Premier Gateway West Scoped Area Transportation Study Interim Report (Secondary Plan)

Paradigm Transportation Solutions Limited

April 2018

Project Summary

Project Number
170050

April 2018

Client
Town of Halton Hills
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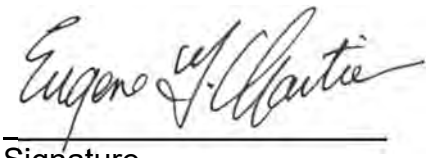
List of Revisions

Version	Date	Description
1	April 2018	Interim Report for Comment



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Disclaimer

Executive Summary

Content and Overview

The Premier Gateway Employment Area is the major employment district in the Town of Halton Hills, designated for large scale industrial and commercial development on full municipal services. The area is planned to accommodate 18,000 new jobs between 2006 and 2031, representing 75% of all employment growth allocated to the Town over this period. With its excellent highway, rail and airport access, visibility and location, the Premier Gateway Employment Area is one of the most desirable available employment lands in the Greater Toronto Area (GTA).

Development of the Premier Gateway Employment Area near the intersection of Steeles Avenue and Trafalgar Road presents several challenges including:

- Limited arterial road capacity;
- Lack of transit service;
- Limited active transportation connectivity;
- Closely spaced access locations along arterial roads with inadequate storage, contributing to road safety concerns and operational delays; and
- Demand for access locations close to highway interchanges.

Assessing the cumulative effects of existing and proposed development on the transportation system and addressing these issues effectively through timely infrastructure improvements requires a coordinated approach from development proponents and responsible agencies. To this end, the Town of Halton Hills initiated the **Premier Gateway West Scoped Area Transportation Study** to identify the local, regional and provincial transportation network improvements required to serve existing and planned development in the western portion of the Premier Gateway Employment Area, and more specifically near the Trafalgar Road and Steeles Avenue intersection.

As part of this investigation, the study assesses the transportation requirements for the Premier Gateway Phase 1B Employment Area Secondary Plan. The Town is preparing the secondary plan to establish land use designations and policies for the Phase 1B area and identify the location of up to 75 hectares of employment land to be added to the Premier Gateway Employment Area.

This interim report documents the study process and assumptions and summarizes the transportation assessment completed for the Premier Gateway Phase 1B Employment Area Secondary Plan lands. The final report will assess the transportation implications of the specific development initiatives listed above and any improvement/phasing requirements through scenario testing.

Study Area

The Study Area for the Premier Gateway West Scoped Area Transportation Study is bounded by Highway 401 to the south, Ninth Line to the east, 5 Sideroad to the north and Fifth Line North/ Brownridge Road to the west. The analysis area also included Highway 401 and the Trafalgar Road, Winston Churchill Boulevard and James Snow Parkway interchanges at the request of the Ministry of Transportation (MTO).

Existing and Planned Transportation Network

The Premier Gateway Phase 1B lands are served by a comprehensive road network featuring arterial, collector and local roads. The more significant routes serving the area – Steeles Avenue, Trafalgar Road and Ninth Lane – are under Halton Region jurisdiction and all planned for expansion by 2031. The remaining roads are under the jurisdiction of the Town of Halton Hills.

The subject lands are also proximate to Highway 401 and Highway 407 ETR. MTO intends to widen Highway 401 in the next 10 years and improve area interchanges.

The area is not well served by non-auto modes currently. Some active transportation infrastructure exists on Steeles Avenue. Transit service is not available to the area.

Findings and Conclusions

The findings and conclusions drawn from the analyses completed for the Premier Gateway West Scoped Area Transportation Study include:

- The existing road network serving the Premier Gateway Phase 1B Employment Area lands is currently operating at satisfactory levels of service and within capacity, except for a few critical movements.
- The Premier Gateway Phase 1B Employment Area lands are forecasted to generate approximately 3,560 trips during the AM peak hour, 4,680 trips during the PM peak hour and 3,470 trips during the Saturday peak hour at build-out. When combined

with background traffic growth, the existing road network will need expansion to serve projected demands.

- Several road improvement projects are already planned within the Study Area to serve forecasted growth, including:
  - Trafalgar Road (Halton Regional Road 3) widening from 2 to 4 lanes between Steeles Avenue and 10 Sideroad (2018)
  - Ninth Line (Halton Regional Road 13) widening from 2 to 4 lanes between Steeles Avenue and 10 Sideroad (2020)
  - Steeles Avenue (Halton Regional Road 8) widening from 4 to 6 lanes between Regional Road 25 and Trafalgar Road (2024)
  - Steeles Avenue (Halton Regional Road 8) widening from 4 to 6 lanes (with Reserved Bus Lanes) between Trafalgar Road and Winston Churchill Boulevard (2028)
  - Trafalgar Road (Halton Regional Road 3) widening from 4 to 6 lanes between Britannia Road and Steeles Avenue (2030)
  - Highway 401 widening from 6 to 10 lanes between Winston Churchill Boulevard and the Highway 407 ETR/Highway 401 interchange and from 6 to 12 lanes between the Highway 407 ETR/Highway 401 interchange and James Snow Parkway
  - Construction of new 6-lane 5½ Line between Britannia Road and Steeles Avenue (likely beyond 2031)

  The Regional Road projects are already programmed in the 2018-2031 Halton Region Transportation Capital Forecast.
- With the planned improvements, most Study Area intersections are projected to continue to operate at satisfactory levels of service and within capacity under 2021 AM, PM and Saturday peak hour traffic volumes. The exceptions include:
  - Trafalgar Road and Steeles Avenue, where the overall intersection and several movements are expected to operate over capacity. It is noted that the overall intersection is projected to just exceed capacity by 2021 with v/c ratios slightly over 1.0 forecasted, suggesting conditions will not be critical with the planned road improvements. With traffic operations at the intersection expected to continue to deteriorate over time with growth, a longer-term solution should be pursued.
  - 5 Sideroad and Eighth Line, where several movements are expected to operate over-capacity. Although traffic control signals are not warranted under 2021 traffic conditions,

signalization of this intersection would provide the most optimal solution. Provision of auxiliary turn lanes, resulting in multi-lane approaches operating under all-way Stop control, can cause driver confusion and visibility challenges, posing safety concerns. Under traffic signal control the intersection would operate at satisfactory levels of service with all movements within capacity.

- With the planned improvements, most Study Area intersections are projected to continue to operate at satisfactory levels of service and within capacity under 2031 AM, PM and Saturday peak hour traffic volumes. The exceptions include:
  - Trafalgar Road and Steeles Avenue, where the intersection is projected to operate with unsatisfactory levels of service (LOS F) and over capacity (v/c > 1.0) for all three peak hours analyzed. There are no further practical remedial measures that can be implemented at this intersection to mitigate the impacts. A longer-term solution should be pursued.
  - 5 Sideroad and Ninth Line, where several movements are projected to operate over capacity. The provision of eastbound and westbound left-turn lanes and a westbound right-turn lane would mitigate the capacity concerns. The provision of these auxiliary turn lanes should be explored through the planned Ninth Line widening project if not already identified.
  - Trafalgar Road and Street B, where several movements are projected to operate over capacity. The provision of eastbound and westbound right-turn lanes would address the capacity concerns. The provision of these auxiliary turn lanes should be explored through the planned Trafalgar Road widening project if not already identified.
  - Trafalgar Road and Hornby Road, where the eastbound minor street approach functioning under Stop control is forecasted to operate over capacity. Although traffic control signals are not justified with 2031 traffic volumes, signalization should be reconsidered in the future if operational concerns manifest with development of the Premier Gateway Employment Area.
- Implementing proposed 5½ Line and its interchange with Highway 401 would benefit traffic operations at the Trafalgar Road and Steeles Avenue intersection for the 2031 horizon year, but not sufficiently to alleviate projected level of service and capacity deficiencies. A few intersections would experience improved traffic operations, while others would degrade but still function with satisfactory levels of service and within capacity.

Only the Trafalgar Road and Hornby Road intersection would require remedial improvements.

- Further solutions to the projected level of service and capacity concerns at the Trafalgar Road and Steeles Avenue intersection should be explored. The Premier Gateway Phase 1B Employment Lands development should proceed in phases subject to the provision of required infrastructure improvements to support the planned phase of development.
- The Study Area is not well served by non-auto modes currently. Targeted measures will be needed to facilitate and preserve the opportunity for use of more sustainable transportation options in the future. Developments in the Study Area should provide Transportation Demand Management (TDM) plans to encourage use of more sustainable travel modes and minimize vehicular traffic generation and demands on the road system. The Town, Halton Region and MTO should also continue to explore opportunities to enhance the range and viability of travel choices serving the area.

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1 Introduction

1.1 Study Purpose

The Premier Gateway Employment Area is the major employment district in the Town of Halton Hills, designated for large scale industrial and commercial development on full municipal services. The area is planned to accommodate 18,000 new jobs between 2006 and 2031, representing 75% of all employment growth allocated to the Town over this period. With its excellent highway, rail and airport access, visibility and location, the Premier Gateway Employment Area is one of the most desirable available employment lands in the Greater Toronto Area (GTA).

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- Lack of transit service;
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Assessing the cumulative effects of existing and proposed development on the transportation system and addressing these issues effectively through timely infrastructure improvements requires a coordinated approach from development proponents and responsible agencies. To this end, the Town of Halton Hills initiated the **Premier Gateway West Scoped Area Transportation Study** to identify the local, regional and provincial transportation network improvements required to serve existing and planned development in the western portion of the Premier Gateway Employment Area, and more specifically near the Trafalgar Road and Steeles Avenue intersection. Specific development initiatives being contemplated within the area include:

- Expansion of the Toronto Premium Outlets (TPO) shopping centre by approximately 40% to a future proposed gross leasable area (GLA) of about 46,359 m^2 (499,000 ft^2) and gross floor area (GFA) of about 52,335 m^2 (563,339 ft^2)

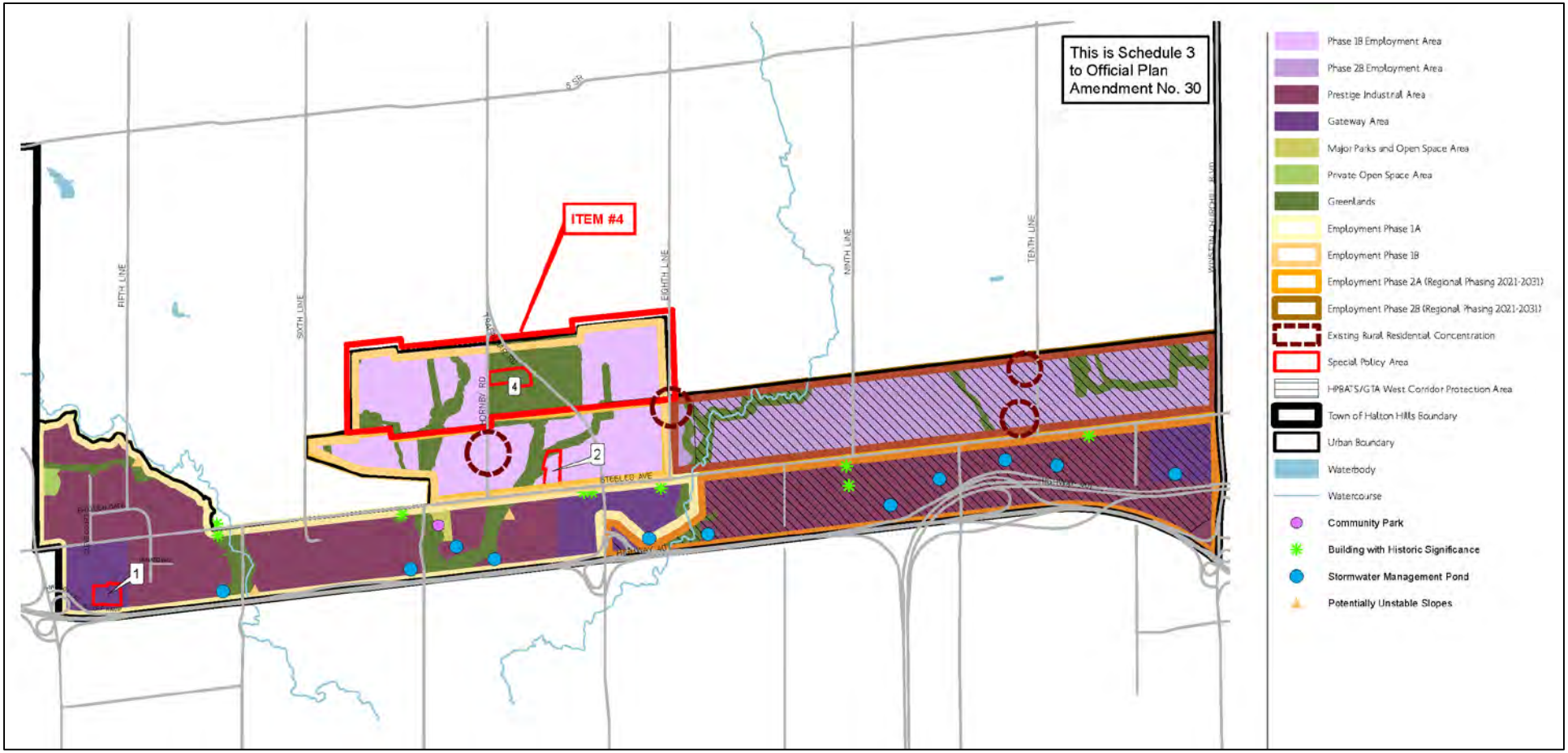
- Development of an approximately 65,000 m^2 (700,000 ft^2) United Parcel Service (UPS) distribution centre on lands north of Steeles Avenue between Trafalgar Road and Eighth Line
- Development of approximately 9,275 m^2 (99,836 ft^2) of retail/ commercial space at the south-west corner of Steeles Avenue and Trafalgar Road on the P.A.Z. Properties Corp. lands
- Development of industrial and commercial uses on the Gellert lands, located on the south side of Steeles Avenue between Sixth Line South and the P.A.Z. Properties Corp. lands

As part of this investigation, the study assesses the transportation requirements for the Premier Gateway Phase 1B Employment Area Secondary Plan. The Town is preparing the secondary plan to establish land use designations and policies for the Phase 1B area and identify the location of up to 75 hectares of employment land to be added to the Premier Gateway Employment Area.

This interim report documents the transportation assessment completed for the Premier Gateway Phase 1B Employment Area Secondary Plan lands, which are shown in light purple on **Figure 1.1**. The final report will assess the transportation implications of the specific development initiatives listed above and any infrastructure improvement or phasing requirements through scenario testing.

1.2 Study Area

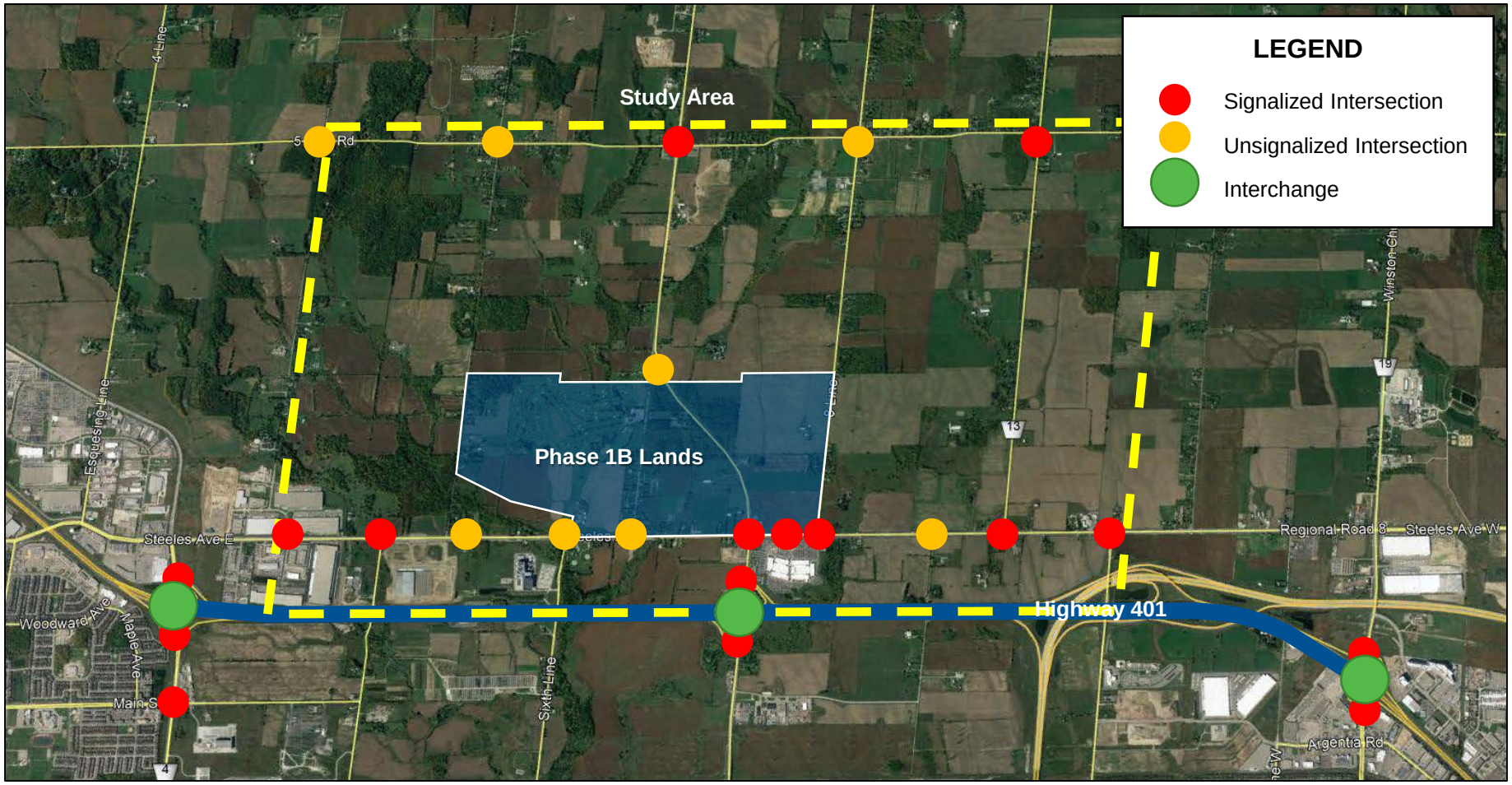
Figure 1.2 shows the Study Area for the Premier Gateway West Scoped Area Transportation Study. The area is bounded by Highway 401 to the south, Ninth Line South to the east, 5 Sideroad to the north and Fifth Line North/Brownridge Road to the west. The analysis area also included Highway 401 and the Trafalgar Road, Winston Churchill Boulevard and James Snow Parkway interchanges at the request of the Ministry of Transportation (MTO).



Proposed Amendment to Schedule A8 Premier Gateway Employment Area Land Use Plan

Source: Schedule 3 to Proposed Town of Halton Hills Official Plan Amendment No. 30
Premier Gateway Employment Area Replacement Employment Lands (November 2017)

Premier Gateway Employment Area Land Use and Phasing Plan



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Study Area

1.3 Transportation Context

1.3.1 Halton Region Transportation Master Plan

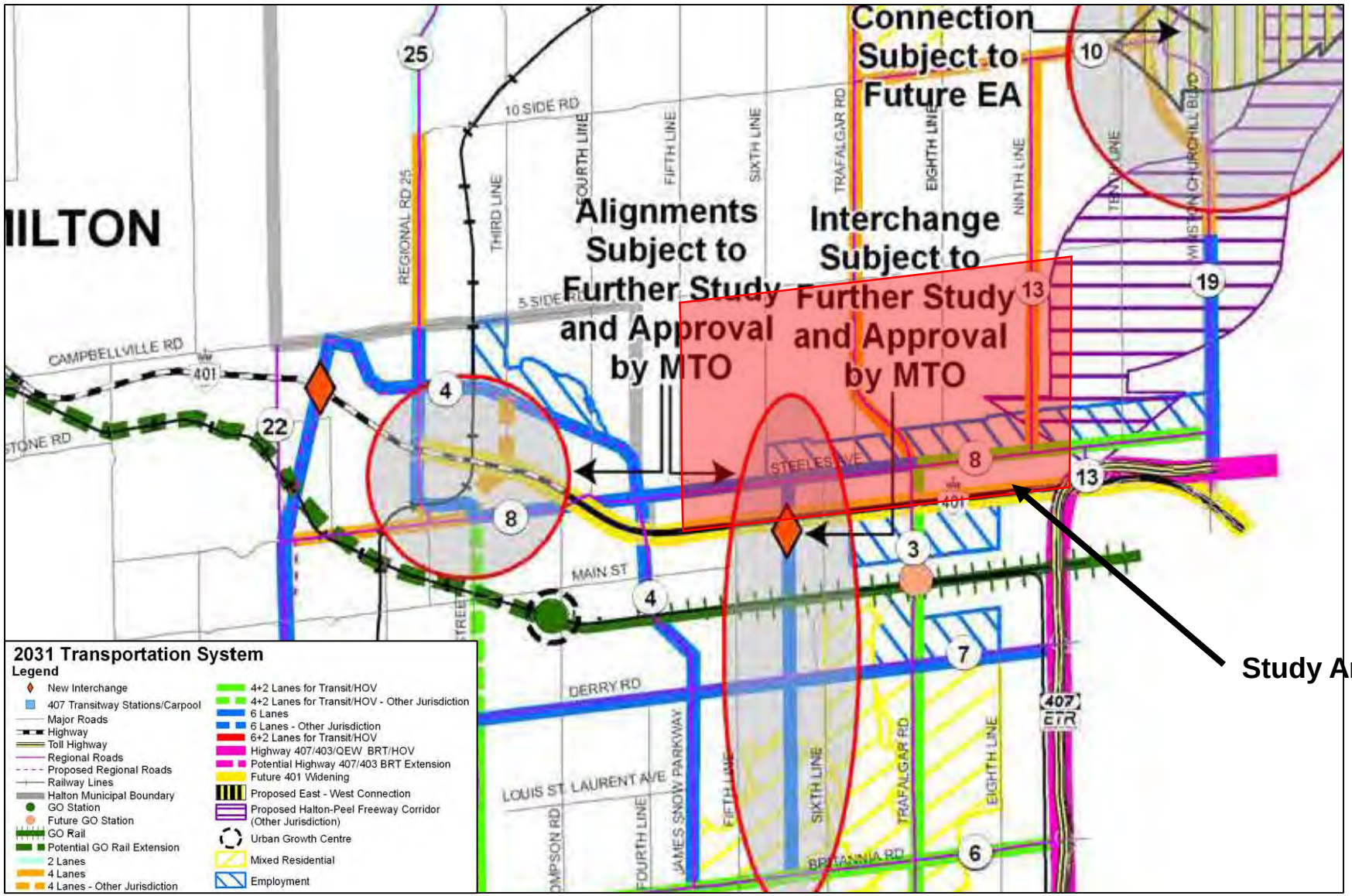
The Halton Region Transportation Master Plan (TMP)[1] – The Road to Change identifies the transportation policies, programs and infrastructure improvements required to support planned growth in Halton Region to the year 2031. The plan defines a sustainable, integrated transportation system that considers all modes of travel (automobiles, transit, cycling, walking) and supports the policies and objectives arising out of the Halton Region Official Plan Review (ROPA 38).

Figure 1.3 illustrates the proposed transportation network improvements identified in the TMP near the Study Area, which include:

- **Road Improvements:**
  - Widening of Steeles Avenue from 4 to 6 lanes from Regional Road 25 to Trafalgar Road beginning in 2025 (assumed complete by 2031), and addition of 2 transit (HOV) lanes from Trafalgar Road to Winston Churchill Boulevard.
  - Widening of Trafalgar Road to 4 lanes from Steeles Avenue to Highway 7.
  - New 6-lane road corridor between Fifth and Sixth Lines, running from Steeles Avenue to Britannia Road (known as 5½ Line).
- **Transit** – The TMP recommends that transit-supportive land uses and densities be implemented among high priority and semi-exclusive transit corridors, such as Steeles Avenue. Additionally, the TMP assumes a significant increase in intra-regional transit, relying on the improvements recommended in the Metrolinx Regional Transportation Plan[2].
- **Transportation Demand Management (TDM)** – The TMP targets a 3% reduction in auto trips through the implementation of TDM.

[1] Dillon Consulting and GHD, The Road to Change – Halton Region Transportation Master Plan, October 2011

[2] Metrolinx, The Big Move: Metrolinx Regional Transportation Plan, November 2008



Excerpt from Halton Region Transportation Master Plan

1.3.2 Halton Region Active Transportation Master Plan

In 2015, Halton Region released its Active Transportation Master Plan[3], which outlines the strategy, policies, infrastructure, programs and initiatives needed to achieve the active transportation targets for 2031 outlined in their TMP. This plan recommends the development of regional walking and cycling networks along major regional roads, as well as the creation of councils and education programs to promote the use of active transportation with Halton Region.

The Halton Region Active Transportation Master Plan recommends the following initiatives within the Study Area:

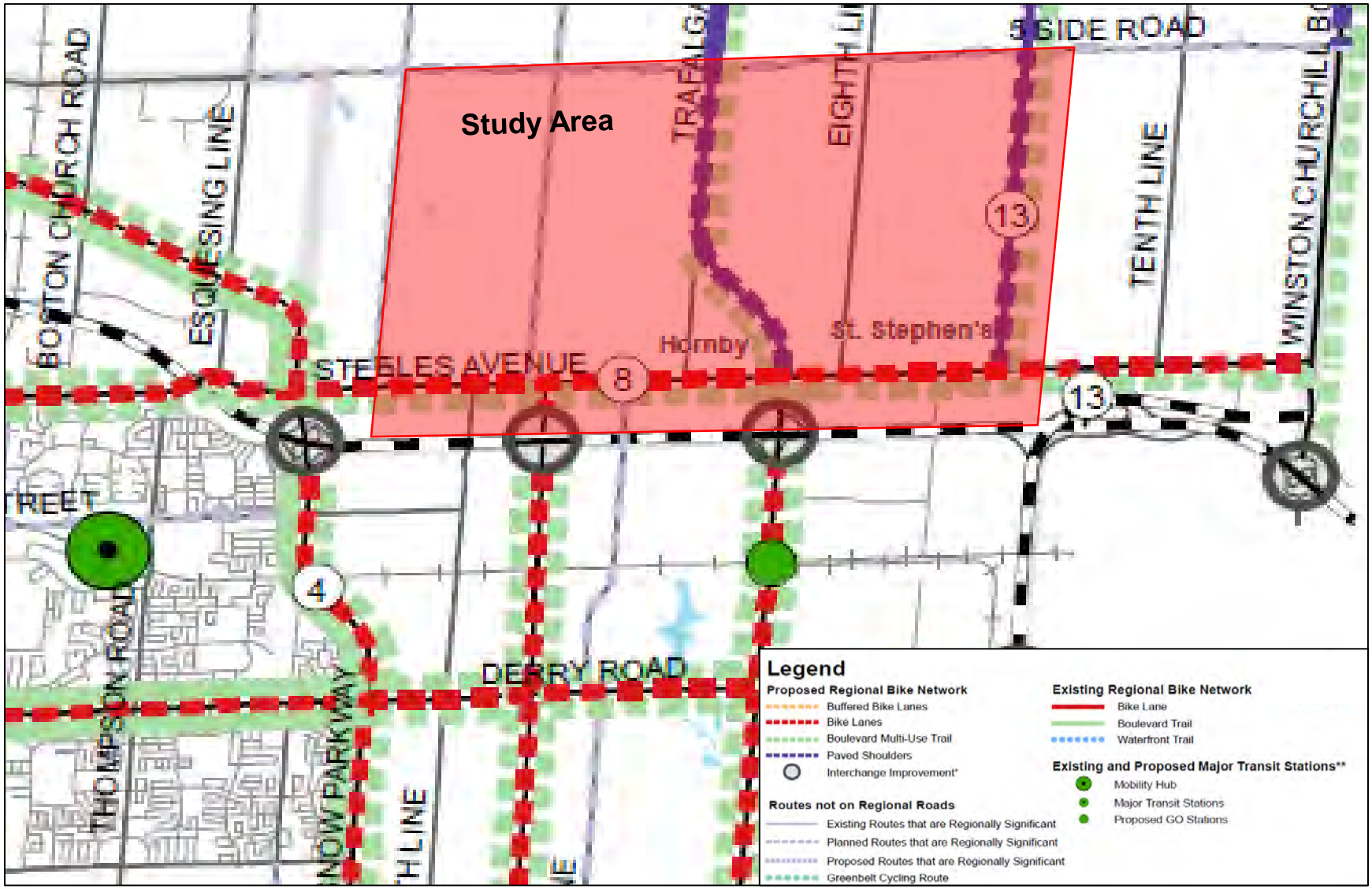
- **Regional Cycling Network** – Bike Lanes and Boulevard Multi-Use Trails along Steeles Avenue and Sixth Line (south of Steeles Avenue), and a Multi-Use Trail on Trafalgar Road (north of Steeles Avenue), as depicted in **Figure 1.4**.
- **Regional Walking Network** – Sidewalks and Boulevard Multi-Use Trails along Steeles Avenue, as shown in **Figure 1.5**.

1.3.3 Halton Region Mobility Management Strategy

Approved in February 2017, the Mobility Management Strategy (MMS) for Halton[4] is intended to guide the evolution of the Region's immediate and longer-term transportation system to the year 2031 in alignment with provincial, regional and local transportation plans. The MMS also provides a framework and key inputs that can be further positioned to influence and shape the development of other ongoing initiatives.

The MMS is based on the principle of Mobility-as-a-Service and focuses on an interconnected, multi-modal transportation system that offers users options to travel between an origin and a destination using the most efficient or desirable means such as transit, active transportation or ridesharing/ hailing. Key outcomes of the MMS include a proposed region-wide Transit Priority Mobility Network, a review of Major Transit Station Areas to prioritize projects to unlock the economic potential of these areas, and the identification of supporting transit-related studies to be funded by Halton Region and undertaken by the local municipalities beginning in 2017.

[3] IBI Group, Halton Region Active Transportation Master Plan, May 2015
[4] WSP/MMM Group, Mobility Management Strategy for Halton, December 2016



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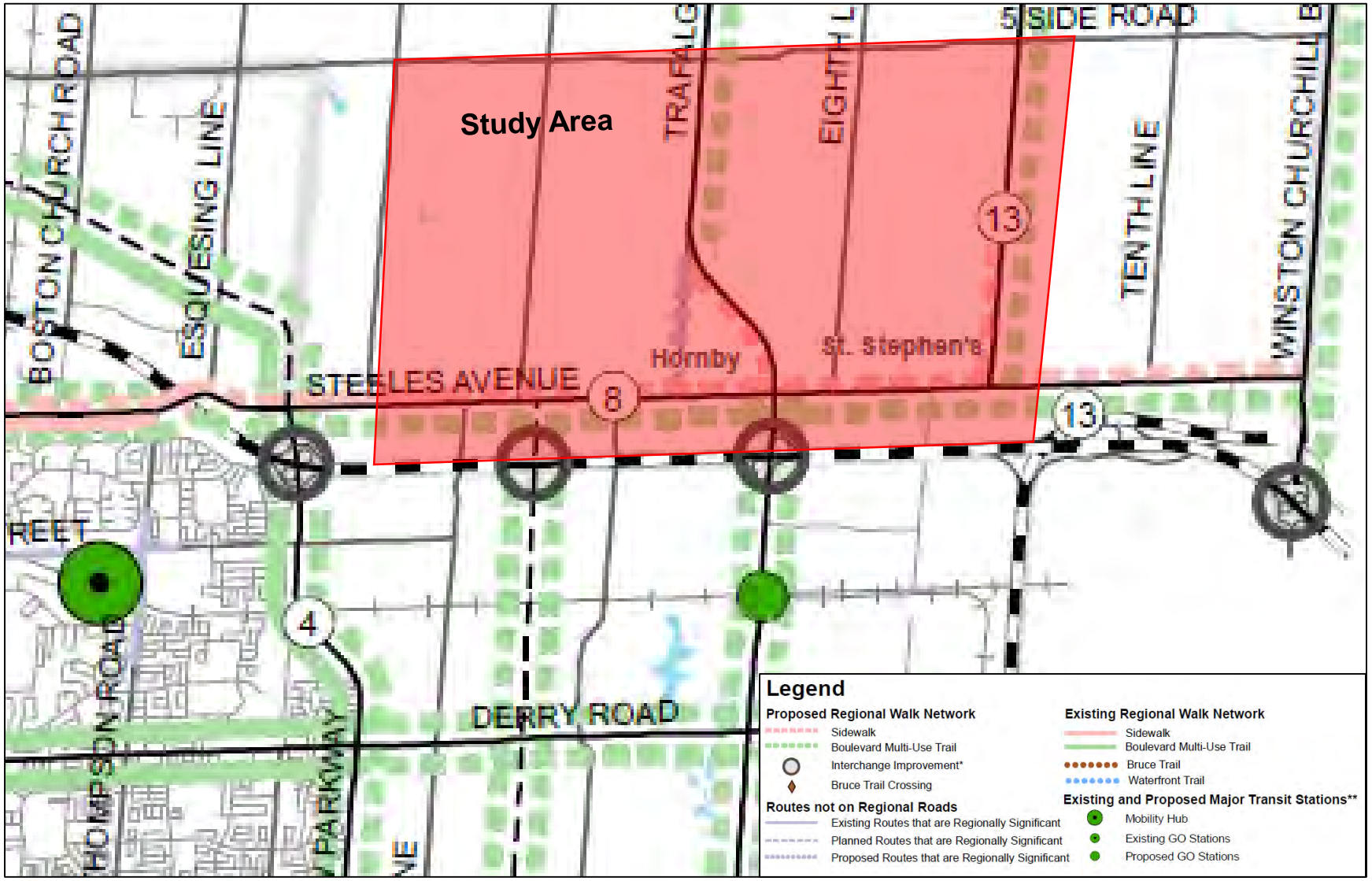
Excerpt from Halton Region Active Transportation Master Plan – Cycling Network



Excerpt from Halton Region Active Transportation Master Plan – Walking Network

As **Figure 1.6** illustrates, the MMS identifies Transit Priority Corridors along Steeles Avenue and Trafalgar Road and a Proposed Transit Node at the intersection of the two corridors, in addition to a Commuter Lot at the Highway 401 and Trafalgar Road interchange, within the Study Area. A Regional Transit Node with a Future GO Rail Station is denoted immediately south of the Study Area on Trafalgar Road where the Milton GO Rail service crosses the Transit Priority Corridor.

1.3.4 Town of Halton Hills Transportation Master Plan

The 2011 Town of Halton Hills Transportation Master Plan[5] provides the strategies, policies and tools required to safely, effectively and cost efficiently meet the Town's transportation needs to the year 2031. The plan identifies an optimum transportation system that can accommodate the transportation needs of existing and future development within the municipality, including policies to promote transit and TDM.

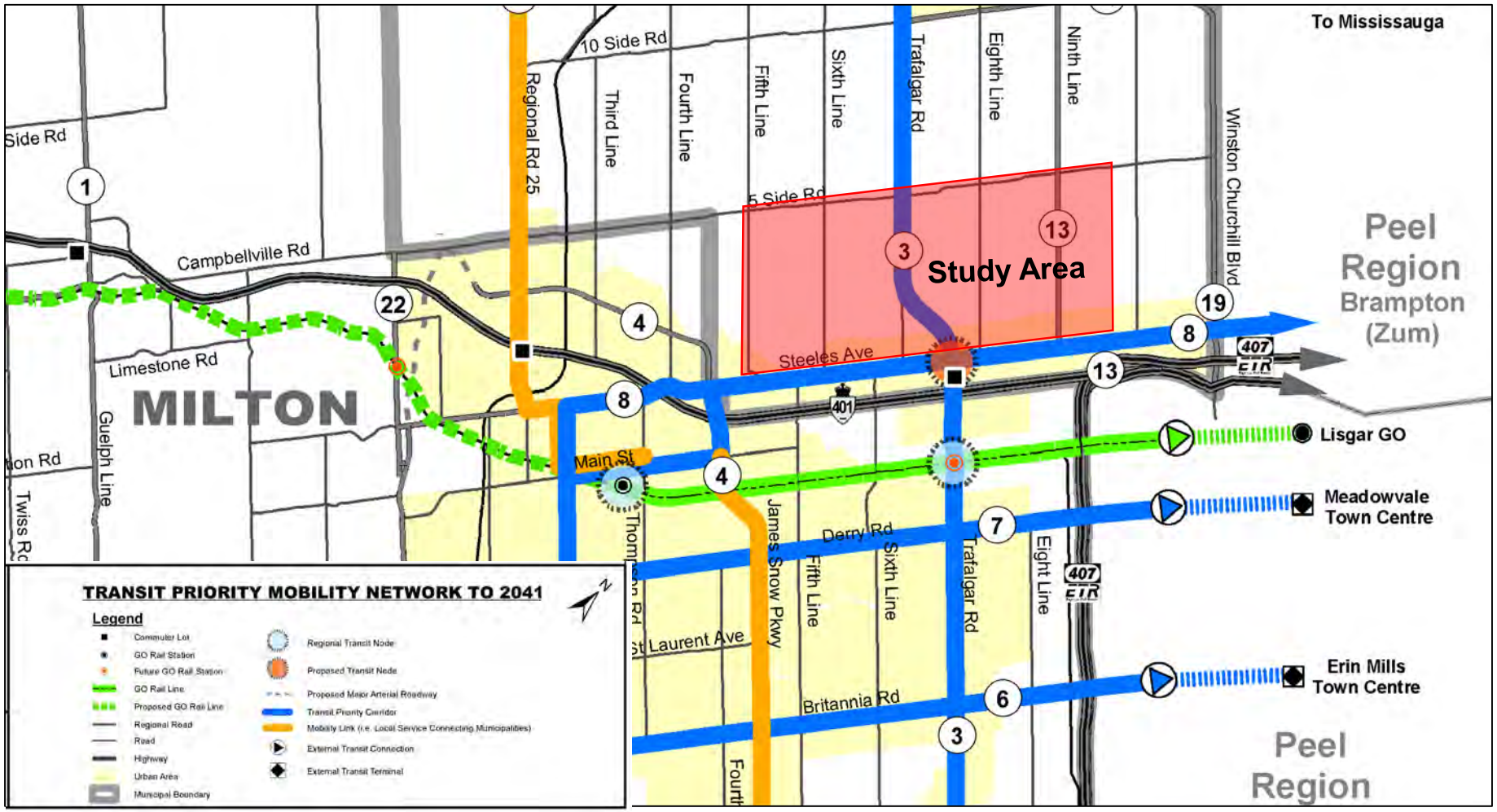
1.3.5 Town of Halton Hills Cycling Master Plan

The 2010 Town of Halton Hills Cycling Master Plan[6] establishes short, mid and long-term actions and recommendations that support and encourage an improved level of cycling activity for residents and visitors within the Town. The plan provides a comprehensive, two-tiered Town-wide cycling network of both on-road and off-road routes, and outlines cycling supportive programs to the year 2021.

Within the Study Area, Steeles Avenue has been identified as an on-road component of the cycling network consistent with the Halton Region Active Transportation Master Plan.

5 Hatch Mott MacDonald and Halcrow, Town of Halton Hills Transportation Master Plan, November 2011

6 MMM Group, Town of Halton Hills Cycling Master Plan, December 2010



Excerpt from Mobility Management Strategy for Halton

1.3.6 Trafalgar Road Corridor Study

In 2016, Halton Region completed a Schedule C Municipal Class EA for the Trafalgar Road corridor from Steeles Avenue to Highway 7[7]. The recommended undertaking for Trafalgar Road between Steeles Avenue and north of 10 Side Road includes:

- Widening Trafalgar Road from 2 to 4 lanes to adjoin the existing 4-lane section at Steeles Avenue, as well as the intersection at 5 Side Road.
- Providing active transportation facilities, as follows:
  - From Steeles Avenue to Hornby Road: 3.0 metre bi-directional multi-use path on the east side, 1.8 metre exclusive bike lane on the east side, 1.5 m paved shoulder on the west side available for use by cyclists.
  - From Hornby Road to north of 10 Side Road: 3.0 metre bi-directional multiuse path on the east side only and with 1.5 metre paved shoulder in each direction.

1.3.7 Ninth Line Corridor Study

In 2014, the Halton Region undertook a Municipal Class EA for the Ninth Line corridor from Highway 407 to 10 Sideroad[8]. The technically preferred design involves:

- Widening Ninth Line from 2 to 4 lanes, with auxiliary left turn lanes at 5 Side Road.
- Providing for cyclists and pedestrians in the form of 1.5 metre on-road bicycle lanes on both sides, and a 3.0 metre multi-use path on one side of the road.

The study also recommended that Ninth Line North and South (of Steeles Avenue) not be realigned due to the development freeze placed on the Premier Development Gateway Employment Area through Regional Official Plan Amendment 43 and Town of Halton Hills Official Plan Amendment 21. The report suggested that “the Region and the Town of Halton Hills may decide to assess this option in the future when more is known about the route that the GTA West corridor will take and the development freeze is lifted”[9].

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7 MMM Group, Trafalgar Road EA – Steeles Avenue to Highway 7, July 2016

8 UEM, Class ‘C’ EA – Ninth Line Transportation Corridor Improvements from Highway 407 to 10 Side Road (Regional Road 10), May 2016

9 Ibid, p. 106

1.3.8 Highway 401 Expansion Project

On March 7, 2018, Infrastructure Ontario (IO) and MTO issued a request for proposals to three prequalified teams to design, build and finance the Highway 401 Expansion Project. The project involves widening of the 18- kilometre section of Highway 401 between the Credit River in Mississauga and Regional Road 25 in Milton from the existing six lane configuration to the following:

- 12 lane core-collector system from the Credit River to Winston Churchill Boulevard
- 10 lanes from Winston Churchill Boulevard to the Highway 407 ETR/ Highway 401 interchange
- 12 lane core-collector system from the Highway 407 ETR/ Highway 401 interchange to James Snow Parkway
- 10 lanes from the James Snow Parkway to Regional Road 25
- Median High Occupancy Vehicle lanes
- Support facilities and features – drainage, lighting, signage, ATMS, carpool lots

1.4 Technical Analysis Approach

1.4.1 Methodology

The technical analyses for the study were conducted following the Halton Region Transportation Impact Study Guidelines (January 2015) (Town of Halton Hills follows the same guidelines). The general methodology for completing the analyses is summarized as follows:

1. Establish base year traffic volumes for the Study Area intersections shown in **Figure 1.2** for the AM, PM and Saturday peak hours based on observed count information (herein referred to as Existing Conditions).

2. Factor base year traffic volumes (Existing Conditions) to 2021 and 2031 horizon years using an average annual growth rate derived from the Halton Region Transportation Model. Add on traffic generated by other planned/potential development within the Study Area.

3. Estimate traffic generated by the Premier Gateway Phase 1B Employment Area land uses based on data provided in the

Institute of Transportation Engineers Trip Generation Manual[10]. Assign the trips to the Study Area road network. Add on the future background volumes to determine total traffic volumes for the 2021 and 2031 horizon years (herein referred to as Future Conditions).

4. Analyze Existing and Future Conditions for the Study Area intersections to identify road network improvements required to serve the proposed development.

5. Assess the transportation implications of specific development initiatives and any improvement/phasing requirements following Steps 3 and 4 to estimate and analyze the traffic generated by the subject development.

1.4.2 Traffic Model Development

The analyses were completed using Synchro 9 and VISSIM models calibrated to base year AM, PM and Saturday peak hour traffic conditions. Volumes between all intersections were balanced and used to determine the vehicle inputs and outputs for the models. Static vehicle routing was utilized and based upon the existing traffic distribution.

Appendix A details the VISSIM model calibration and validation process and Synchro and SimTraffic parameters used in the analysis.

[10] Institute of Transportation Engineers, Trip Generation Manual, 9th Edition, 2012, Washington, D.C.

2 Existing Transportation Conditions

This chapter summarizes existing transportation conditions within the Study Area, identifying existing deficiencies and providing the basis for the comparison of horizon year scenario impacts.

2.1 Existing System

2.1.1 Roads

The main roadways in the Study Area include:

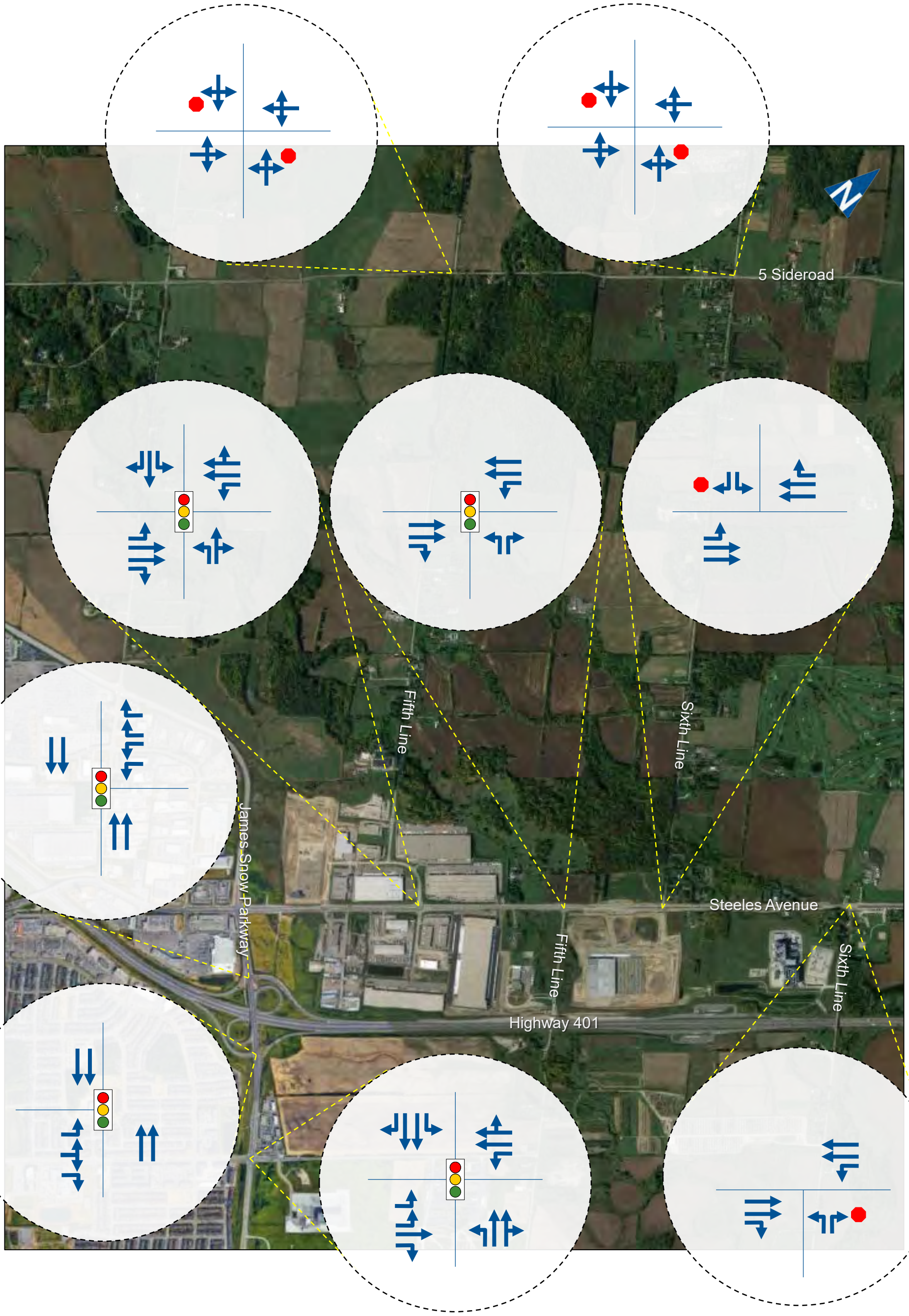
- **Steeles Avenue (Halton Regional Road 8)**, which is an east-west arterial road under Halton Region jurisdiction with a four-lane cross-section through most of the Study Area. Steeles Avenue connects to Mississauga and Brampton in the east and Milton in the west. The posted speed limit is 60 kilometres per hour. Key intersections along Steeles Avenue within the Study Area include Fifth Line, Trafalgar Road and Eighth Line.
- **Trafalgar Road (Halton Regional Road 3)**, which is a north-south arterial road under Halton Region jurisdiction with a two-lane cross-section from 400 metres north of Steeles Avenue northwards, and a four-lane cross-section through the remainder of the Study Area. Trafalgar Road connects to Georgetown in the north and Mississauga and Oakville in the south. The posted speed limit ranges from 60 to 80 kilometres per hour. Key intersections along Trafalgar Road within the Study Area include Steeles Avenue and 5 Sideroad.
- **Ninth Line North and South (Halton Regional Road 13)**, which is a north-south arterial road under Halton Region jurisdiction with a two-lane cross-section. Ninth Line jogs at Steeles Avenue by about 850 metres and provides access to local residential and agricultural properties and connects to Georgetown in the north. The posted speed limit is 80 kilometres per hour. Key intersections along Ninth Line within the Study Area include Steeles Avenue and 5 Sideroad.
- **Fifth Line North/Brownridge Road**, which is a north-south local road under Town of Halton Hills jurisdiction with a two-lane cross-section. Fifth Line North (north of Steeles Avenue) is predominantly rural, providing access to local residential and agricultural properties. Brownridge Road (south of Steeles Avenue) is an urban cross-section and provides access to various industrial properties. The posted speed limit is 50 and 60 kilometres per hour.

- **Fifth Line South**, which is a north-south local road under Town of Halton Hills jurisdiction with a two-lane cross-section. Fifth Line South travels under Highway 401 and is predominately rural, providing access to local residential and agricultural properties. The posted speed limit is 60 kilometres per hour.
- **Sixth Line North and South**, which is a north-south local road under Town of Halton Hills jurisdiction with a two-lane cross-section. Sixth Line jogs at Steeles Avenue by about 900 metres and predominantly provides access to local residential and agricultural properties. The posted speed limit is 70 kilometres per hour.
- **Hornby Road**, which is a north-south local road under Town of Halton Hills jurisdiction with a two-lane cross-section. Hornby Road provides access to local residential dwellings and the Hornby Glen Golf Course and connects to Trafalgar Road at its north limit. The posted speed limit is 60 kilometres per hour.
- **Eighth Line North and South**, which is a north-south local road under Town of Halton Hills jurisdiction with a two-lane cross-section. Eighth Line jogs at Steeles Avenue by about 900 metres and provides access to local residential and agricultural properties and connects to Georgetown in the north. The posted speed limit is 70 kilometres per hour.
- **5 Sideroad**, which is an east-west local road under Town of Halton Hills jurisdiction with a two-lane cross-section. 5 Sideroad connects to northern Milton in the west and Brampton in the east. The posted speed limit ranges from 50 to 80 kilometres per hour.

Figure 2.1 shows the lane configurations and traffic control provisions for the intersections within the Study Area.

Other roadways within broader analysis area included:

- **King's Highway 401**, which is an east-west controlled-access freeway under MTO jurisdiction with a six-lane cross-section (and speed change lanes) through the Study Area. The highway has interchanges with James Snow Parkway, Trafalgar Road, Highway 407 ETR and Winston Churchill Boulevard within the area. The posted speed limit is 100 kilometres per hour.
- **Highway 407 ETR**, which is an east-west/north-south controlled-access, tolled freeway operated by 407 ETR Concession Company Limited with a six-lane cross-section (and speed change lanes) through the Study Area. The highway has an interchange with Highway 401 within the area. The posted speed limit is 100 kilometres per hour.



Existing Lane Configuration and Traffic Control (1/3)

Premier Gateway West Scoped Area Transportation Study
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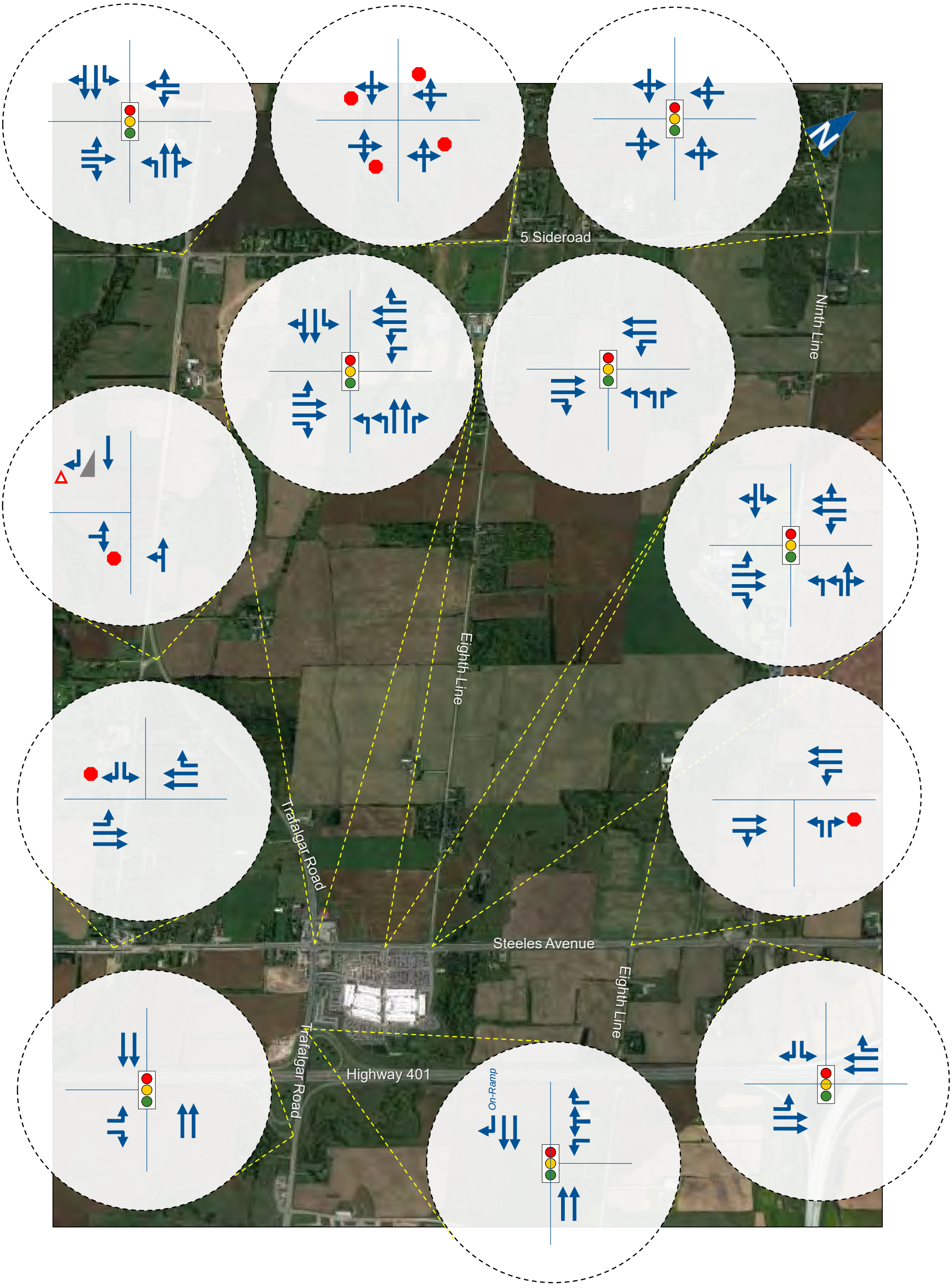
Figure 2.1



Existing Lane Configuration and Traffic Control (2/3)

Premier Gateway West Scoped Area Transportation Study
170050

Figure 2.1

Existing Lane Configuration and Traffic Control (3/3)

Premier Gateway West Scoped Area Transportation Study
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Figure 2.1

- **Winston Churchill Boulevard (Peel Regional Road 19)**, which is a north-south arterial road under Peel Region jurisdiction with a four-lane cross-section through the Study Area. The road has an interchange with Highway 401 within the area. The posted speed limit is 60 kilometres per hour.
- **James Snow Parkway (Halton Regional Road 4)**, which is a north-south arterial road under Halton Region jurisdiction with a four-lane cross-section through the Study Area. The road has an interchange with Highway 401 within the area. The posted speed limit is 60 kilometres per hour.

2.1.2 Transit

The Town of Halton Hills does not currently provide conventional transit services within the municipality. “ActiVan” Accessible Transit service is available for both seniors age 65 and older, and individual with disabilities living within Halton Hills. The service operates Monday through Friday from 8:30 AM to 4:30 PM.

A carpool lot operated by MTO is temporarily located on the east side of Trafalgar Road on the Toronto Premium Outlets property. The lot is being relocated to the west side of the road with the planned Highway 401 widening project.

2.1.3 Active Transportation

The only pedestrian and cycling infrastructure within the Study Area is located along Steeles Avenue between Fifth Line North/Brownridge Road and about 400 metres east of Eighth Line. A multi-use path exists/is being constructed on the south side of the road. A concrete sidewalk is in place/being constructed on the north side.

2.2 Existing Traffic Volumes and Other Data

Paradigm conducted a comprehensive traffic data collection program in May 2017 to provide a common baseline for model calibration and operational analysis. The data include:

- AM, PM and Saturday peak period turning movement counts at most intersections within the Study Area
- AM, PM and Saturday peak period Highway 401 mainline traffic volumes, travel times and speeds
- Posted maximum speed limits
- Intersection traffic control signal timings

At locations where traffic counts were not collected, data from recent studies or provided by Halton Region were used and balanced with volumes for adjacent intersections to estimate the base year condition. **Table 2.1** provides the dates of the turning movement counts used in the study.

MTO provided historical data for the Highway 401 mainline (link volumes and travel times) to validate the information gathered through the May 2017 collection program. The collected data for the AM and Saturday peak periods closely matched the MTO data. For the PM peak period, collected volumes were found to be about 15% lower than the MTO data. To address this discrepancy, the Highway 401 mainline volumes used in the models were increased by this percentage in both travel directions. The VISSIM Model Calibration and Validation Report in **Appendix A** documents the comparison of the MTO and collected traffic data.

Figure 2.2 shows the existing AM, PM and Saturday peak hour traffic volumes for the Study Area intersections. **Appendix B** contains the detailed traffic counts.

2.3 Existing Traffic Conditions

2.3.1 Methodology

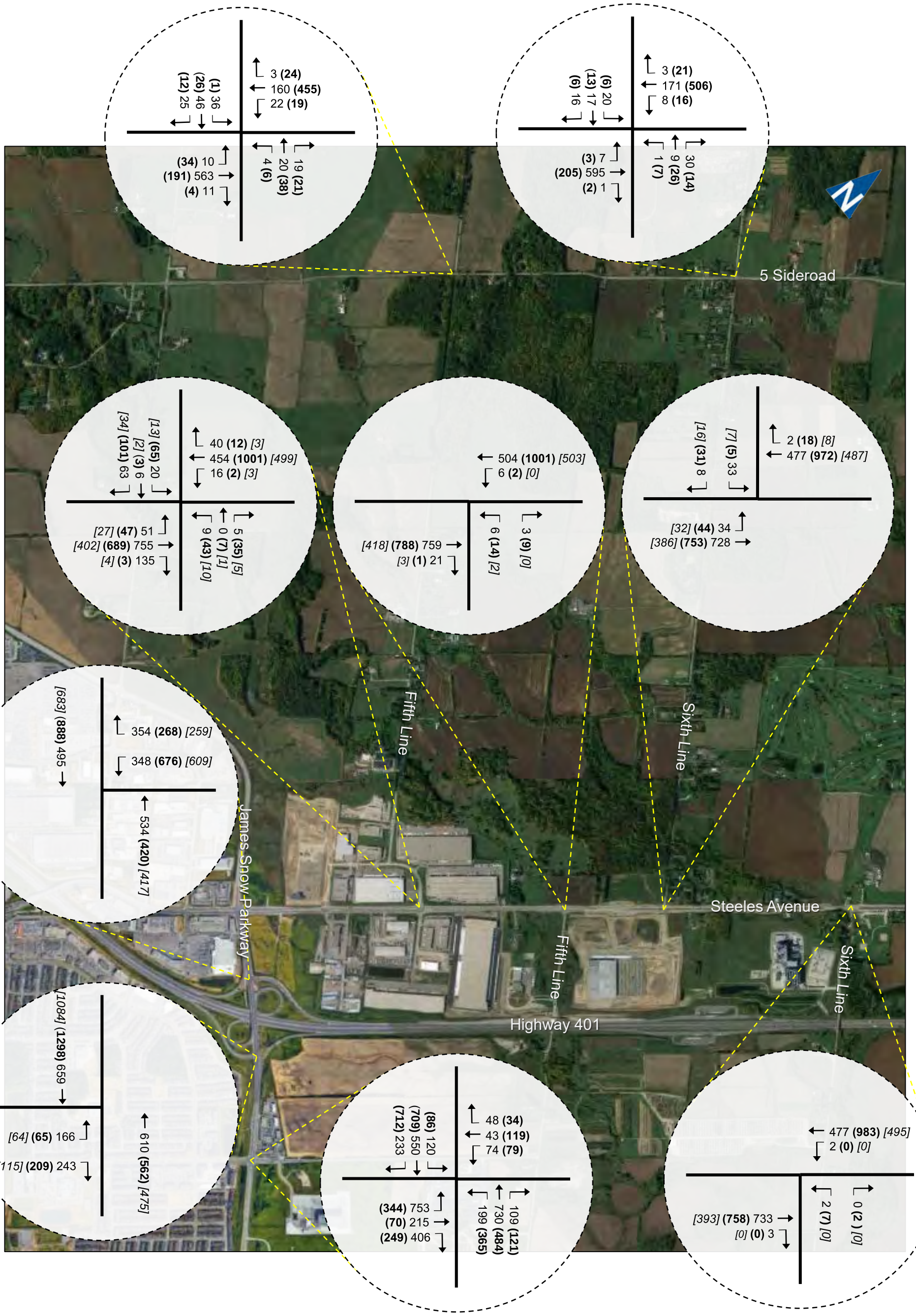
Intersection capacity analyses were completed for intersections within the Study Area to assess existing and future operating conditions, identify potential traffic impacts due to the proposed Premier Gateway Phase 1B Employment Area and other development, and confirm future infrastructure requirements. The analyses were undertaken based on Highway Capacity Manual (HCM) methodologies and used Synchro 9 software.

Signalized Intersections

For signalized intersections, operation analysis focuses on performance measures such as level of service (LOS), volume-to-capacity ratios (v/c) and control delay (measured in seconds). LOS is a qualitative measure of operational performance based on control delay. LOS A is represented by a control delay of less than 10 seconds per vehicles (referred to as free-flow operating conditions), while LOS F is represented by a control delay greater than 80 seconds per vehicles (referred to as restricted flow operating conditions). In determining the LOS performance for signalized intersections, the average control delay per vehicle is estimated for each lane group and aggregated for each approach and for the entire intersection.

TABLE 2.1: TRAFFIC COUNT DATES

Intersection	Count Date	
	Weekday	Saturday
Steeles Avenue & Fifth Line North/Brownridge Road	2017-05-04	2017-05-06
Steeles Avenue & Fifth Line South	2017-05-04	2017-05-06
Steeles Avenue & Sixth Line	2017-05-16	2017-05-13
Steeles Avenue & Sixth Line South	2014-11-04	
Steeles Avenue & Hornby Road	2017-05-04	2017-05-06
Steeles Avenue & Trafalgar Road	2017-05-16	2017-05-13
Steeles Avenue & Toronto Premium Outlets	2016-12-13	
Steeles Avenue & Eighth Line/Toronto Premium Outlets	2017-05-04	2017-05-06
Steeles Avenue & Eighth Line South	2017-05-04	2017-05-06
Steeles Avenue & Ninth Line	2017-05-04	2017-05-06
Steeles Avenue & Ninth Line South	2017-05-04	2017-05-06
Trafalgar Road & Hornby Road	2017-05-04	2017-05-06
Trafalgar Road & Highway 401 North Ramp Terminal	2017-05-04	2017-05-06
Trafalgar Road & Highway 401 South Ramp Terminal	2017-05-04	2017-05-06
James Snow Parkway & Highway 401 North Ramp Terminal	2017-05-04	2017-05-06
James Snow Parkway & Highway 401 South Ramp Terminal	2017-05-04	2017-05-06
Winston Churchill Boulevard & Highway 401 North Ramp Terminal	2017-05-04	2017-05-06
Winston Churchill Boulevard & Highway 401 South Ramp Terminal	2017-05-04	2017-05-06
James Snow Parkway & Main Street East	2016-11-08	
5 Sideroad & Fifth Line	2016-12-13	
5 Sideroad & Sixth Line	2016-12-13	
5 Sideroad & Trafalgar Road	2015-05-27	
5 Sideroad & Eighth Line	2014-09-23	
5 Sideroad & Ninth Line	2015-05-26	



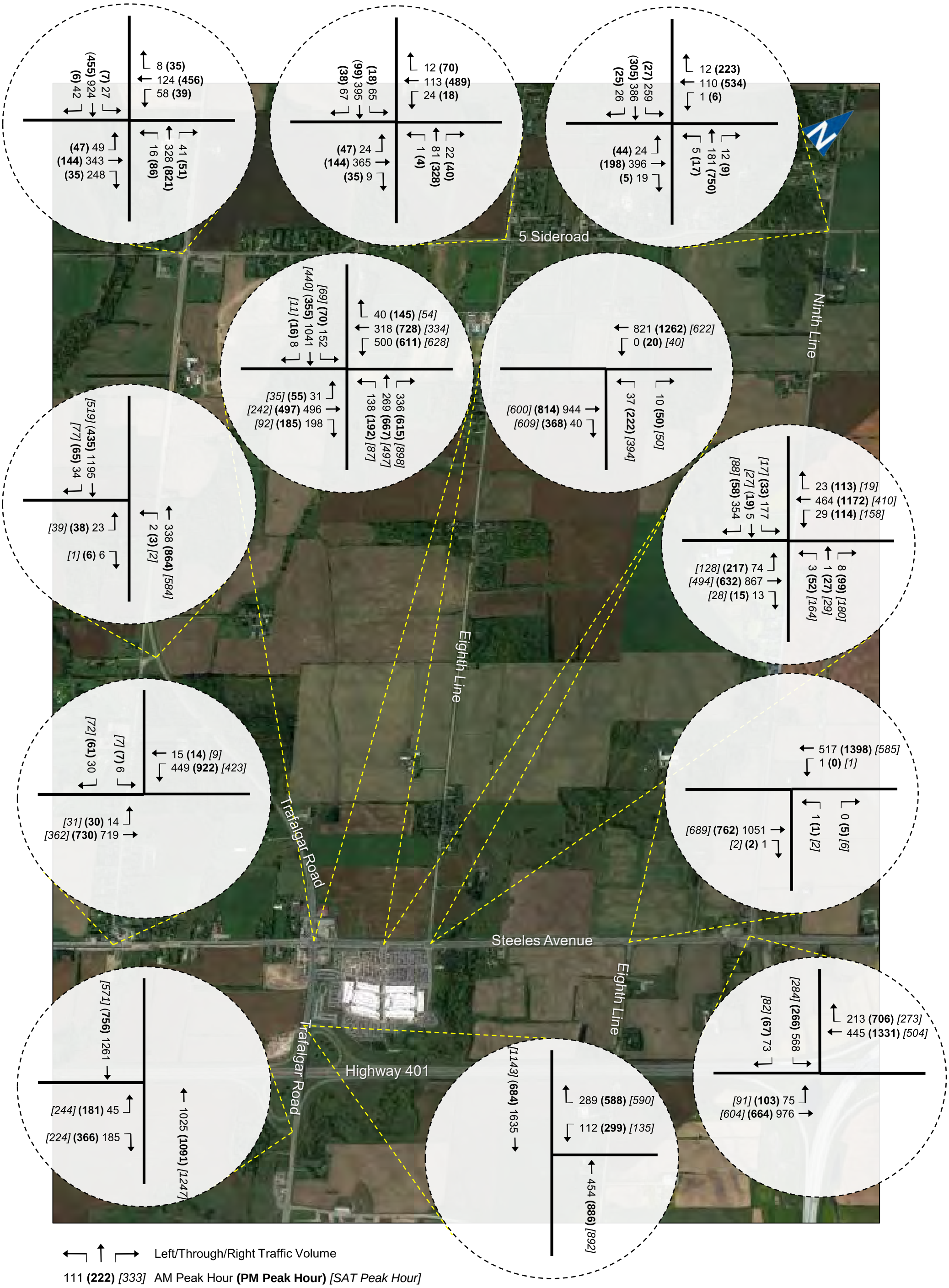
← ↑ → Left/Through/Right Traffic Volume

111 **(222)** *[333]* AM Peak Hour **(PM Peak Hour)** *[SAT Peak Hour]*

Existing Traffic Volumes (1/3)

Premier Gateway West Scoped Area Transportation Study
170050

Figure 2.2



Left/Through/Right Traffic Volume

111 **(222)** *[333]* AM Peak Hour **(PM Peak Hour)** *[SAT Peak Hour]*

paradigm TRANSPORTATION SOLUTIONS LIMITED

Existing Traffic Volumes (2/3)

Existing Traffic Volumes (3/3)

Table 2.2 provides the criteria specified in the Halton Region Transportation Impact Study Guidelines for determining acceptable signalized intersection operations. Individual movements experiencing a v/c ratio greater than the values specified in the table are deemed to be "critical" in terms of operation, indicating that the movement may be considered for geometric or other improvement, such as signal optimization.

TABLE 2.2: CRITICAL MOVEMENT CRITERIA

Jurisdiction	Critical Movement Criteria	
	Signalized Intersection	Unsignalized Intersection
Halton Region	Through >0.85	LOS on Individual Movements > D
	Shared Through/ Turning >0.85	95th Percentile Queue > Exceed Storage
	Exclusive Turn >0.95	
	95th Percentile Queue > Exceed Storage	
Town of Halton Hills	Same as Halton Region	Same as Halton Region

Unsignalized Intersections

For unsignalized intersections, LOS is determined by the computed or measured control delay and is defined for each minor ("critical") movement. In determining the performance of unsignalized intersections, the average control delay per vehicle is estimated for each lane group and aggregated for each approach. Control delay includes the initial deceleration delay, queue move-up time, stopped delay and the final acceleration delay. The LOS criteria for unsignalized intersections are somewhat different than the criteria used for signalized intersections, primarily because different transportation facilities create different driver perceptions. The expectation is that a signalized intersection is designed to carry higher volumes of traffic and experience greater delay than that of an unsignalized intersection.

Table 2.2 also notes the criteria specified in the Halton Region guidelines for determining acceptable unsignalized intersection operations. LOS F occurs where there are not enough gaps of suitable size to allow the minor street demand to safely cross, turn into or through, traffic on the major street. This is evident from long control

delays experienced by minor street traffic and by queuing on the minor street approaches. LOS E represents effective capacity of a movement.

Caution should be exercised when using the HCM methodology to assess unsignalized intersections. Even under low-volume traffic conditions, the HCM delay equation will often predict greater than 50 seconds of delay (LOS F) for unsignalized intersections that permit minor street left-turn movements. LOS F is commonly predicted regardless of the volume of minor street left-turning traffic. The HCM notes that "even with a LOS F estimate, most low volume minor-street approaches would not meet any of the Manual on Uniform Traffic Control Devices (MUTCD) volume or delay warrants for signalization. As a result, analysts that use the HCM level of service thresholds to determine the design adequacy of two-way stop controlled intersections should do so with caution."

2.3.2 Traffic Operations with Existing Lane Configurations

Intersection capacity analyses were undertaken to assess existing peak hour traffic conditions for the Study Area intersections with current lane configurations. **Appendix A** summarizes the parameters used in the analysis, which included:

- Heavy vehicle percentages as derived from the collected traffic counts.
- Current traffic signal timings for the signalized intersections as provided by Halton Region. Signal timings for the Steeles Avenue and Fifth Line South intersection were not available, so were assumed based on the timings for the surrounding intersections.
- Synchro default values for all other inputs.

Table 2.3, **Table 2.4** and **Table 2.5** summarize the analysis results for the existing AM, PM and Saturday peak hour traffic volumes, respectively. The tables denote LOS and delay by intersection approach. **Appendix C** contains the detailed Synchro output reports.

Overall, the Study Area intersections currently operate with satisfactory levels of service (no LOS F) and within capacity (v/c <= 1.0) for all three peak hours analyzed, except for 5 Sideroad and Ninth Line during the PM peak hour (v/c = 1.02). A few approaches experience less than satisfactory levels of service (LOS F) and delay. The following critical movements were identified:

- Steeles Avenue and Trafalgar Road:
  - The westbound left movement operates at LOS F (v/c = 1.30) during the AM peak hour.
- Steeles Avenue and Eighth Line/Toronto Premium Outlets:
  - The westbound shared through-right movement operates at LOS D (v/c = 0.99) during the PM peak hour.
  - The southbound left-turn lane 95th percentile queue length exceeds available storage during the AM peak hour.
- 5 Sideroad and Eighth Line:
  - The westbound shared left/through/right movement operates at LOS F (v/c = 1.09) during the PM peak hour.
  - The southbound shared left/through/right movement operates at LOS E (v/c = 0.93) during the AM peak hour.
- 5 Sideroad and Ninth Line:
  - The westbound shared left/through/right movement operates at LOS F (v/c = 1.20) during the PM peak hour.
- Steeles Avenue and Sixth Line:
  - The southbound left movement operates at LOS E (v/c = 0.05) during the PM peak hour.

TABLE 2.3: EXISTING TRAFFIC OPERATIONS SUMMARY – AM PEAK HOUR

Intersection	Overall		Intersection Approach							
			EB		WB		NB		SB	
	LOS	v/c	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Signalized Intersections										
5 Sideroad & Trafalgar Rd.	C	0.59	D	35	C	31	B	12	B	15
5 Sideroad & Ninth Line	C	0.89	C	34	B	19	B	10	D	35
Steeles Ave. & Fifth Line/ Brownridge Rd.	A	0.35	A	4	A	4	C	32	C	33
Steeles Ave. & Fifth Line South	A	0.34	A	2	A	2	D	42	-	-
Steeles Ave. & Trafalgar Rd.	E	0.88	D	46	**F**	**135**	C	33	D	50
Steeles Ave. & TPO Access	B	0.37	B	16	B	15	C	22	-	-
Steeles Ave. & Eighth Line/TPO Access	C	0.59	B	15	B	15	C	28	D	47
Steeles Ave. & Ninth Line	C	0.79	C	31	C	30	-	-	C	26
Steeles Ave. & Ninth Line South	C	0.77	C	26	B	19	C	33	-	-
James Snow Pkwy. & Highway 401 North Terminal	B	0.45	-	-	C	20	B	11	B	10
James Snow Pkwy. & Highway 401 South Terminal	B	0.33	C	23	-	-	A	6	A	6
Trafalgar Rd. & Highway 401 North Terminal	B	0.63	-	-	D	49	A	3	A	6
Trafalgar Rd. & Highway 401 South Terminal	A	0.46	D	49	-	-	A	3	A	4
Winston Churchill Blvd. & Highway 401 North Terminal	B	0.54	-	-	E	58	A	8	A	8
Winston Churchill Blvd. & Highway 401 South Terminal	C	0.54	D	53	-	-	B	11	B	11
James Snow Pkwy. & Main St.	C	0.82	C	28	D	36	C	32	C	29
Unsignalized Intersections										
5 Sideroad & Fifth Line			A	< 1	A	1	C	18	C	22
5 Sideroad & Sixth Line			A	< 1	A	< 1	B	15	C	18
5 Sideroad & Eighth Line			D	26	B	13	B	12	E	45
Steeles Ave. & Sixth Line			A	< 1	A	< 1	-	-	B	14
Steeles Ave. & Sixth Line South			A	< 1	A	< 1	C	21	-	-
Steeles Ave. & Hornby Rd.			A	< 1	A	< 1	-	-	B	12
Trafalgar Rd. & Hornby Rd.			E	39	-	-	A	< 1	A	< 1
Steeles Ave. & Eighth Line South			A	< 1	A	< 1	D	31	-	-

TABLE 2.4: EXISTING TRAFFIC OPERATIONS SUMMARY – PM PEAK HOUR

Intersection	Overall		Intersection Approach							
			EB		WB		NB		SB	
	LOS	v/c	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Signalized Intersections										
5 Sideroad & Trafalgar Rd.	C	0.63	D	37	E	63	B	14	B	15
5 Sideroad & Ninth Line	E	**1.02**	C	23	**F**	**129**	C	32	B	15
Steeles Ave. & Fifth Line/ Brownridge Rd.	A	0.46	A	5	A	6	C	31	C	31
Steeles Ave. & Fifth Line South	A	0.40	A	3	A	3	D	41	-	-
Steeles Ave. & Trafalgar Rd.	D	0.74	D	47	D	42	D	42	D	39
Steeles Ave. & TPO Access	B	0.53	B	17	B	17	C	25	-	-
Steeles Ave. & Eighth Line/TPO Access	D	0.73	C	25	D	47	C	30	D	38
Steeles Ave. & Ninth Line	C	0.74	B	11	C	23	-	-	D	38
Steeles Ave. & Ninth Line South	C	0.94	C	29	C	31	C	35	-	-
James Snow Pkwy. & Highway 401 North Terminal	B	0.64	-	-	C	24	B	12	B	15
James Snow Pkwy. & Highway 401 South Terminal	A	0.50	C	29	-	-	A	5	A	7
Trafalgar Rd. & Highway 401 North Terminal	B	0.50	-	-	D	38	A	9	A	8
Trafalgar Rd. & Highway 401 South Terminal	B	0.45	D	43	-	-	A	5	A	4
Winston Churchill Blvd. & Highway 401 North Terminal	C	0.62	-	-	D	54	B	13	B	12
Winston Churchill Blvd. & Highway 401 South Terminal	B	0.69	E	62	-	-	B	11	A	9
James Snow Pkwy. & Main St.	C	0.81	C	35	C	35	B	20	C	28
Unsignalized Intersections										
5 Sideroad & Fifth Line			A	2	A	< 1	C	17	C	17
5 Sideroad & Sixth Line			A	< 1	A	< 1	C	16	C	17
5 Sideroad & Eighth Line			C	17	**F**	**91**	D	28	B	15
Steeles Ave. & Sixth Line			B	1	A	< 1	-	-	C	16
Steeles Ave. & Sixth Line South			A	< 1	A	< 1	D	26	-	-
Steeles Ave. & Hornby Rd.			A	< 1	A	< 1	-	-	C	16
Trafalgar Rd. & Hornby Rd.			C	20	-	-	A	< 1	A	< 1
Steeles Ave. & Eighth Line South			A	< 1	A	< 1	C	16	-	-

TABLE 2.5: EXISTING TRAFFIC OPERATIONS SUMMARY – SATURDAY PEAK HOUR

Intersection	Overall		Intersection Approach							
			EB		WB		NB		SB	
	LOS	v/c	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Signalized Intersections										
5 Sideroad & Trafalgar Rd.	Not Analyzed for Saturday Peak Hour									
5 Sideroad & Ninth Line										
Steeles Ave. & Fifth Line/ Brownridge Rd.	A	0.20	A	3	A	3	C	34	C	34
Steeles Ave. & Fifth Line South	A	0.19	A	2	A	2	D	39	-	-
Steeles Ave. & Trafalgar Rd.	D	0.81	D	46	E	68	D	44	C	29
Steeles Ave. & TPO Access	B	0.38	B	18	B	12	C	26	-	-
Steeles Ave. & Eighth Line/TPO Access	C	0.34	C	25	C	23	C	34	D	37
Steeles Ave. & Ninth Line	C	0.42	B	17	C	24	-	-	C	23
Steeles Ave. & Ninth Line South	B	0.48	C	25	B	15	B	17	-	-
James Snow Pkwy. & Highway 401 North Terminal	B	0.52	-	-	C	22	B	11	B	13
James Snow Pkwy. & Highway 401 South Terminal	A	0.40	C	30	-	-	A	4	A	5
Trafalgar Rd. & Highway 401 North Terminal	B	0.54	-	-	D	41	A	7	A	8
Trafalgar Rd. & Highway 401 South Terminal	B	0.54	D	47	-	-	A	6	A	4
Winston Churchill Blvd. & Highway 401 North Terminal	C	0.50	-	-	D	45	B	10	B	11
Winston Churchill Blvd. & Highway 401 South Terminal	B	0.43	D	48	-	-	A	5	A	5
James Snow Pkwy. & Main St.	Not Analyzed for Saturday Peak Hour									
Unsignalized Intersections										
5 Sideroad & Fifth Line	Not Analyzed for Saturday Peak Hour									
5 Sideroad & Sixth Line										
5 Sideroad & Eighth Line										
Steeles Ave. & Sixth Line			A	1	A	< 1	-	-	B	12
Steeles Ave. & Sixth Line South			A	< 1	A	< 1	A	< 1	-	-
Steeles Ave. & Hornby Rd.			A	1	A	< 1	-	-	B	11
Trafalgar Rd. & Hornby Rd.			C	19	-	-	A	< 1	A	< 1
Steeles Ave. & Eighth Line South			A	< 1	A	< 1	C	21	-	-

3 Transportation Analysis for Phase 1B Lands

This chapter summarizes the transportation analyses completed to identify the road network improvements required to serve the Premier Gateway Phase 1B Employment Area lands. The trip generation, trip distribution and background traffic growth assumptions summarized below were developed and reviewed with Halton Region and MTO during the study. The proposed assumptions were detailed in a memorandum submitted to the agencies in January 2018 and refined through subsequent dialogue.

3.1 Land Use Plan

Figure 3.1 illustrates the proposed Premier Gateway Phase 1B Employment Area land use plan. The entire Phase 1B secondary plan area encompasses about 300 hectares (741 acres) of land, with approximately 158.5 hectares planned for Prestige Industrial uses (391.7 acres) and 8.4 hectares proposed for Business Commercial uses (20.8 acres). The remaining lands are designated for natural environmental features and public infrastructure (e.g., roads, stormwater management facilities), in addition to existing residential uses along Sixth Line, Hornby Road and Eighth Line.

3.2 Road Network Assumptions

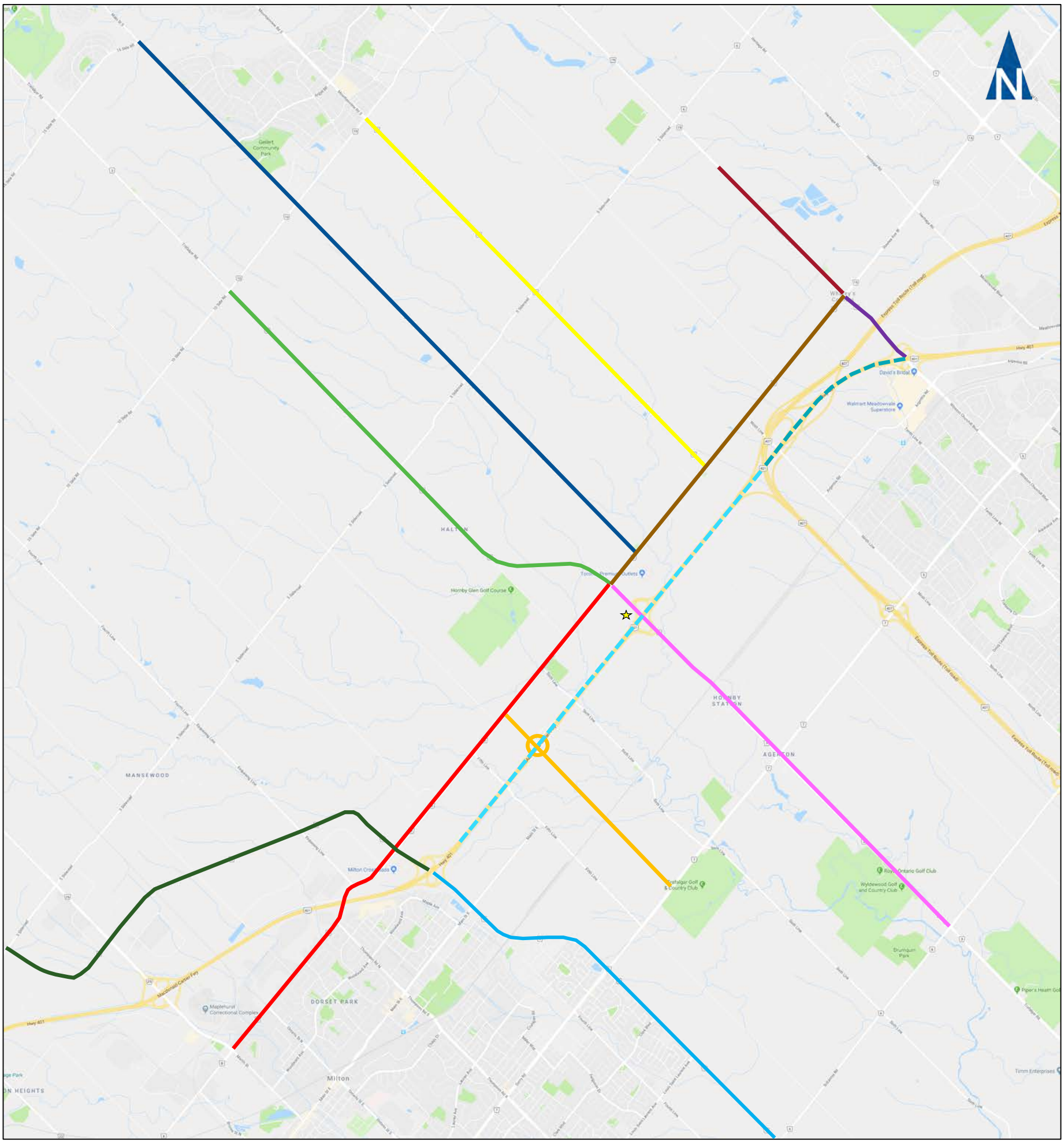
3.2.1 Planned Improvements

The following summarizes the road improvements planned by Halton Region, Peel Region and MTO within the Study Area by the 2021 and 2031 horizon years, which are described further in Section 1.3. The 2018-2031 Transportation Capital Forecast contained within the approved 2018 Halton Region Budget and Business Plan provided the anticipated year of construction for the Halton Regional Road projects:

Premier Gateway Phase 1B Employment Area Secondary Plan Land Use Plan

- By 2021:
  - Trafalgar Road (Halton Regional Road 3) widening from 2 to 4 lanes between Steeles Avenue and 10 Sideroad (2018)
  - Highway 401/Trafalgar Road Carpool Lot relocation to north-west side of new ramp alignment (2019)
  - Ninth Line (Halton Regional Road 13) widening from 2 to 4 lanes between Steeles Avenue and 10 Sideroad (2020)
  - Winston Churchill Boulevard (Peel Regional Road 19) widening from 4 to 6 lanes between Highway 401 and Steeles Avenue (2021)
- By 2031:
  - James Snow Parkway (Halton Regional Road 4) widening from 4 to 6 lanes between Britannia Road and Highway 401 (2023)
  - Steeles Avenue (Halton Regional Road 8) widening from 4 to 6 lanes between Regional Road 25 and Trafalgar Road (2024)
  - Steeles Avenue (Halton Regional Road 8) widening from 4 to 6 lanes (with Reserved Bus Lanes) between Trafalgar Road and Winston Churchill Boulevard (2028)
  - Trafalgar Road (Halton Regional Road 3) widening from 4 to 6 lanes between Britannia Road and Steeles Avenue (2030)
  - James Snow Parkway (Halton Regional Road 4) widening from 4 to 6 lanes between Highway 401 and 5 Side Road (2030)
  - Winston Churchill Boulevard (Peel Regional Road 19) widening from 5 to 7 lanes between Steeles Avenue and 2 km south of 5 Side Road/Embleton Road (2030)
  - Highway 401 widening from 6 to 10 lanes between Winston Churchill Boulevard and the Highway 407 ETR/Highway 401 interchange and from 6 to 12 lanes between the Highway 407 ETR/Highway 401 interchange and James Snow Parkway

Figure 3.2 illustrates the planned road improvements for the Study Area.



Roadway Improvements: (Dates indicate start of construction)

- 2018: Trafalgar Road (RR3): Widening – 2 to 4 lanes from Steeles Avenue to 10 Side Road
- 2019: MTO 401/Trafalgar Road carpool parking lot relocation from NE of existing off-ramp to NW side of new ramp alignment
- 2020: Ninth Line (RR13): Widening – 2 to 4 lanes from Steeles Avenue to 10 Side Road
- 2021: Winston Churchill Blvd. (RR19): Widening – 4 to 6 lanes from Highway 401 to Steeles Avenue
- 2022: Eighth Line: Widening – 2 to 4 lanes from Steeles Avenue to 15 Side Road
- 2023: James Snow Parkway (RR4): Widening – 4 to 6 lanes from Britannia Road to Highway 401
- 2024: Steeles Avenue (RR8): Widening – 4 to 6 lanes from Regional Road 25 to Trafalgar Road
- 2028: Steeles Avenue (RR8) Widening – 4 to 6 lanes from Trafalgar Road to Winston Churchill Boulevard
- 2030: Trafalgar Road (RR3): Widening – 4 to 6 lanes from Britannia Road to Steeles Avenue
- 2030: James Snow Parkway (RR4): Widening – 4 to 6 lanes from Highway 401 to 5 Side Road
- 2030: Winston Churchill Blvd. (RR19): Widening – 5 to 7 lanes from Steeles Avenue to 2km south 5 Side Road
- 2031: 5 ½ Line: New 6 lane road from Britannia Road to Steeles Avenue and Interchange at Highway 401

Timing Unknown:

- Highway 401: Widening from a 6 lane core to a 10 lane core from Winston Churchill Blvd. to 407 ETR I/C
- Highway 401: Widening from a 6 lane core to a 12 lane core-collector from 407 ETR I/C to east of James Snow Parkway

Planned Road Improvements