
	Langstaff Rd full interchange at Hwy 400	York Region
	Steeles Ave widening west of Jane St (4-6 lanes)	York Region
	Pine Valley Dr widening between Hwy 7 and Steeles Ave (4 – 6 lanes)	York Region
	Weston Rd widening north of Steeles Ave (4-6 lanes)	York Region

	Keele St widening north of Steeles Ave (4-6 lanes)	York Region
	Highway 7 rapid transit corridor (Viva headway 10 minutes)	York Region
	Steeles Ave Transit Corridor (4 general purpose lanes plus dedicated transitway east of Jane St)	York Region
	Jane St Transit Corridor (4 general purpose lanes plus dedicated transitway between Major Mackenzie Dr and Highway 7 (Viva headway 10 mins))	York Region

7.2 Weston 7 Secondary Plan Multi-Modal Transportation Network

A quadrant-based approach is proposed to guide the orderly and contiguous implementation of multi-modal transportation network infrastructure improvements. This approach ensures that key components such as streets, active transportation facilities, and transit enhancements are delivered in a timely manner that meets both interim and ultimate needs, in alignment with the expectations of the City and the Region.

The quadrant-based approach will require landowners to ensure that transportation infrastructure is secured within an associated quadrant prior to any development proceeding. Security may include land dedication, construction and/or funding, as approved by the City.

The collector street network, critical active transportation infrastructure and transit enhancements in a quadrant should be prioritized. However, all transportation infrastructure identified in Figure 41 – Street Network Key Map and Figure 42 – Active Transportation Key Map must be in place, by quadrant, for development to proceed. It is essential that proper phasing of fundamental infrastructure elements such as streets, active transportation networks, and transit capacities are adequately established in both interim and ultimate conditions within a timeframe deemed acceptable to the City and the Region. The

capital costs for any transportation system requirements necessary to facilitate the proposed development shall not adversely affect the City's or the Region's budget.

Technical studies related to transportation shall be completed through a quadrant-based strategy to facilitate the systematic and cohesive implementation of the internal multi-modal transportation network. A transportation technical study will be necessary to ensure that large-scale developments proceed in tandem with and not ahead of fundamental infrastructure elements. Appendix F – Transportation Technical Study Requirements, provides details on the requirements of these technical studies. As noted above, the collector street network and critical active transportation infrastructure shall be secured in advance of development proceeding within a quadrant.

All street network (labeled as ST) projects represented by their ID numbers are shown in Figure 41. Active transportation projects (labeled as AT) and their corresponding ID numbers are shown in Figure 42. It is noted that network identifiers are provided for illustrative and descriptive purposes.

Table 15: Collector Street Infrastructure

Quadrant ID#	Network	Improvement	Phasing Requirements
NE ST-10 ST-35	Chrislea Road from Weston Road to Portage Parkway / Applewood Crescent	Establish minimum 30m mid-block right-of-way Establish intersection property requirements Reconstruct to meet Vaughan Complete Streets Guidelines	1. Completion of a Municipal Class Environmental Assessment or suitable equivalent to the satisfaction of the City. 2. Securing of land requirements to the City as a holding condition for receiving zoning approval for all developments in the NE quadrant.

NE ST-12.1 ST-12.2 (Road L)	Northview Blvd from Weston Road to Chrislea Road/Portage Parkway	Establish minimum 24m mid-block right-of-way Establish intersection property requirements Realignment from existing terminus at Chrislea Road to further east to existing signalized intersection at Portage Parkway / Chrislea Road Reconstruct to meet Vaughan Complete Streets Guidelines	1. Completion of a Municipal Class Environmental Assessment or suitable equivalent to the satisfaction of the City. 2. Securing of land requirements to the City as a holding condition for receiving zoning approval for all developments in the NE quadrant.
NW ST-2.1 ST-2.2 ST-2.3	Windflower Gate from Ansley Grove to Weston Road	Establish minimum 24m mid-block right-of-way Establish intersection property requirements Extension / realignment to continue from current easterly terminus to Weston Road, opposite Northview Blvd Reconstruct to meet Vaughan Complete Streets Guidelines	1. Completion of a Municipal Class Environmental Assessment or suitable equivalent to the satisfaction of the City. 2. Securing of land requirements to the City as a holding condition for receiving zoning approval for all developments in the NW quadrant.
NW ST-1.1 ST-1.2 ST-5 AT-1	Fieldstone Drive from Weston Road to Blue Willow Dr	Establish minimum 24m mid-block right-of-way Establish intersection property requirements	1. Special traffic infiltration study required to review benefits and disbenefits of the proposed connection and to assess traffic implications on adjacent established neighbourhoods.

AT-2.1 AT-2.2	Fieldstone Drive extension from existing Fieldstone Dr to Blue Willow Dr	Realign Fieldstone Dr to continue directly west, connecting to Blue Willow Dr Reconstruct to meet Vaughan Complete Streets Guidelines AT Multi-use Pathway extending east - west along Fieldstone extension connecting to Blue Willow and linking to Giovanni Caboto Park	2. Completion of a Municipal Class Environmental Assessment or suitable equivalent to the satisfaction of the City. 3. Securing of land requirements to the City as a holding condition for receiving zoning approval for all developments in the NW quadrant.

NW ST-7 ST-8	Nova Star Dr from Highway 7 to Windflower Gate Nova Star Dr from Windflower Gate to Fieldstone Dr	Establish minimum 30m mid-block right-of-way from Highway 7 to Windflower Gate, and minimum 24m mid-block right-of-way from Windflower Gate to Fieldstone Dr Establish intersection property requirements Extend Nova Star Dr from Windflower Gate to the future Fieldstone Dr extension Reconstruct to meet Vaughan Complete Streets Guidelines	1. Completion of a Municipal Class Environmental Assessment or suitable equivalent to the satisfaction of the City. 2. Securing of land requirements to the City as a holding condition for receiving zoning approval for all developments in the NW quadrant.

NW ST-9	Ansley Grove Rd from Highway 7 to Windflower Gate	Reconstruct to meet Vaughan Complete Streets Guidelines	1. Securing of land requirements to the City as a holding condition for receiving zoning approval for all developments in the NW quadrant.
SW ST-19	Nova Star Dr from Highway 7 to Winges Road	Establish minimum 30m mid-block right-of-way Establish intersection property requirements	1. Completion of a Municipal Class Environmental Assessment or suitable equivalent to the satisfaction of the City. 2. Securing of land requirements to the City as a holding condition for receiving zoning approval for all developments in the SW quadrant.
SW ST-23 ST-24.1 ST-24.2 ST-18	Rowntree Dairy Rd from Weston Rd to Winges Rd Winges Road from Rowntree Dairy Rd to Whitmore Rd Whitmore Rd from Highway 7 to Winges Rd	Establish minimum 30m mid-block right-of-way for all corridors Establish intersection property requirements Reconstruct all streets to meet Vaughan Complete Streets Guidelines	1. Completion of a Municipal Class Environmental Assessment or suitable equivalent to the satisfaction of the City. 2. Securing of land requirements to the City as a holding condition for receiving zoning approval for all developments in the SW quadrant.
SE ST-26	Famous Avenue from	Establish minimum 30m mid-block right-of-way for Famous Avenue	1. Completion of a Municipal Class Environmental Assessment or

ST-33	Highway 7 to Road W	Establish intersection property requirements Extend / realign Famous Avenue from Colossus Dr to new Road W	suitable equivalent to the satisfaction of the City. 2. Securing of land requirements to the City as a holding condition for receiving zoning approval for all developments in the SE quadrant.
SE ST-31	Road W from Weston Rd to Colossus Drive	Establish minimum 30m mid-block right-of-way Establish intersection property requirements	1. Completion of a Municipal Class Environmental Assessment or suitable equivalent to the satisfaction of the City. 2. Securing of land requirements to the City as a holding condition for receiving zoning approval for all developments in the SE quadrant.
SE ST-34 ST-36	Colossus Drive from Weston Road to Commerce Way	Establish minimum 30m mid-block right-of-way Establish intersection property requirements Extend Colossus Drive across Highway 400 to align with Interchange Way	1. Completion of a Municipal Class Environmental Assessment to the satisfaction of the City. 2. Securing of land requirements to the City as a holding condition for receiving zoning approval for all developments in the SE quadrant.

To refine the requirements of the Active Transportation Network, the TMP recommends the completion of an AT Network Implementation study which will advance the design of these elements. Where possible, these key AT network infrastructure improvements should be established ahead of development to influence travel choice from the outset to walking and cycling.

Table 16: Critical Active Transportation Infrastructure

Quadrant ID#	Project	From	To	Improvement	Phasing Requirements
NE AT-12	Crossing of Highway 400	Road L	Applemill Road	New active transportation overpass of Highway 400 connecting Weston 7 with VMC, located between Highway 7 and Portage Parkway existing structures	1. Completion of AT Network Implementation study. 2. Securing land requirements as identified in the Implementation study.
SE AT-15	Highway 7 Multi-use Path	Famous Avenue	Applewood Crescent	Enhance weather protection for the existing Highway 7 median multi-use path	1. Completion of AT Network Implementation study. 2. Securing land requirements as identified in the Implementation study.
NW – NE AT-16 AT-23	Grade-Separated Crossing of Weston Road	NW Quadrant	NE Quadrant	Grade separated crossing of Weston Road between Fieldstone Drive-Chrislea Road and Windflower Gate-Northview Blvd	1. Completion of AT Network Implementation study. 2. Securing land requirements as identified in the Implementation study.

SW – SE AT-23	Grade-Separated Crossing of Weston Road	SW Quadrant	SE Quadrant	Grade separated crossing of Weston Road south of Highway 7	1. Completion of AT Network Implementation study. 2. Securing land requirements as identified in the Implementation study.
NW – SW AT-17 AT-18	Grade-Separated Crossings of Highway 7	NW Quadrant	SW Quadrant	Grade separated crossings of Highway 7 at Road Z and Road H	1. Completion of AT Network Implementation study. 2. Securing land requirements as identified in the Implementation study.
NE – SE AT-19 AT-20	Grade-Separated Crossings of Highway 7	NE Quadrant	SE Quadrant	Grade separated crossings of Highway 7 at Weston Road and east of Famous Avenue	1. Completion of AT Network Implementation study. 2. Securing land requirements as identified in the Implementation study.
SE AT-14 AT-13	New multi-use path	Weston Road	Highway 7 at Famous Ave	Multi-use path along the Highway 400 corridor, linking to the future South York Greenway	1. Completion of AT Network Implementation study. 2. Securing land requirements as identified in the

					Implementation study.
NE AT 11.1 and 11.2	New multi-use path	Highway 7	Chrislea Road	Multi-use path along the Highway 400 corridor	1. Completion of AT Network Implementation study. 2. Securing land requirements as identified in the Implementation study.
All AT- 24	Weston Road	407 ETR EB Ramps	Chrislea Road-Fieldstone Drive	AT improvements – separated in boulevard cycling facilities/track	1. Completion of AT Network Implementation study. 2. Securing land requirements as identified in the Implementation study.

Figure 41: Street Network Key Map

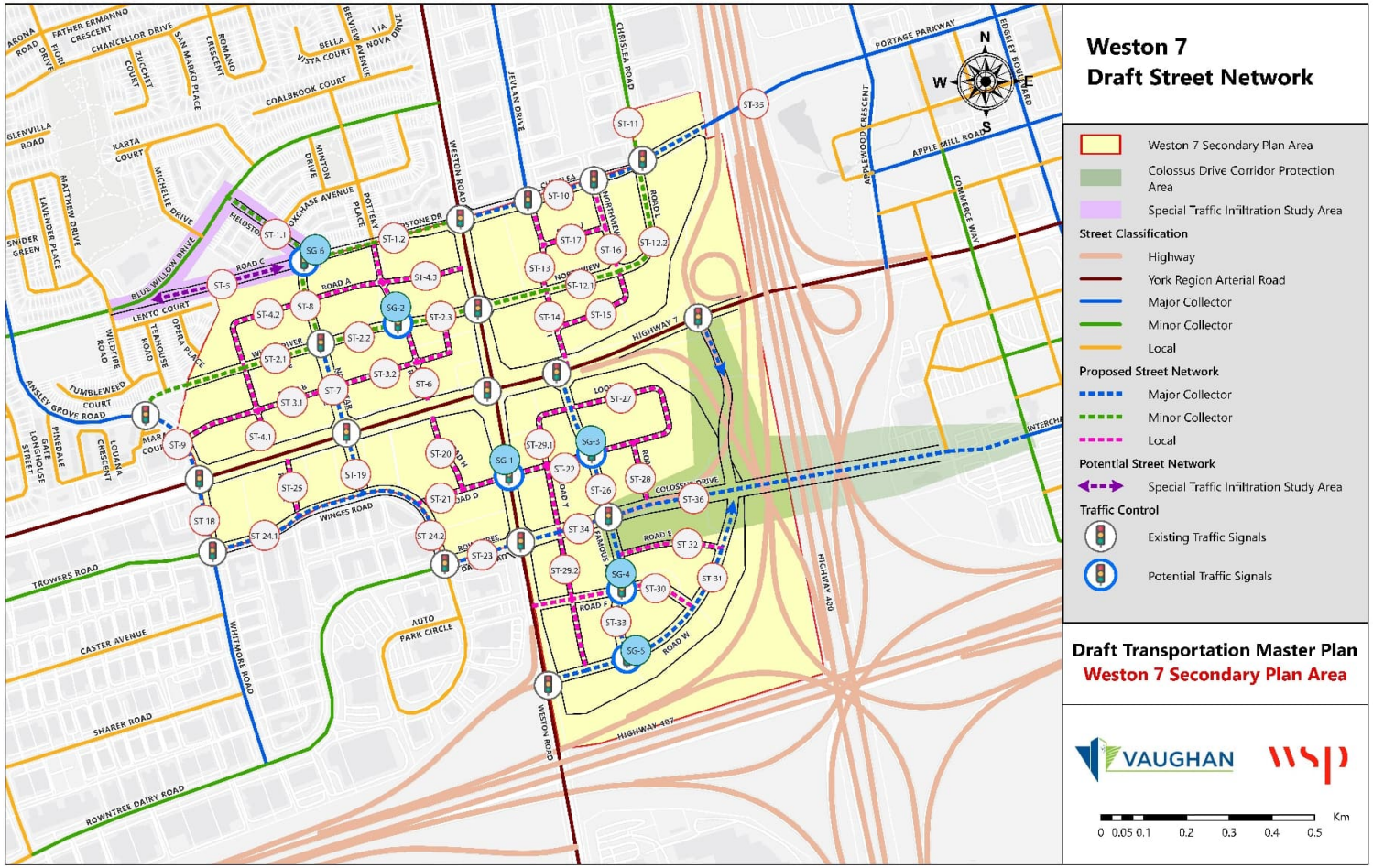
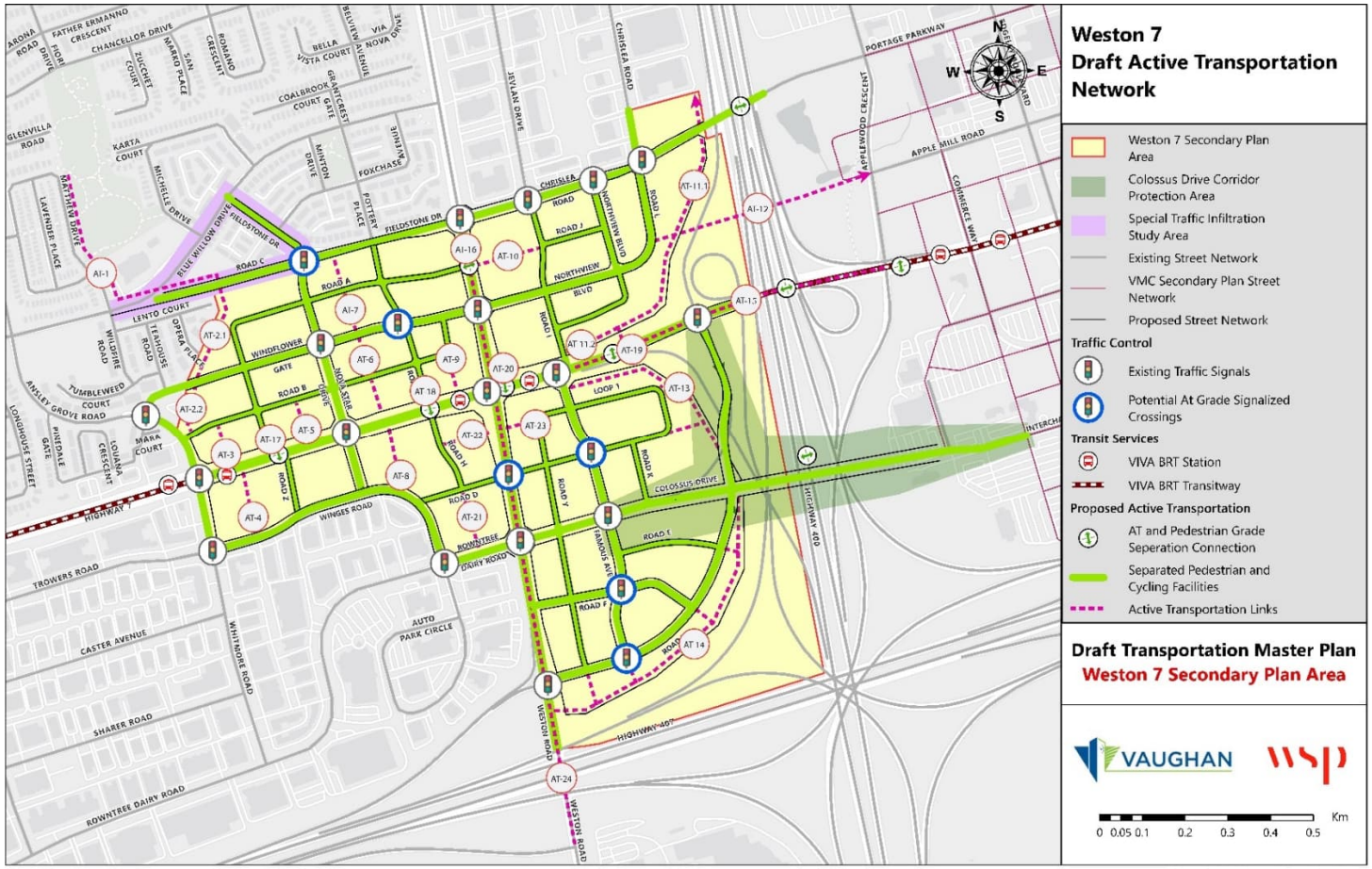


Figure 42: Active Transportation Network Key Map



7.3 Preliminary Cost Estimates

Preliminary capital construction cost estimates for growth-related projects and improvements are developed at a project level for the major and minor collector streets other than the Colossus Drive extension over Highway 400, and are summarized in Table 17. Costs include all multimodal elements within the right-of-way cross-section, including travel lanes, cycle tracks, and sidewalks. Local streets are anticipated to be constructed through development.

Preliminary capital construction cost estimates have also been developed for new major active transportation infrastructure and are summarized in Table 18. It should be recognized that the AT Network Implementation study will advance the designs and refine cost estimates for these infrastructure elements. The AT Network Implementation study is to include grade separated crossings of Highway 7 and Weston Road. Internal active transportation links are to be implemented in association with development.

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

Table 17: Preliminary Estimated Costs for Collector Street Infrastructure

ID#	Street	From	To	Cost ($)
ST-10 ST-35	Chrislea Road	Weston Road	Applewood Crescent / Portage Pkwy	$1,300,000
ST-12.1 ST-12.2	Northview Blvd	Weston Road	Chrislea Road	$2,400,000
ST-2.1 ST-2.2 ST-2.3	Windflower Gate	Ansley Grove	Weston Road	$3,200,000
ST-1.2 ST-5	Fieldstone Drive	Blue Willow Drive Fieldstone Drive	Weston Road Blue Willow	$3,100,000

	Road C (Fieldstone Drive Extension)			
ST-7 ST-8	Nova Star Drive	Fieldstone Drive	Highway 7	$1,000,000
ST-19	Nova Star Drive	Highway 7	Winges Road	$800,000
ST-31	Road W	Weston Rd. / 407 ETR WB Ramp	Colossus Drive	$2,900,000
ST-26 ST-33	Famous Avenue	Highway 7	RoadW	$4,300,000
ST-23 ST-24.1 ST-24.2	Winges Road - Rowntree Dairy Rd- Whitmore	Highway 7	Weston Road	$4,500,000

Table 18: Preliminary Estimated Costs of Major Active Transportation Infrastructure

ID#	AT Link	From	To	Improvement	Cost ($)
AT-12	Crossing Highway 400	Road L	Applemill Road (VMC)	Grade separated AT Overpass over Highway 400	$31,500,000

7.4 Conclusion

Vaughan is at a transition point in its evolution, very rapidly transforming from a low-density suburban community to a community with a mix of housing forms, employers and residents. The Weston 7 Secondary Plan should exemplify the new urban form which is coming to Vaughan.

This new form comes with a unique set of challenges. The road network which has been typically the primary form of transportation supporting the low-density suburbs is no longer sufficient to meet the substantial intensification that is expected to take place in Weston 7, and substantial investments in streets, public transit and active transportation are necessary to meet the needs of new residents, businesses and visitors. At the same time, as demonstrated by the transportation analysis of the Weston 7 TMP, the proposed infrastructure investments alone are not sufficient to achieve the full build out of the Secondary Plan. There may be additional infrastructure investments that can be identified which will benefit both the City transportation network overall as well as the Weston 7 area, but these investments will be expensive and time consuming to build.

An alternative path forward may lie in a combination of both infrastructure investments alongside aggressive policy measures to limit vehicular demand, such as limiting the amount of parking that can be provided for certain uses. This TMP has proposed parking rates which reduce the expected future congestion on the road network, but still does not enable full build out of the Weston 7 area. Additional limits on parking supply is an appropriate, and potentially necessary, avenue to explore in order to unlock the full development potential of Weston 7.

Monitoring the implementation of the multi-modal transportation network and the recommendations of this TMP over time is critical to understand the ability of the transportation network to accommodate, protect and be positioned to support the growth and transformation of the Weston 7 Secondary Plan. As the City's transportation system evolves, new innovations and technologies emerge, and as the Weston 7 Secondary Plan transforms, this TMP must also adapt its priorities.