Angil Development Group Inc.

TRANSPORTATION IMPACT STUDY

Proposed Residential Development

12717 Ninth Line
Town of Whitchurch-Stouffville

August 2026

27022

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August 24, 2026 **Reference Number:** 27022

Angil Development Group Inc.
Yuanda Li
2710 14th Avenue
Markham, Ontario, L3R 0J1

Dear Yuanda Li,

RE: Transportation Impact Study
Proposed Residential Development
12717 Ninth Line, Town of Whitchurch-Stouffville

LEA Consulting Ltd. is pleased to present the findings of our Transportation Impact Study for the proposed long-term care development located at 12717 in the Town of Whitchurch-Stouffville. This study has been prepared in support of the Zoning By-law Amendment (ZBA) application for the site. This report concludes that the traffic associated with the proposed development will have an acceptable impact on the surrounding road network.

Please do not hesitate to contact the undersigned should you have any additional questions or concerns.

Yours truly,

LEA CONSULTING LTD.

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Disclaimer

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1 INTRODUCTION

LEA Consulting Ltd. (LEA) has been retained by Angil Development Group Inc. to undertake a Transportation Impact Study (TIS) for the proposed residential development located at 12717 Ninth Line (herein referred to as the "subject site"), in the Town of Whitchurch-Stouffville. The following TIS has been prepared in support of the Zoning By-Law Amendment (ZBA) application for the proposed development.

The subject site is situated near the intersection of Ninth Line and Bayberry Street, as illustrated in **Figure 1-1**. It is currently occupied by a vacant lot and an existing single detached residential dwelling and associated accessory structures which are proposed to be demolished.

Figure 1-1: Subject Site Location



Source: Google Earth, accessed May 2026

The purpose of this assessment is to review the existing transportation infrastructure in the surrounding area, including the road network, transit network and active transportation networks, and to assess the traffic impact of the proposed development on the surrounding network. In addition, the proposed parking and loading provisions will be reviewed, and Transportation Demand Management (TDM) measures will be recommended to encourage the use of other modes of transportation. The study will be conducted following *York Region's Transportation Mobility Plan Guidelines for Development Applications (2025)*.

1.1 PROPOSED DEVELOPMENT

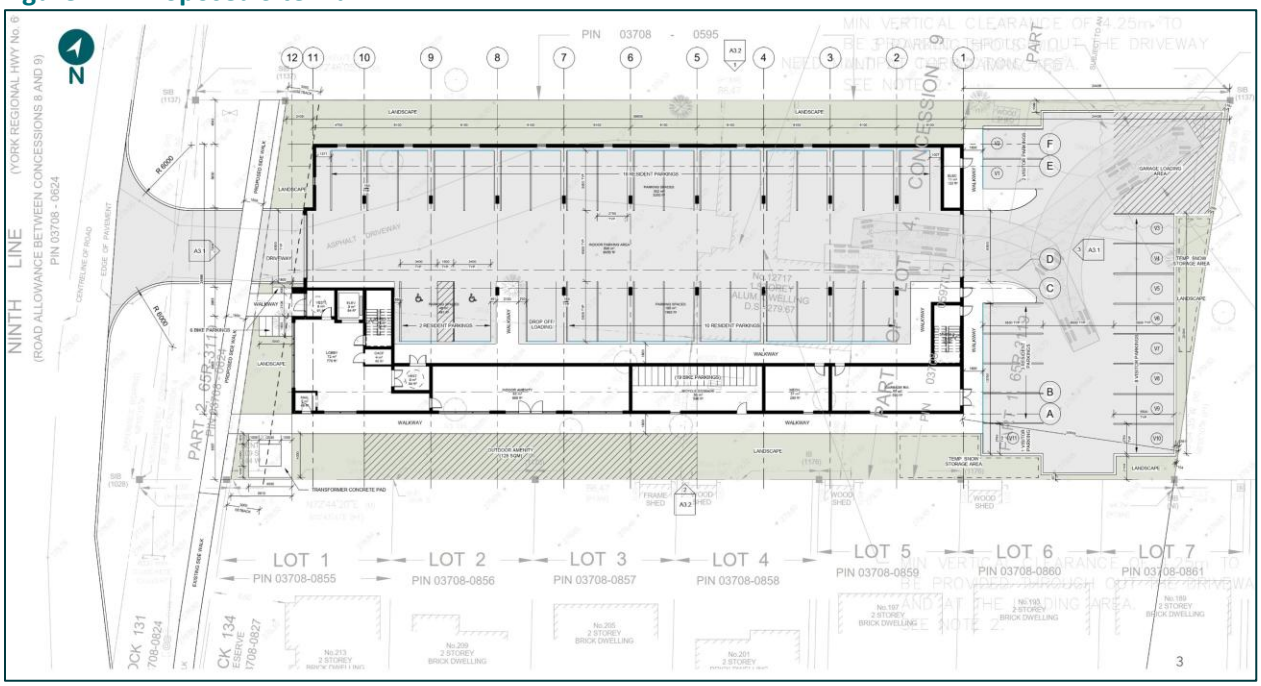
The proposed development will replace the existing single detached residential dwelling and vacant lot to construct a new 4-storey apartment building comprising 40 residential units. A detailed breakdown of the site statistics is provided in **Table 1-1**.

Table 1-1: Site Statistics

Use	Type	Unit Count/ Description
Development		
Residential	1-Bedroom	4 units
	2-Bedroom	16 units
	3-Bedroom	20 units
	Total	**40 units**
Site Plan / Facilities		
Vehicular Parking	Resident Parking	34 spaces
	Visitor Parking	11 spaces
	Total	**45 spaces**
Bicycle Parking	Short-term	6 spaces
	Long-term	19 spaces
	Total	**25 spaces**
Loading	1 Loading Space	

Access to the development is proposed via an unsignalized right-in right-out (RIRO) driveway connection to Ninth Line. The proposed site plan is illustrated in **Figure 1-2**.

Figure 1-2: Proposed Site Plan



Source: Z Square Consulting Inc., July 2026

2 EXISTING TRANSPORTATION CONDITIONS

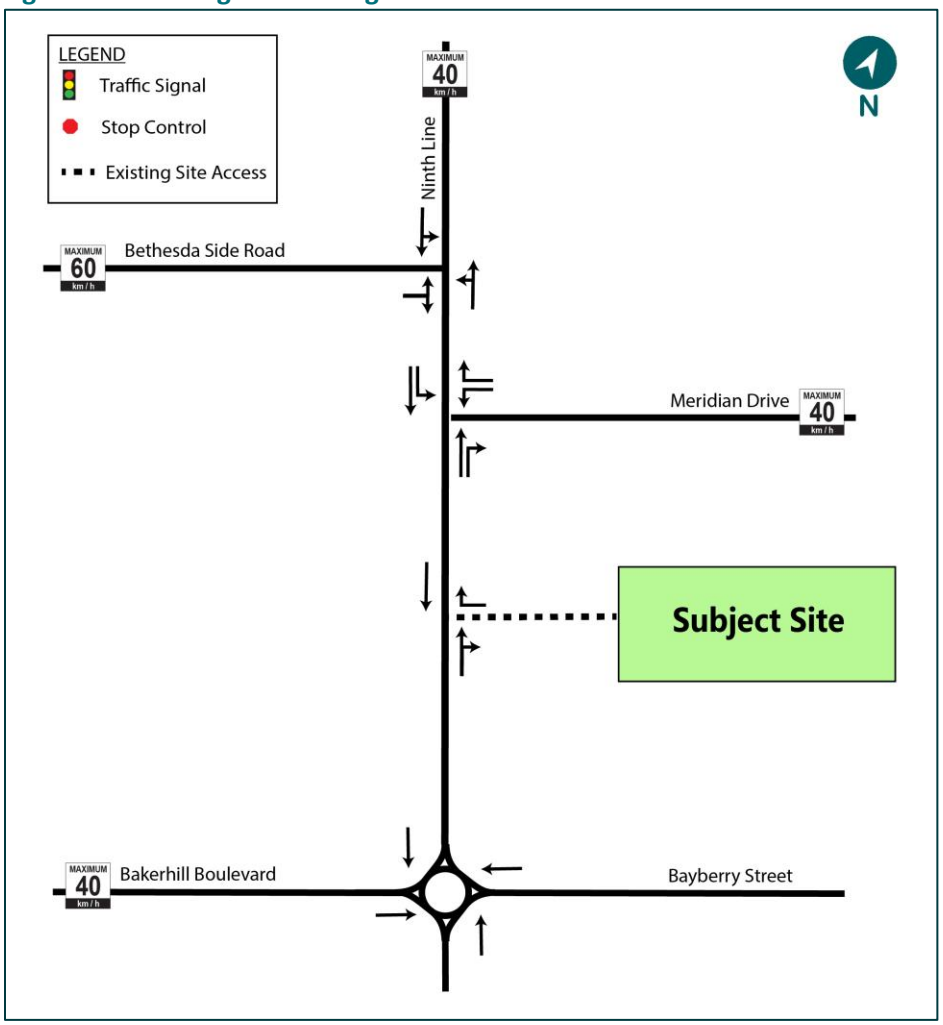
This section identifies the existing transportation conditions present in the study area, including the road, transit, cyclist, and pedestrian networks. The study area was determined by assessing the size of the proposed development and its anticipated transportation impact. The terms of reference and correspondence with the Town is included in **Appendix A**. The study area includes the following intersections:

- Ninth Line and Bethesda Side Road (Unsignalized);
- Ninth Line and Meridian Drive (Unsignalized); and
- Ninth Line and Baker Hill Boulevard & Bayberry Street (Unsignalized).

2.1 EXISTING ROAD NETWORK

This section will describe the road network with the above-mentioned study area. The existing intersection controls and lane configuration are illustrated in **Figure 2-1**. Ninth Line and Bethesda Side Road are under the jurisdiction of the Region of York, while all other roads within the study area are under the jurisdiction of the Town of Whitchurch-Stouffville.

Figure 2-1: Existing Lane Configuration



Ninth Line is a north-south regional arterial road. Within the study area, the roadway extends from the Town's boundary with the City of Markham in the south to Aurora Road and continues north through the rural area into the Town of East Gwillimbury, where it extends to Vivian Road. In the urban area, Ninth Line generally operates with a two-lane cross-section (one lane in each direction) with auxiliary turning lanes provided at major intersections. North of Aurora Road, the roadway transitions to a rural arterial road. Within the vicinity of the site, the roadway has a posted speed limit of 40 km/h.

Meridian Drive is an east-west local road that extends between Suttonrail Way in the east and Ninth Line in the west. The roadway operates with a two-lane cross-section (one lane in each direction). The roadway has a posted speed limit of 40 km/h.

Bethesda Side Road is an east-west arterial road that extends across the Town of Whitchurch-Stouffville, from Highway 404 to York-Durham Line. The roadway operates with a two-lane cross-section (one lane in each direction). Within the vicinity of the site, the roadway has a posted speed limit of 60 km/h.

Bayberry Street is primarily a north-south local road that extends from the Ninth Line roundabout in the north to Millard Street in the south. The roadway operates with a two-lane cross-section (one lane in each direction). As there is no posted speed limit, it is assumed that the roadway operates with a speed limit of 40 km/h.

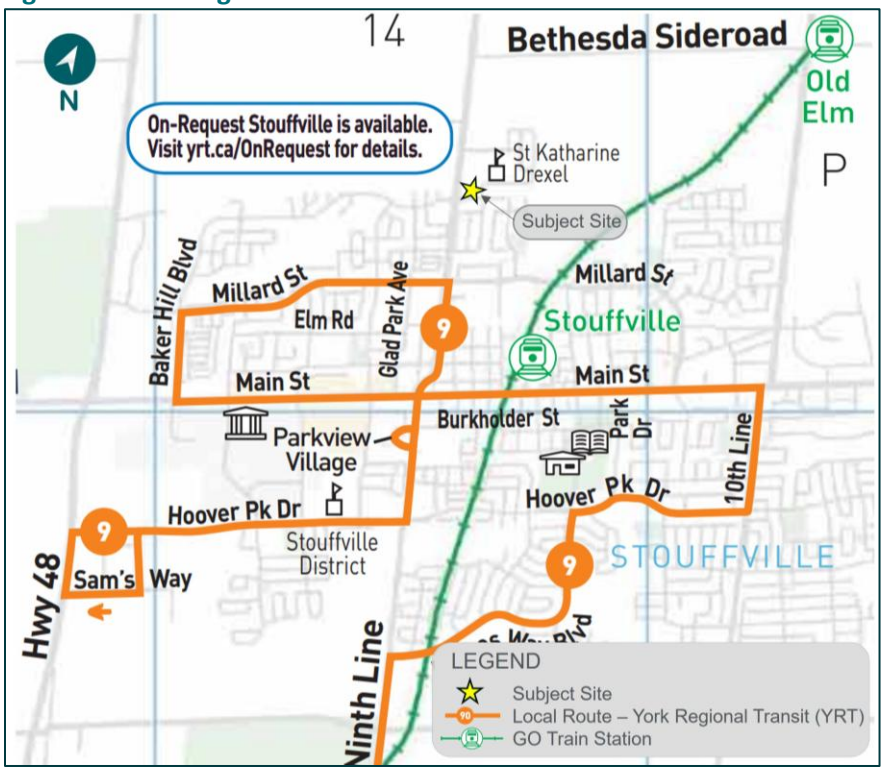
Baker Hill Boulevard is primarily an east-west local road that extends from the Ninth Line roundabout in the east to the Mian Street in the west. The roadway operates with a two-lane cross-section (one lane in each direction). The roadway has a posted speed limit of 40 km/h.

2.2 EXISTING TRANSIT NETWORK

The subject site is served by the York Region Transit (YRT) network. While no YRT bus stops are located immediately adjacent to the subject site, Route 9 - Ninth Line is accessible at the Millard Street and Ninth Line stop, located approximately 600 m south of the site (equivalent to an 8-minute walk). Route 9 provides local transit service within the community of Stouffville and intraregional connections to Markham via Ninth Line. The route also provides access to Stouffville GO Station, Markham Stouffville Hospital, and Cornell Bus Terminal, where connections to the Viva Purple rapid transit service and the broader YRT network are available.

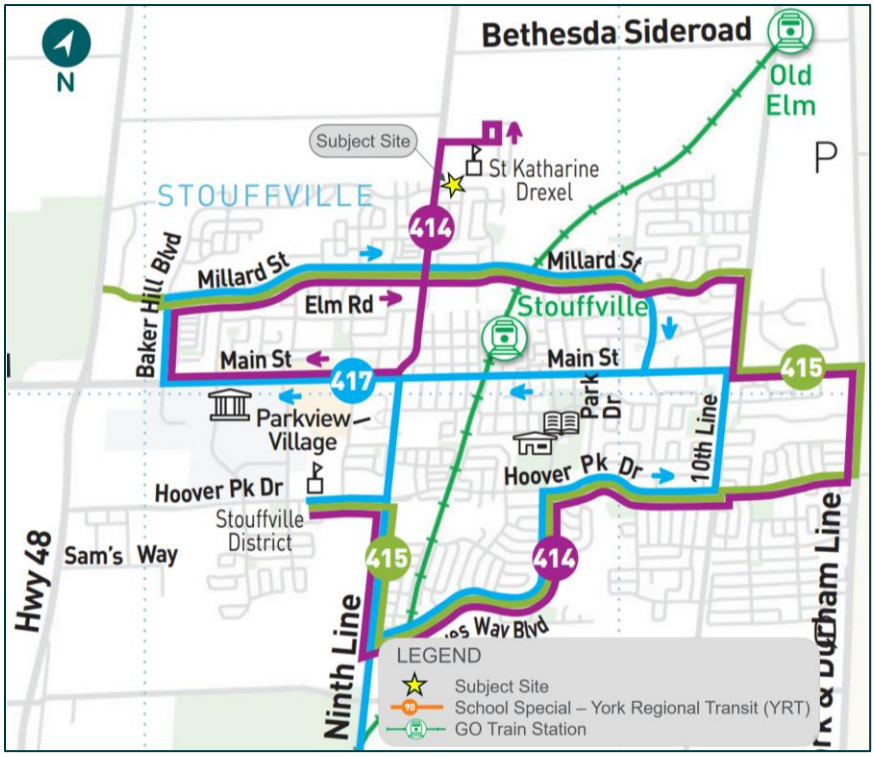
The subject site has a TransitScore™ of 28/100, or “Some Transit”, indicating that there are a few nearby public transit options that can accommodate daily transit travel to and from the subject site. Transit routes servicing the area are illustrated in **Figure 2-2** and **Figure 2-3** and are described below.

Figure 2-2: Existing Transit Network – Local Bus Routes



Source: York Region Transit, June 2026

Figure 2-3: Existing Transit Network – School Special Bus Routes



Source: York Region Transit, April 2026

2.2.1 York Region Transit Bus Services

YRT Bus Route 9 – Ninth Line is a bus route that generally operates in a north-south direction from Stouffville Walmart in the north to Box Grove Bypass/ Riverwalk Drive in the south before looping back, serving Stouffville GO Station, Markham-Stouffville Hospital and Cornell Bus Terminal. The route operates Monday through Sunday, with 30-minute headways during the weekday AM and PM peak periods, 30-minute headways during weekday off-peak periods, and 40-minute headways throughout the day on weekends.

> *Access Location:* Route 9 Ninth Line is accessible at the Millard Street and Ninth Line stop, approximately 600m south of the subject site (equivalent to an 8-minute walk).

YRT Route 414 – St. Katharine Drexel School Special is a school service route that operates generally in a north-south direction between St. Katharine Drexel Catholic High School and Hoover Park Drive. The route operates during the morning and afternoon periods during the school year, providing service for students travelling to and from the school.

> *Access Locations:* Route 414 is accessible at the Ninth Line and Meridian Drive stop, approximately 200m north of the subject site (equivalent to a 2-minute walk).

YRT Route 415 – Stouffville District School Special is a school service route that operates between Millard Street/ Automall Boulevard (east of Highway 48) and Stouffville District Secondary School on Hoover Park Drive. The route provides one morning and one afternoon service on school days to accommodate the school's daily schedule.

> *Access Locations:* Route 415 is accessible at the Millard Street and Ninth Line stop, approximately 600m south of the subject site (equivalent to an 8-minute walk).

YRT Route 417 – Bill Hogarth School Special is a school service route that operates as a loop between Hoover Park Drive/Sandiford Drive and Bill Hogarth Secondary School during the morning service, with the reverse routing provided in the afternoon. The route provides two morning and two afternoon trips on school days to accommodate the school's daily schedule.

> *Access Locations:* Route 417 is accessible at the Millard Street and Ninth Line stop, approximately 600m south of the subject site (equivalent to an 8-minute walk).

2.2.2 GO Transit Services

GO Transit services are also accessible near the subject site. The subject site is located approximately 1.7 km (equivalent to a 6-minute bike ride or 23-minute walk) northwest of the Stouffville GO Station. The station provides access to inter-regional GO Transit services, including the Stouffville Line and Metrolinx GO bus route 70-71. The Stouffville GO station also offers connections to two (2) York Region Transit routes (Routes 9 - Ninth Line and 15 - Stouffville Local).

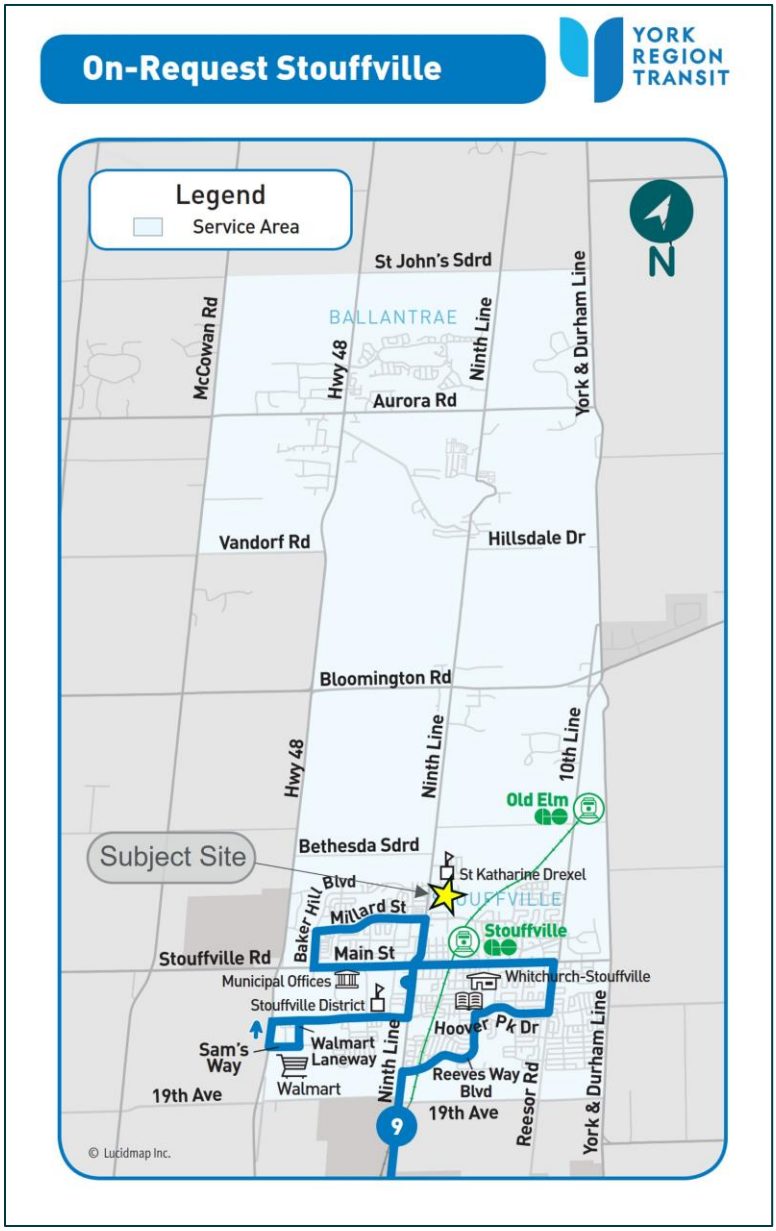
The Stouffville GO Line, which serves Stouffville GO Station, provides direct rail service to Union Station in downtown Toronto, with a travel time of approximately one hour. Union Station is Canada's busiest multimodal transportation hub, providing connections to all seven (7) GO Transit rail corridors, TTC Line 1 subway service, TTC streetcar and bus routes, VIA Rail intercity passenger rail service, and the Union Pearson Express (UP Express), offering convenient access to destinations throughout the Greater Toronto and Hamilton Area.

2.2.3 York Region On-Request Bus Service

The subject site is also served by Stouffville On-Request transit service, a flexible, ride-share service operated by YRT-marked vehicles that does not follow a fixed route or schedule. Trips are booked through a mobile app and run Monday to Friday from 5:30 AM to 11:00 PM, Saturday from 8:00 AM to 11:00 PM, and Sunday from 8:80 AM to 8:00 PM.

The service provides pick-up and drop-off from any address within the area bounded by St. John's Sideroad to the north, York-Durham Line / 10th Line to the east, 19th Avenue to the south, and Highway 48 (south of Vandorf Road) and McCowan Road (north of Vandorf Road) to the west, as illustrated in **Figure 2-4**.

Figure 2-4: Stouffville On-Request Local Service Area



Source: York Region Transit route On-Request Stouffville, June 2025

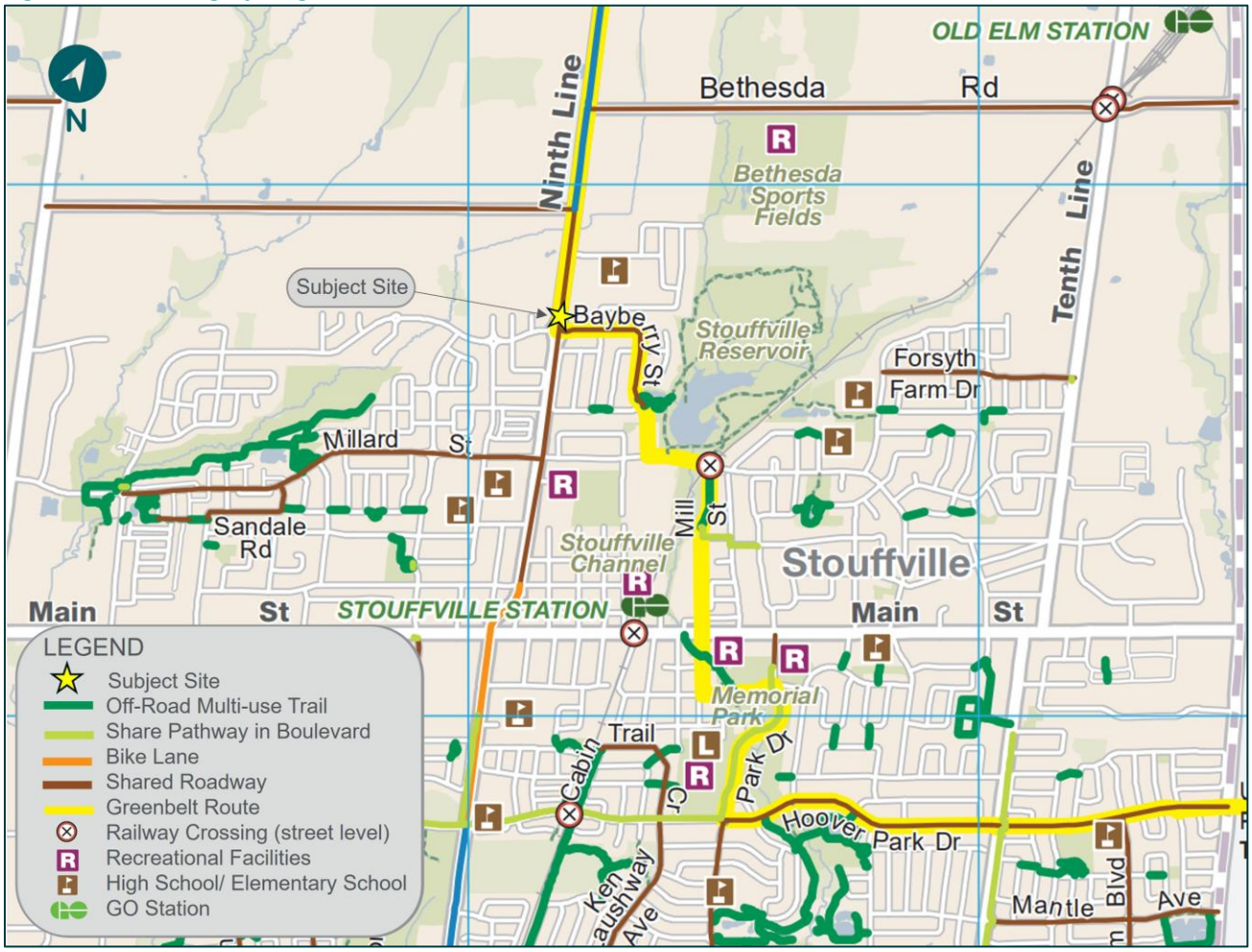
2.3 EXISTING CYCLING NETWORK

While no dedicated on-street bike lanes or protected cycle tracks exist in the immediate vicinity of the site, several cycling facilities and trails are available within the broader surrounding area. The nearest facilities include shared roadways along Ninth Line, Bayberry Street, and Bethesda Road, which provide connections to the broader cycling network. These cycling facilities provide users with connections to the broader cycling network within the Town of Whitchurch-Stouffville.

The shared roadways along Bayberry Street and Ninth Line are also identified as part of the Greenbelt Route, a 475 km signed cycling route that traverses Ontario's Greenbelt. The route consists primarily of paved roadways, with sections of off-road trails, and provides connections between communities, natural areas, and other regional cycling routes.

The existing cycling network surrounding the site is illustrated in **Figure 2-5**.

Figure 2-5: Existing Cycling Network



Source: York Region Cycling Map – South Side, 2026

2.4 EXISTING PEDESTRIAN NETWORK

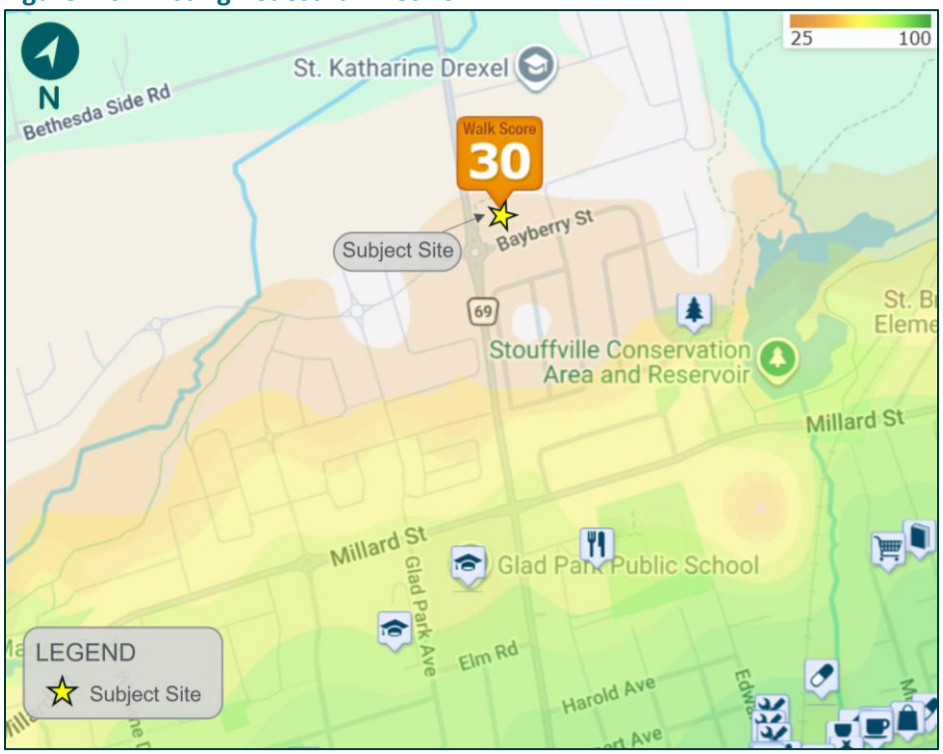
The pedestrian network surrounding the subject site includes sidewalks and pedestrian crossings along portions of the road network. Continuous, adequately sized sidewalks are provided along both sides of Meridian Drive north of the site and along the east side of Ninth Line south of Meridian Drive, providing pedestrian connections within the surrounding area. However, pedestrian facilities are limited along Bethesda Road, which functions as a rural roadway without dedicated sidewalk infrastructure.

Pedestrian crossings are provided at key intersections within the surrounding network to facilitate pedestrian movement. Protected pedestrian crossings are available at the intersection of Meridian Drive and Ninth Line, as well as at the roundabout intersection of Ninth Line and Bayberry Street/Baker Hill Boulevard.

The subject site is situated within walking distance of several recreational and community destinations, including the golf course located directly opposite the site, nearby schools, and parks and trail facilities located south of the site near Millard Street and Ninth Line.

The subject site receives a WalkScore™ of 30/100, or "Car-Dependent", when entered into the WalkScore application, as illustrated in **Figure 2-6**. This indicates that many daily errands require a vehicle.

Figure 2-6: Existing Pedestrian Network



Source: WalkScore™, June 2026

2.5 TRAFFIC DATA COLLECTION

Turning movement counts (TMCs) were used as the source of traffic data in the intersection capacity analysis.

Traffic counts were collected by LEA on May 13th, 2026, between 7:00 AM - 9:30 AM and 4:00 PM - 6:30 PM to capture the weekday AM and PM peak periods. Traffic volumes were balanced between intersections.

A summary of the TMC data collected is outlined in in **Table 2-1**, with detailed traffic counts available in **Appendix B.**

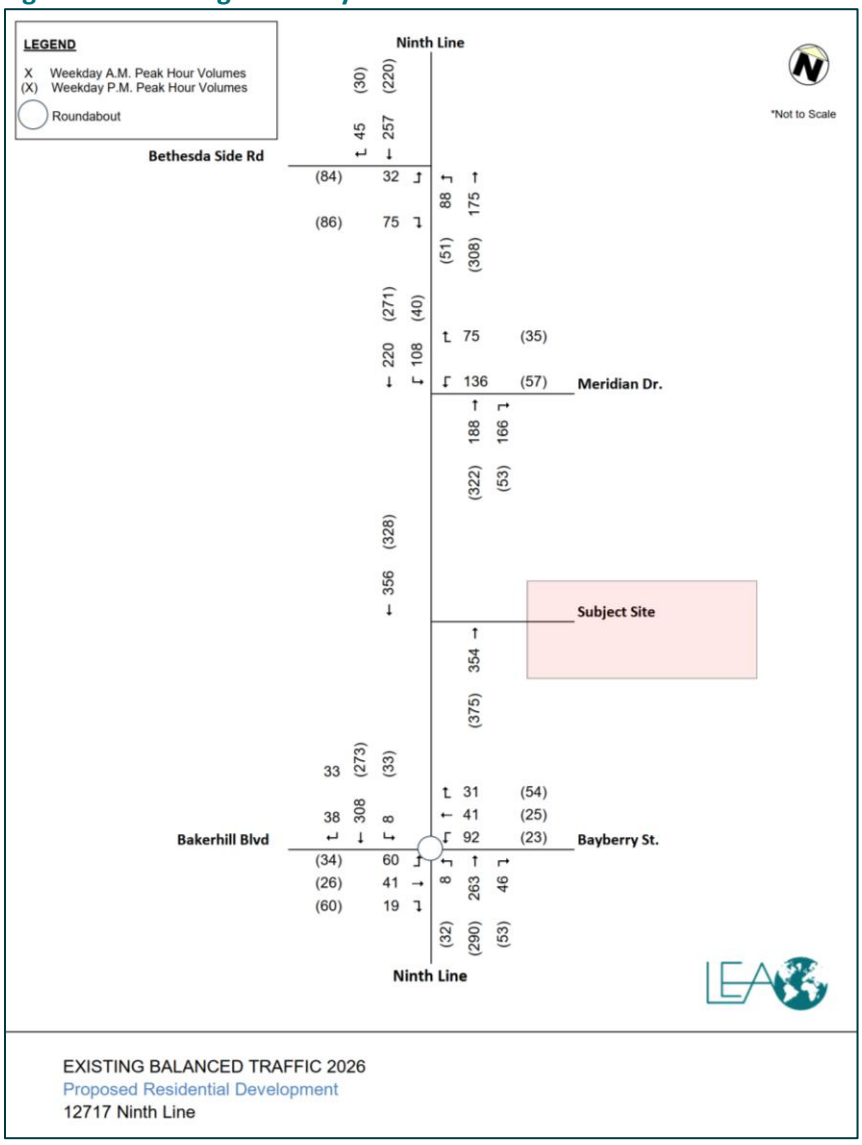
Table 2-1: Data Collection Summary

Intersection	TMC Date	Source
Ninth Line and Bethesda Side Rd.	Wednesday, May 13, 2026	LEA Consulting Ltd.
Ninth Line and Meridian Dr.		
Ninth Line and Baker Hill Blvd & Bayberry St.		

2.6 EXISTING TRAFFIC VOLUMES

The existing peak hour traffic volumes in the study area during the weekday AM and PM peak hours are illustrated in **Figure 2-7.**

Figure 2-7: Existing Weekday Peak Hour Traffic Volumes



3 FUTURE BACKGROUND TRANSPORTATION CONDITIONS

For the analysis of future background traffic conditions, this study considers five (5) and ten (10) years post–full build-out (2031 and 2036, respectively), from the existing year 2026. Future background conditions include traffic added to the network from other future developments, corridor growth, and considering overall improvements to the transportation network. Future background conditions were used as the baseline for evaluating the impact of the proposed development.

3.1 FUTURE ROAD AND ACTIVE TRANSPORTATION IMPROVEMENTS

The following section provides a summary of the planned and proposed road network improvements within the study area.

3.1.1 Town of Whitchurch-Stouffville Transportation Master Plan (2024)

The Town of Whitchurch-Stouffville's Transportation Master Plan (TMP) identifies several planned transportation improvements within the vicinity of the subject site. These improvements are proposed to support future growth, improve east-west and north-south connectivity, enhance active transportation opportunities, and accommodate anticipated travel demand. The planned improvements in the vicinity of the subject site are summarized below.

Road Network Improvements

The Town's TMP identifies the following short- to medium-term improvements to the Bethesda Road corridor between Highway 48 and York-Durham Line:

- Bethesda corridor improvement between Highway 48 and York-Durham Line:
- Extension of Bethesda Road to bypass Ninth Line, with two alignment options identified for further study (refer to **Figure 3-1**).
- Urbanization of the Bethesda Road corridor between Highway 48 and York-Durham Line, including the provision of an urban road cross-section;
- Provision of dedicated active transportation facilities as part of the corridor improvements; and
- Change the road classification of Bethesda Road between Highway 48 and York-Durham Line from Rural Arterial to Urban Arterial in the Town's Official Plan.

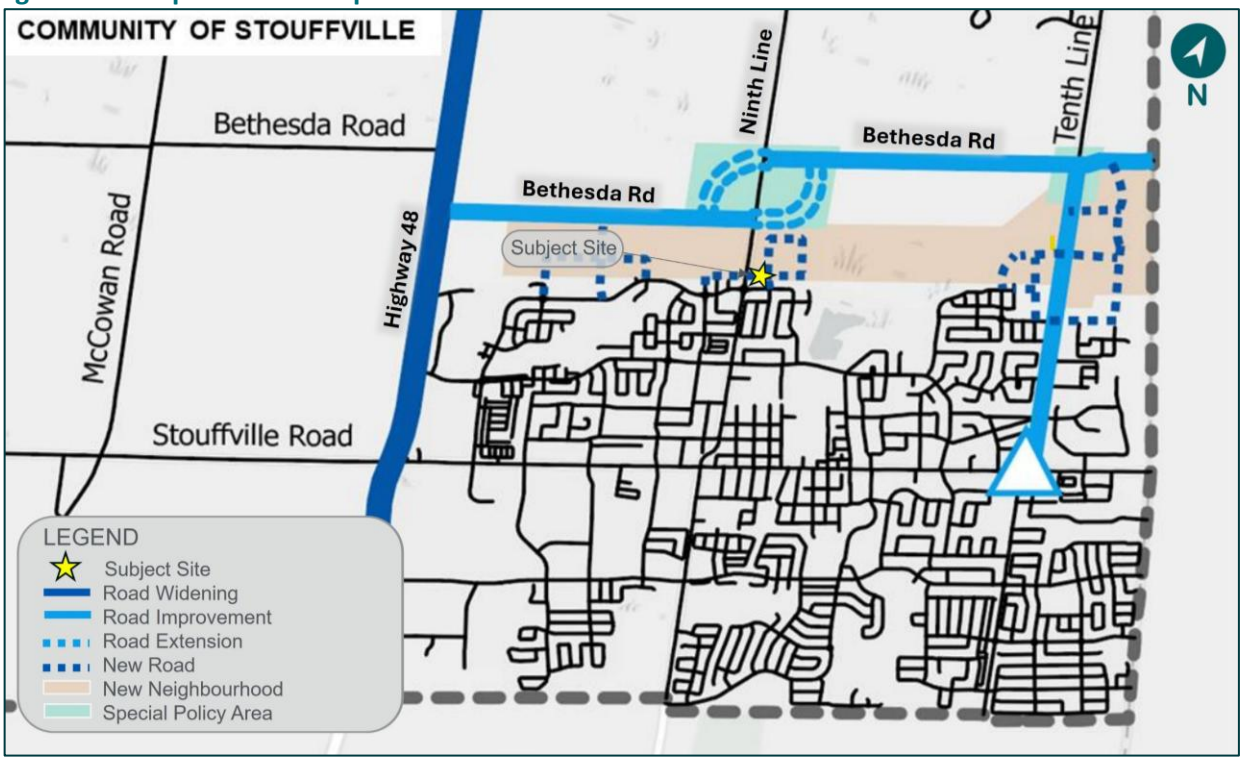
In addition to the Bethesda Road corridor improvements, the TMP also identifies the construction of new collector roads north of the subject site to support planned development and improve local roadway connectivity, as illustrated in **Figure 3-1**.

Active Transportation Improvements

As part of the Town's short- to medium-term active transportation plan, the TMP also identifies:

- Construction of separated cycling facilities along Bethesda Road between Highway 48 and York-Durham Line.

Figure 3-1: Proposed Road Improvements



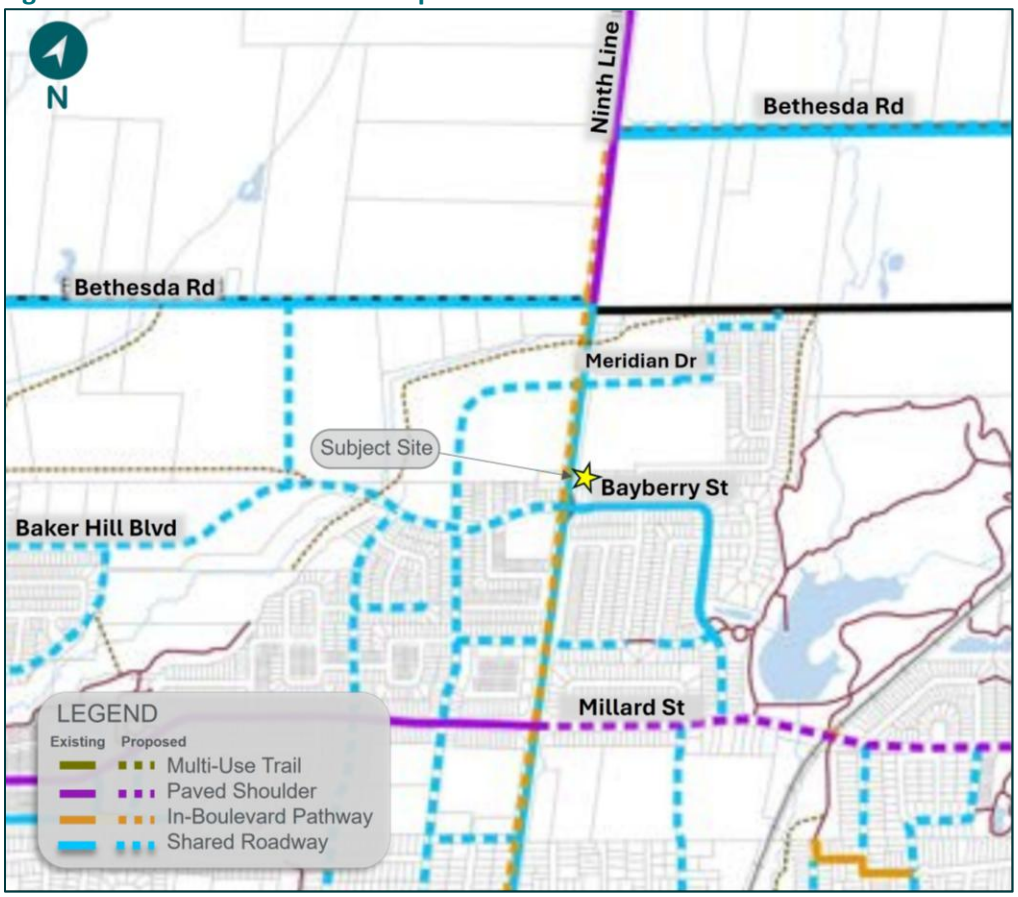
Source: Whitchurch-Stouffville Transportation Master Plan Update (modified by LEA), April 2024

3.1.2 Town of Whitchurch-Stouffville Official Plan (2025)

The Town of Whitchurch-Stouffville Official Plan (Whitchurch-Stouffville OP) identifies a planned active transportation network to improve cycling connectivity throughout the Town. As illustrated in **Figure 3-2**, Schedule P1 - Active Transportation Plan of the Whitchurch-Stouffville OP identifies the following planned cycling facilities within the vicinity of the subject site:

- A boulevard pathway along Ninth Line, south of its intersection with Bethesda Road;
- Shared roadway facilities along Meridian Drive and Conductor Avenue, north of the subject site; and
- A shared roadway along Baker Hill Boulevard, south of the subject site.

Figure 3-2: Stouffville Active Transportation Plan



Source: Town of Whitchurch-Stouffville Official Plan - Schedule P1 – Stouffville Active Transportation Plan (modified by LEA), September 2025

The planned road and active transportation improvements identified in the Town of Whitchurch-Stouffville Transportation Master Plan and Official Plan will improve connectivity within the study area and support future travel by all transportation modes.

3.2 CORRIDOR GROWTH

Historical AADT data was obtained for the Ninth Line corridor between Bayberry Street and Bethesda Sideroad. Data is available for the years 2007 to 2024; however only data from 2015 – 2024 were used excluding the 2020 - 2022 years, as traffic volumes might have been impacted by the Covid-19 pandemic during this period. The AADT data was used to calculate the average growth rate for traffic along the Ninth Line corridor. Since the available AADT data was not directional, the same growth rate was applied to the NB and SB directions of travel, for both the AM and PM peak hours. **Table 3-1** summarizes the applied corridor growth rates.

Detailed corridor growth rates are provided in **Appendix C.**

Table 3-1: Corridor Growth

Corridor	AM Peak Hour	PM Peak Hour
Ninth Line NB	3.87%	3.87%
Ninth Line SB	3.87%	3.87%

3.3 BACKGROUND DEVELOPMENTS

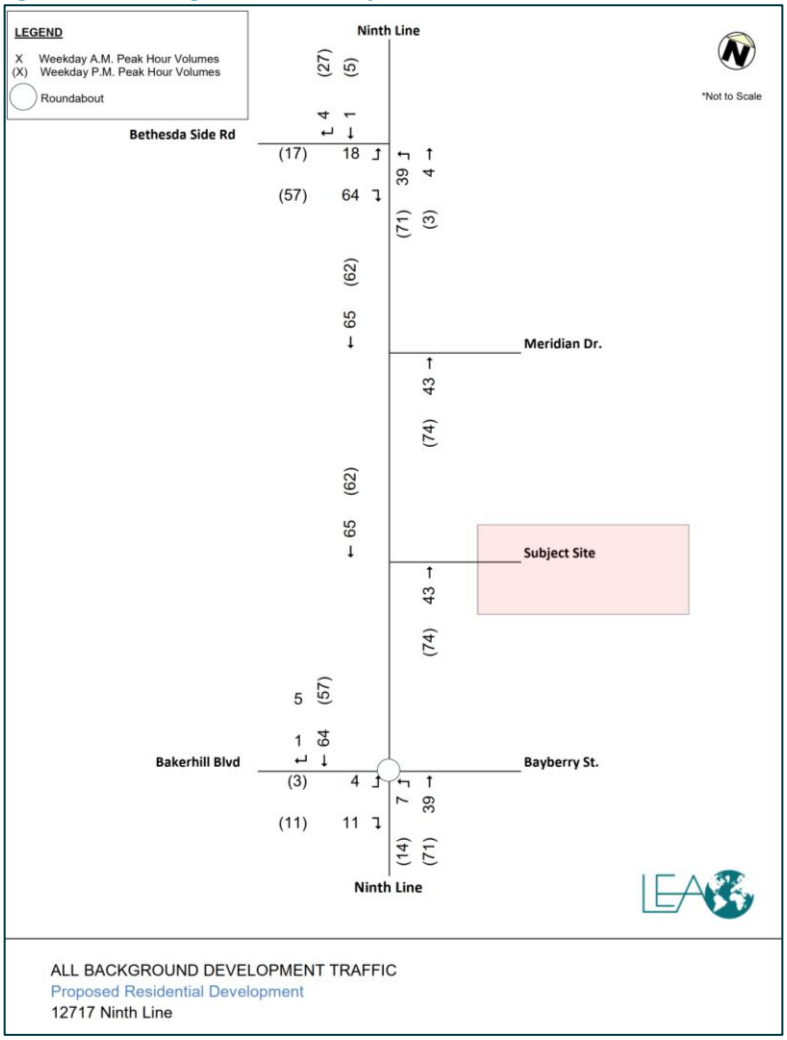
Three (3) background developments were included in the analysis, based on the Town of Stouffville's Online Development Activity Map and correspondence with the Town/Region. The background developments are summarized in **Table 3-2**. It was not feasible to obtain TIS documents for these sites so site trip generation was estimated by LEA and assigned to the network, as shown in **Appendix D**.

Table 3-2: Background Developments

#	Location	Proposed Development	Source of Traffic Volumes
1	5731 Bethesda Road	Residential: 148 Single Detached, 201 Townhouses	LEA Consulting (May 2026)
2	12668 Ninth Line	Residential: 71 Single Detached, 14 Townhouses	LEA Consulting (May 2026)
3	5481 and 5551 Bethesda Road	Residential Subdivision: 134 Single Detached	LEA Consulting (May 2026)

Figure 3-3 illustrates the traffic volumes of the background developments during the weekday AM and PM peak periods.

Figure 3-3: Background Development Peak Hour Traffic Volumes



3.4 FUTURE BACKGROUND TRAFFIC VOLUMES

The future background traffic volumes for the weekday AM and PM peak hours under the 2031 and 2036 horizon year are illustrated in **Figure 3-4** and **Figure 3-5**, respectively.

Figure 3-4: 2031 Future Background Traffic Volumes

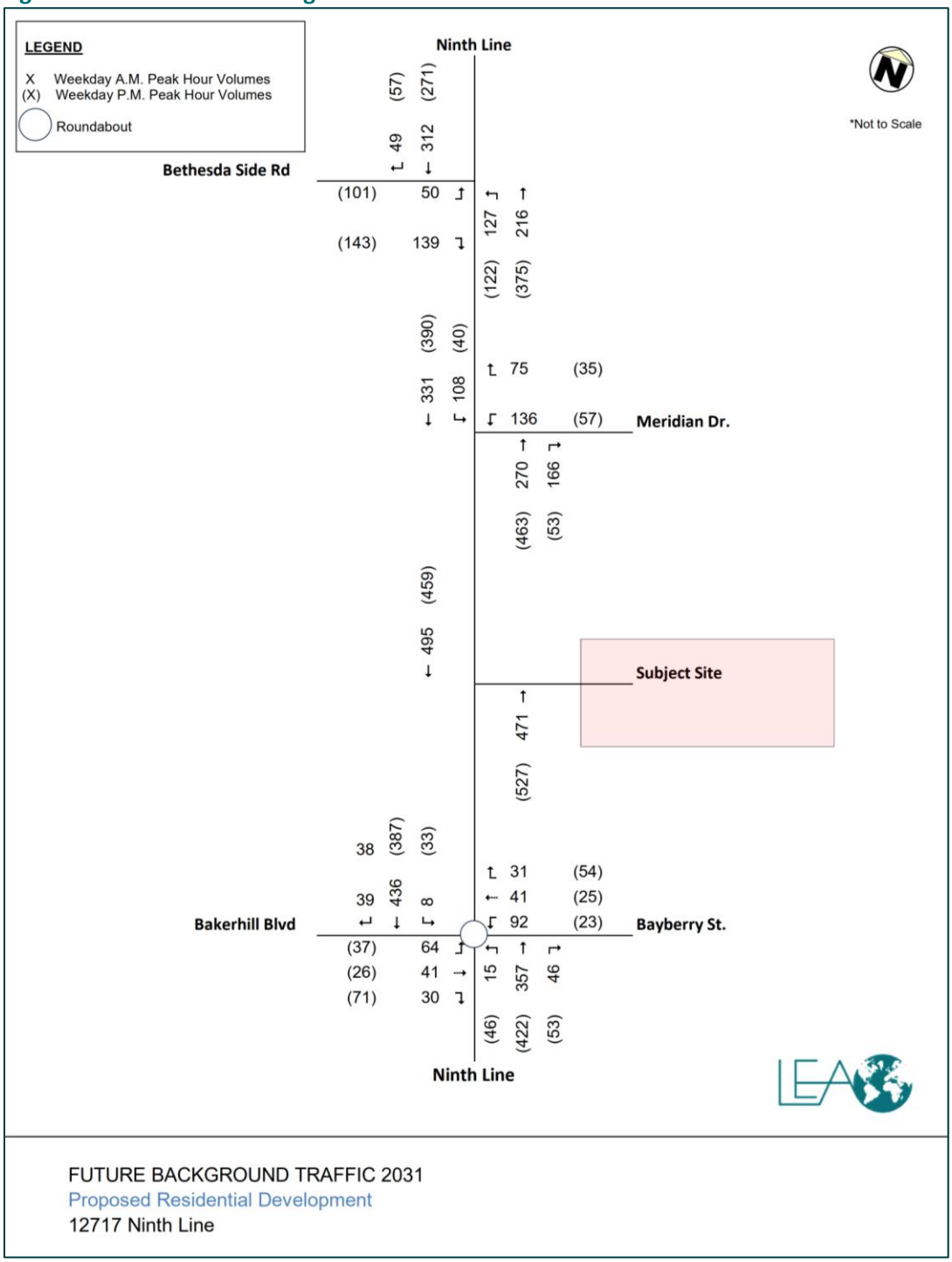
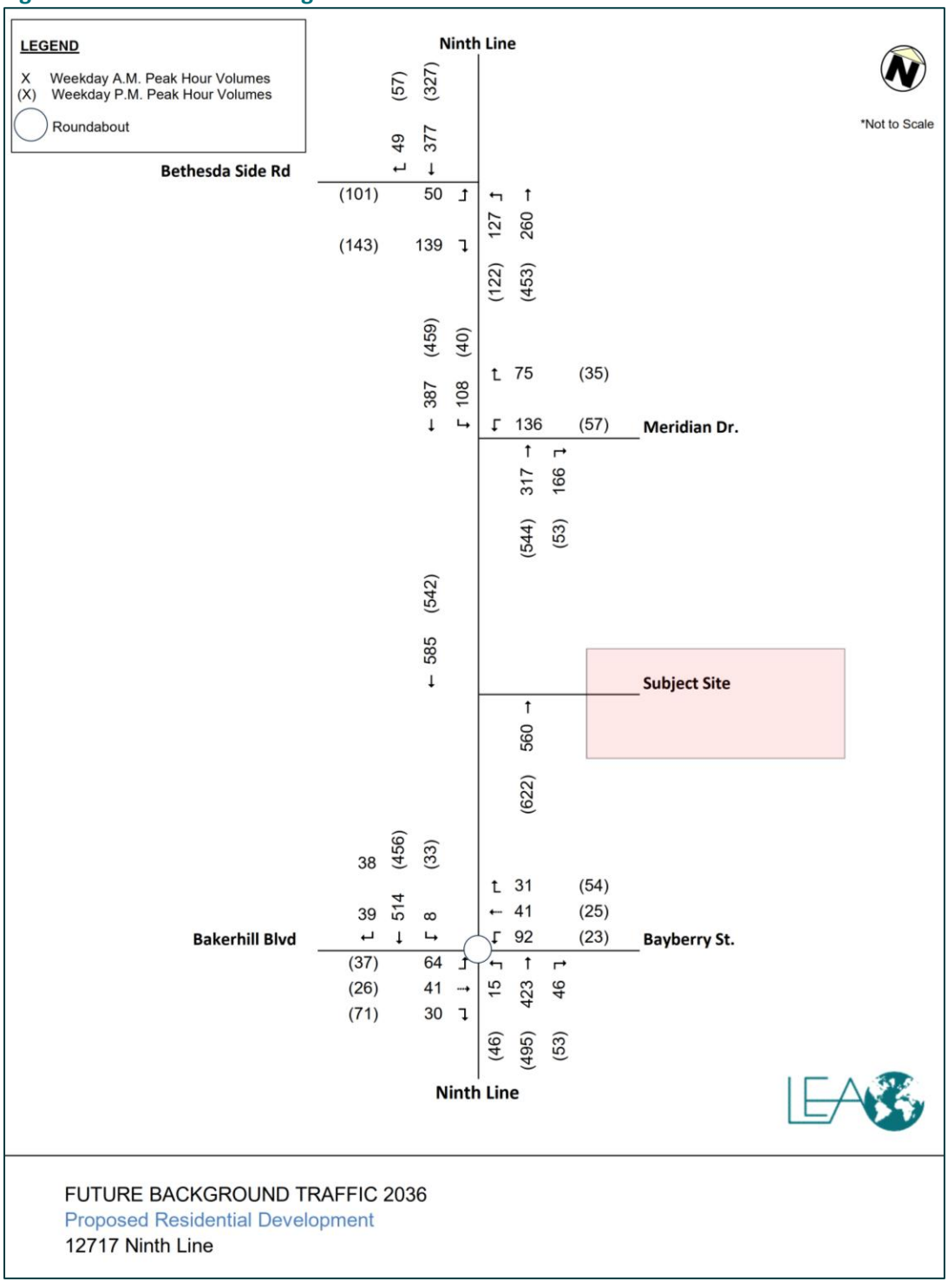


Figure 3-5: 2036 Future Background Traffic Volumes



4 SITE GENERATED TRAFFIC

The proposed development will replace the existing single detached residential dwelling and vacant lot to construct a new 4-storey apartment building comprising 40 residential units. Access to the development is proposed via an unsignalized right-in right out (RIRO) driveway connection to Ninth Line.

The sections below discuss the calculation, distribution, and assignment of site-generated vehicle trips.

4.1 MODAL SPLIT

Data from the 2022 Transportation Tomorrow Survey (TTS) was extracted to identify the local modal split for the study area (Traffic Analysis Zones (TAZ) 3489, 3492, 3493, 3500, 3501, 3490, 3491, 3494, 3495). Mode splits for A.M. and P.M., outbound and inbound trips, with a home-based trip purpose of origin and destination were analyzed respectively.

The local modal split is summarized in **Table 4-1.** Detailed TTS data calculations are provided in **Appendix E**.

Table 4-1: Local Modal Split

Mode	AM Mode Share		PM Mode Share	
	Inbound	Outbound	Inbound	Outbound
Auto Driver	74%	58%	62%	68%
Auto Passenger	6%	20%	17%	21%
Transit	0%	2%	2%	0%
Pedestrian	19%	18%	17%	7%
Cycling	0%	1%	1%	4%

4.2 TRIP GENERATION

4.2.1 Vehicular Trip Generation

Trip generation was calculated using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 12th Edition for LUC 220 – Multifamily Housing (Low-Rise). The average ITE person trip rates were used to estimate person trips. The person trips were then converted to auto trips using the forecasted local mode split.

Table 4-2 summarizes the anticipated number of vehicle trips generated by the proposed development.

Table 4-2: Proposed Site Vehicle Trip Generation

Land Use	Description	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
ITE LUC 220 - Multifamily Housing (Low-Rise) 40 Units	ITE Person Trip Rate (/unit)	0.08	0.30	0.38	0.34	0.20	0.54
	ITE Person Trips	3	12	15	14	8	22
	Total External Person Trips	3	12	15	14	8	22
	Non-Auto Mode Split Reduction	1	5	6	5	3	8
	Primary External Auto Trips	**2**	**7**	**9**	**9**	**5**	**14**

The proposed building is anticipated to generate 9 two-way auto trips (2 inbound and 7 outbound) during the AM peak hour and 14 two-way auto trips (9 inbound and 5 outbound) during the PM peak hour.

4.2.2 Multi-modal Trip Generation

Site multi-modal trip generation is summarized **Table 4-3** and is based on the modal split identified in **Section 4.1**.

Table 4-3: Site Multi-Modal Trip Generation

Land Use	Description	Weekday AM Peak Hour					Weekday PM Peak Hour				
		In		Out		Total	In		Out		Total
		Modal Split	Trips	Modal Split	Trips		Modal Split	Trips	Modal Split	Trips	
Proposed Residential	**External Person Trips**	**100%**	**3**	**100%**	**12**	**15**	**100%**	**14**	**100%**	**8**	**22**
	Auto Driver	74%	2	58%	7	**9**	62%	9	68%	5	**14**
	Auto Passenger	6%	0	20%	3	**3**	17%	2	21%	2	**4**
	Transit	0%	0	2%	0	**0**	2%	0	0%	0	**0**
	Pedestrian	19%	1	18%	2	**3**	17%	3	7%	1	**4**

The proposed development is expected to generate 15 total person trips (3 inbound and 12 outbound) during the weekday AM peak hour and 22 total person trips (14 inbound and 8 outbound) during the weekday PM peak hour.

4.3 TRIP DISTRIBUTION AND ASSIGNMENT

Trip distribution was determined based on TTS 2022 data using TAZ 3489, 3492, 3493, 3500, 3501, 3490, 3491, 3494, 3495 existing travel patterns using TMCs as summarized in **Table 4-4**. The inbound and outbound distribution was based on the PM and AM respectively (peak flow direction). Trip assignment was determined based on the local network, applicable turn restrictions, logical routing, and access conditions. Detailed TTS calculations are provided in **Appendix E**.

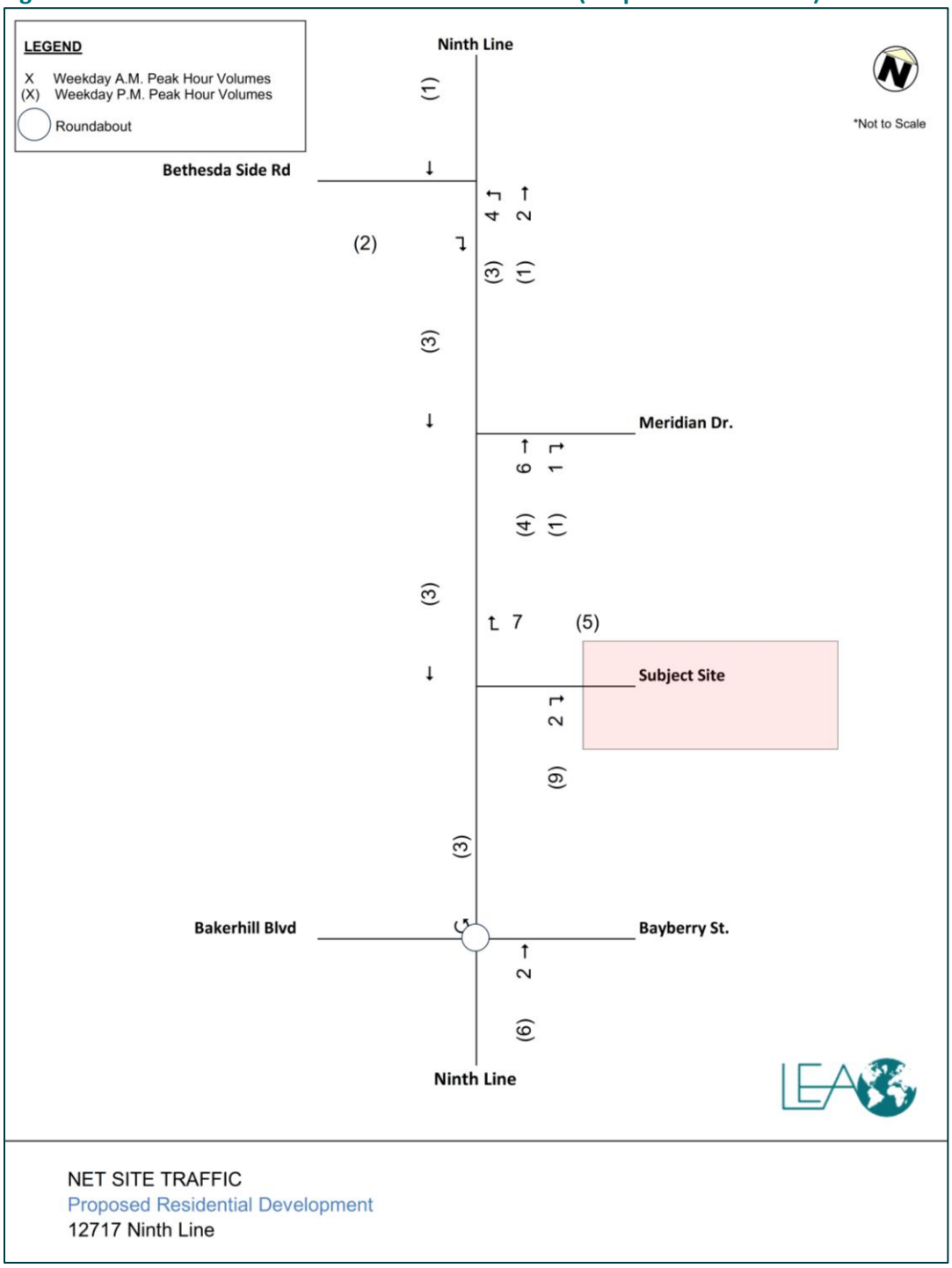
Table 4-4: Residential Site Trip Distribution

Origin/ Destination	Assigned Route	Residential			
		AM In	AM Out	PM In	PM Out
		Portion	Portion	Portion	Portion
North	Ninth Line(N)	7%	22%	7%	23%
South	Ninth Line (S)	74%	0%	70%	0%
East	Meridian Dr.	0%	12%	0%	21%
	BayBerry St. (E)	1%	0%	1%	0%
West	BakerHill Blvd (W)	0%	0%	0%	0%
	Bethesda Side Rd (W)	18%	66%	21%	55%

4.4 SITE GENERATED TRAFFIC VOLUMES

Figure 4-1 details the assignment of proposed residential site vehicle trips to the study area road network.

Figure 4-1: Site-Generated Peak Hour Traffic Volumes (Proposed Residential)



5 FUTURE TOTAL TRANSPORTATION CONDITIONS

No changes were assumed to the future lane configuration of study intersections, apart from the addition of the site access. Future total traffic conditions include the addition of site trips to the 2031 and 2036 future background volumes.

5.1 FUTURE TOTAL TRAFFIC VOLUMES

Future total traffic volumes for the weekday AM and PM peak hours under the 2031 and 2036 horizon year are illustrated in **Figure 5-1** and **Figure 5-2**, respectively.

Figure 5-1: 2031 Future Total Traffic Volumes

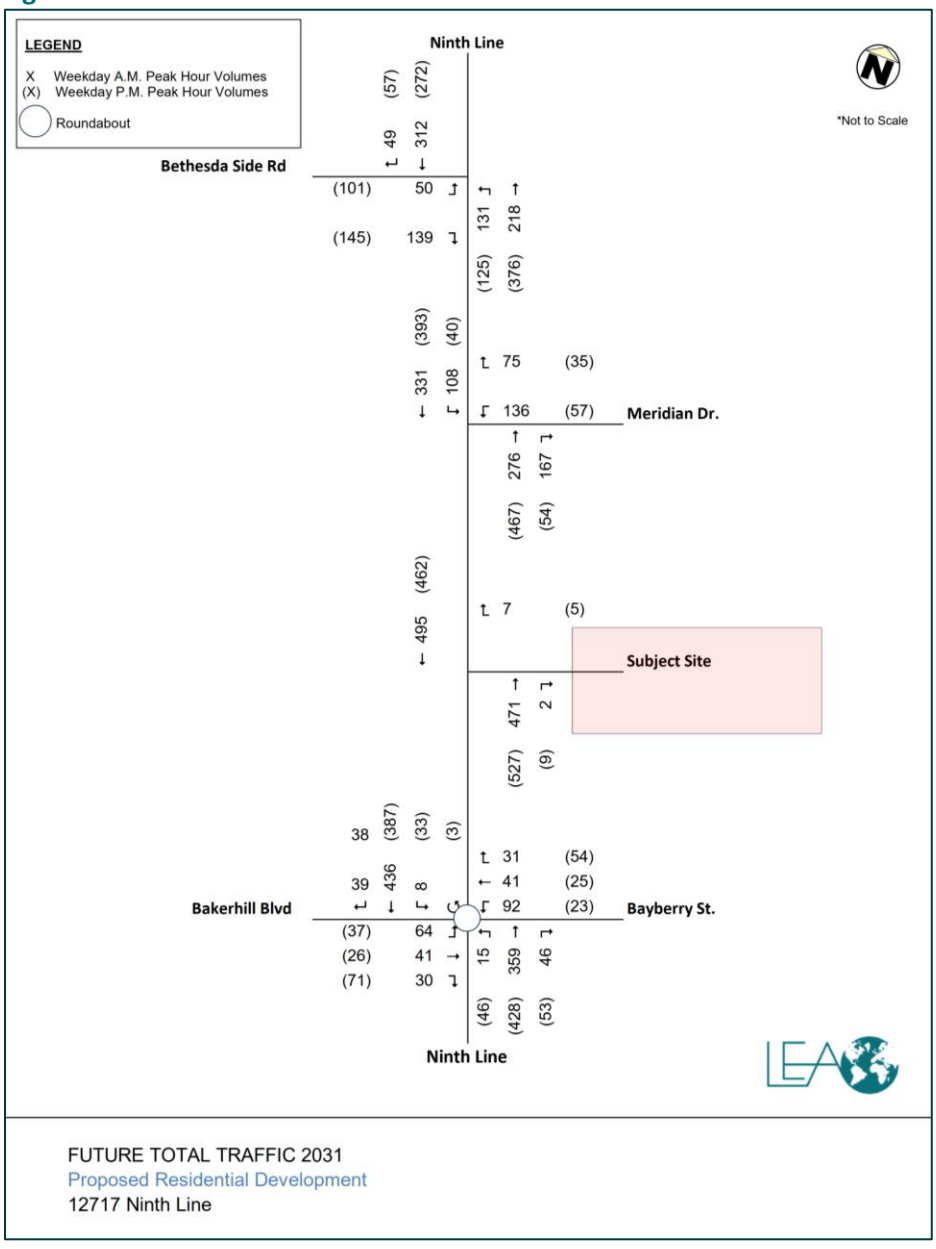
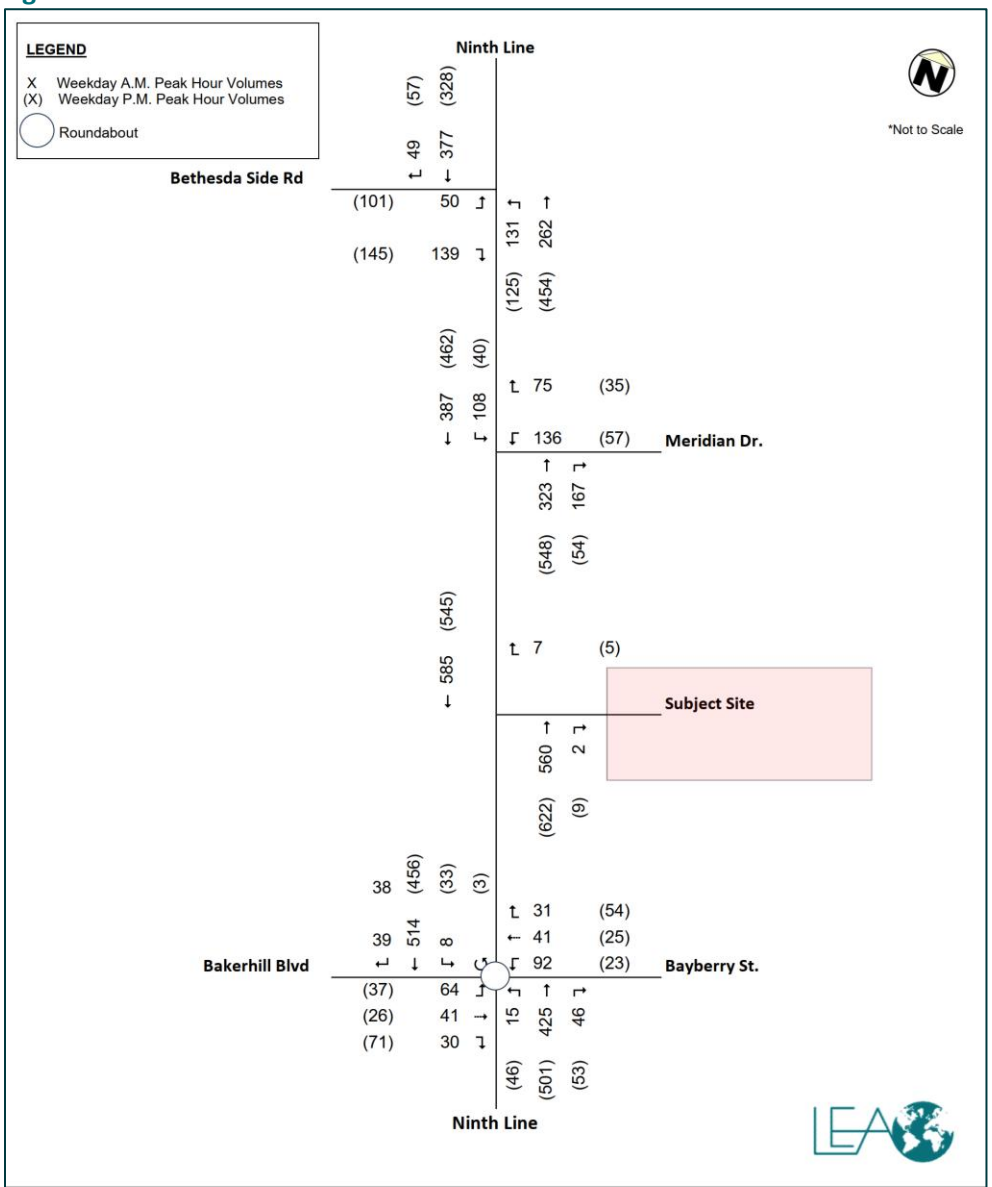


Figure 5-2: 2036 Future Total Traffic Volumes



6 INTERSECTION CAPACITY ANALYSIS

The following sections provide an analysis of the intersection operations under existing, future background, and future total scenarios. The intersection capacity analysis for non-roundabout intersections was undertaken using Synchro version 12.0 and the Highway Capacity Manual (HCM) 6 methodology. The roundabout analysis was undertaken using Arcady Junctions 10.0.

The analysis was prepared according to York Region 2025 Transportation Mobility Plan Guidelines for Development Applications.

As per the York Region 2025 Transportation Mobility Plan Guidelines for Development Applications, critical movements are defined as:

- V/C of 0.85
- No LOS threshold

Ideal saturation flow rates of 1,900 vehicles per hour per lane were used for regional and municipal roads. The LOS Definition summary is provided in **Appendix F**.

6.1 SYNCHRO MODEL INPUTS AND ASSUMPTIONS

The following sub-sections outline the network assumptions and changes applied to the Synchro models in the existing, future background and future total scenarios.

6.1.1 Synchro Calibrations/Parameters

6.1.1.1 Existing Conditions Synchro Model Inputs

Existing traffic operations were assessed to provide a baseline for future traffic operations. The applied Peak Hour Factor (PHF) value was calculated based on surveyed counts.

6.1.1.2 Future Background and Future Total Synchro Model Inputs

Input parameters from the existing conditions were maintained with the corresponding future background and future total volumes. Detailed capacity analysis results are provided in the following appendices:

- **Appendix G:** Existing Intersection Capacity Analysis;
- **Appendix H:** Future Background 2031 and 2036 Intersection Capacity Analysis; and
- **Appendix I:** Future Total 2031 and 2036 Intersection Capacity Analysis.

6.2 UNSIGNALIZED INTERSECTIONS - 2031

The results for the unsignalized intersections under each traffic scenario during the weekday AM and PM peak hours are summarized in the section below.

6.2.1 Ninth Line & Bethesda Side Road

The intersection capacity analysis results at Ninth Line & Bethesda Side Road during the AM and PM peak hours are summarized in **Table 6-1.**

Table 6-1: Intersection Capacity Analysis - Ninth Line & Bethesda Side Rd (2031)

Mvmt	2026 Existing				2031 Future Background				2031 Future Total			
	Vol	V/C	LOS (Delay)	Queues (50/95)	Vol	V/C	LOS (Delay)	Queues (50/95)	Vol	V/C	LOS (Delay)	Queues (50/95)
AM Peak Hour												
NBL	88	0.09	A (8)	-/2	127	0.13	A (9)	-/4	131	0.14	A (9)	-/4
NBT	175	NA			216	NA			218	NA		
EBLR	107	0.24	B (14)	-/6	189	0.50	C (21)	-/19	189	0.50	C (21)	-/20
SBT	257	NA			312	NA			312	NA		
SBR	45	NA			49	NA			49	NA		
PM Peak Hour												
NBL	51	0.04	A (8)	-/1	122	0.11	A (8)	-/3	125	0.12	A (8)	-/3
NBT	308	NA			375	NA			376	NA		
EBLR	170	0.38	C (16)	-/12	244	0.72	E (36)	-/39	246	0.73	E (37)	-/39
SBT	220	NA			271	NA			272	NA		
SBR	30	NA			57	NA			57	NA		

Existing Conditions: Under existing conditions, the intersection operates well during both weekday peak hours. All movements are operating with residual capacity and acceptable delays. All existing 95th percentile queues can be accommodated by their available storage lanes. No critical movements have been identified.

2031 Future Background Conditions: Under 2031 future background conditions, the intersection is expected to generally operate similar to existing conditions with acceptable increases in V/C ratios and delay, the most notable increase being the EBR movement in the PM peak period. No critical movements have been identified.

2031 Future Total Conditions: Under 2031 future total conditions, the addition of site traffic is expected to have an acceptable impact on intersection operations, with all movements operating similar to 2031 future background conditions. No critical movements have been identified. No intersection modifications are recommended.

6.2.2 Ninth Line & Meridian Drive

The intersection capacity analysis results at Ninth Line & Meridian Drive during the AM and PM peak hours are summarized in **Table 6-2.**

Table 6-2: Intersection Capacity Analysis - Ninth Line & Meridian Dr (2031)

Mvmt	2026 Existing				2031 Future Background				2031 Future Total			
	Vol	V/C	LOS (Delay)	Queues (50/95)	Vol	V/C	LOS (Delay)	Queues (50/95)	Vol	V/C	LOS (Delay)	Queues (50/95)
AM Peak Hour												
NBT	188	NA			270	NA			276	NA		
NBR	166	NA			166	NA			167	NA		
WBL	136	0.62	E (36)	-/27	136	0.89	**F (84)**	-/48	136	0.89	**F (87)**	-/49
WBR	75	0.13	B (10)	-/3	75	0.15	B (11)	-/4	75	0.15	B (11)	-/4
SBL	108	0.13	A (9)	-/4	108	0.14	A (9)	-/4	108	0.15	A (9)	-/4
SBT	220	NA			331	NA			331	NA		
PM Peak Hour												
NBT	322	NA			463	NA			467	NA		
NBR	53	NA			53	NA			54	NA		
WBL	57	0.15	C (16)	-/4	57	0.22	C (22)	-/6	57	0.22	C (22)	-/6
WBR	35	0.05	B (10)	-/1	35	0.06	B (12)	-/1	35	0.06	B (12)	-/1
SBL	40	0.04	A (8)	-/1	40	0.04	A (9)	-/1	40	0.04	A (9)	-/1
SBT	271	NA			390	NA			393	NA		

Existing Conditions: Under existing conditions, the intersection generally operates with acceptable performance during both weekday peak hours. Most movements are operating with residual capacity and acceptable delays. The westbound left movement operates with moderate delays; however, all existing 95th percentile queues can be accommodated by their available storage lanes. No critical movements are identified.

2031 Future Background Conditions: Under future background conditions, with the exception of the westbound left movement, all movements experience moderate increases in volume-to-capacity ratios and delays, and continue to operate with residual capacity, acceptable delays, and adequate storage lengths. However, the westbound left movement is forecast to experience a noticeable degradation in the level of service during the AM peak period relative to existing conditions and is now a critical movement, with a queue length approaching capacity.

2031 Future Total Conditions: Under 2031 future total conditions, the addition of site-generated traffic is expected to have an incremental impact with all movements operating similar to 2031 future background conditions. The westbound left movement experiences a slight additional increase in delay; however, this change is small relative to the increase observed under background growth conditions. Overall, operations remain comparable to future background conditions. No intersection modifications are recommended.

6.2.3 Ninth Line & Site Access

The intersection capacity analysis results at Ninth Line & Site Access during the AM and PM peak hours are summarized in **Table 6-3.**

Table 6-3: Intersection Capacity Analysis - Ninth Line & Site Access (2031)

Mvmt	2026 Existing				2031 Future Background				2031 Future Total			
	Vol	V/C	LOS (Delay)	Queues (50/95)	Vol	V/C	LOS (Delay)	Queues (50/95)	Vol	V/C	LOS (Delay)	Queues (50/95)
AM Peak Hour												
NBT	354	NA			471	NA			471	NA		
NBR	NA				NA				2	NA		
WBR	NA				NA				7	0.32	F (63)	-/8
SBT	356	NA			495	NA			495	NA		
PM Peak Hour												
NBT	375	NA			527	NA			527	NA		
NBR	NA				NA				9	NA		
WBR	NA				NA				5	0.31	F (85)	-/8
SBT	328	NA			459	NA			462	NA		

Only future total conditions were analyzed for this intersection, as site traffic was considered to be negligible under existing and future background conditions.

2031 Future Total Conditions: This intersection is proposed to operate as a right-in, right-out. The westbound right movement is forecast to experience higher delays, particularly under the PM peak period; however, it is expected to continue operating with residual capacity, and available storage remains sufficient to accommodate projected queues. As such, no intersection improvements are recommended.

6.3 UNSIGNALIZED INTERSECTIONS - 2036

The results for the unsignalized intersections under each traffic scenario during the weekday AM and PM peak hours are summarized in the section below.

6.3.1 Ninth Line & Bethesda Side Road

The intersection capacity analysis results at Ninth Line & Bethesda Side Road during the AM and PM peak hours are summarized in **Table 6-4.**

Table 6-4: Intersection Capacity Analysis - Ninth Line & Bethesda Side Rd (2036)

Mvmt	2036 Future Background				2036 Future Total			
	Vol	V/C	LOS (Delay)	Queues (50/95)	Vol	V/C	LOS (Delay)	Queues (50/95)
AM Peak Hour								
NBL	127	0.14	A (9)	-/4	131	0.15	A (9)	-/4
NBT	260	NA			262	NA		
EBLR	189	0.58	D (26)	-/25	189	0.59	D (27)	-/25
SBT	377	NA			377	NA		
SBR	49	NA			49	NA		
PM Peak Hour								
NBL	122	0.12	A (9)	-/3	125	0.12	A (9)	-/3
NBT	453	NA			454	NA		
EBLR	244	0.86	F (59)	-/55	246	0.88	F (62)	-/56
SBT	327	NA			328	NA		
SBR	57	NA			57	NA		

2036 Future Background Conditions: Under 2036 future background conditions, most movements at the intersection are expected to operate similarly to 2031 future background conditions, with acceptable increases in V\C ratios and delay. However, there is a notable degradation in the LOS for the eastbound movements during the PM peak period, which is now considered a critical movement under these conditions. It is recommended that the Region continue monitoring this intersection and determine whether modifications are required if anticipated traffic growth is realized.

2036 Future Total Conditions: Under 2036 future total conditions, the addition of site-generated traffic is expected to have an incremental impact, with all movements operating similar to 2036 future background conditions. The eastbound movements experience a slight increase in delay; however, this change is small relative to the increase observed under background growth conditions. Overall, operations remain comparable to future background conditions. The increase in queue length and degradation in LOS for the EBLR movements at this intersection are largely due to background traffic and not attributable to the proposed development.

6.3.2 Ninth Line & Meridian Drive

The intersection capacity analysis results at Ninth Line & Meridian Drive during the AM and PM peak hours are summarized in **Table 6-5.**

Table 6-5: Intersection Capacity Analysis - Ninth Line & Meridian Dr (2036)

Mvmt	2036 Future Background				2036 Future Total			
	Vol	V/C	LOS (Delay)	Queues (50/95)	Vol	V/C	LOS (Delay)	Queues (50/95)
AM Peak Hour								
NBT	317	NA			323	NA		
NBR	166	NA			167	NA		
WBL	136	1.07	F (146)	-/64	136	1.09	F (153)	-/65
WBR	75	0.16	B (12)	-/4	75	0.16	B (12)	-/4
SBL	108	0.15	A (10)	-/4	108	0.15	A (10)	-/4
SBT	387	NA			387	NA		
PM Peak Hour								
NBT	544	NA			548	NA		
NBR	53	NA			54	NA		
WBL	57	0.27	D (28)	-/8	57	0.28	D (28)	-/8
WBR	35	0.07	B (12)	-/1	35	0.07	B (12)	-/1
SBL	40	0.04	A (9)	-/1	40	0.04	A (9)	-/1
SBT	459	NA			462	NA		

2036 Future Background Conditions: Under 2036 future background conditions, with the exception of the WBL movement, all movements experience a moderate increase in volume-to-capacity ratios and delays, and continue to operate with residual capacity, acceptable delays, and adequate storage lengths. The westbound left movement is expected to experience capacity constraints during the AM peak period, resulting in a V/C ratio exceeding 1.0, with large delays and 95th percentile queues exceeding their available storage capacity. It is recommended that the Region continue monitoring this intersection and determine whether intersection modifications are required if traffic growth is realized.

2036 Future Total Conditions: Under 2036 future total conditions, the addition of site-generated traffic is expected to have a marginal incremental impact, with all movements operating similarly to 2036 future background conditions.

The increase in queue length and degradation in LOS for the westbound left movement at this intersection are largely due to background traffic and are not attributable to the proposed development. No site traffic is expected to be added to this movement.

6.3.3 Ninth Line & Site Access

The intersection capacity analysis results at Ninth Line & Site Access during the AM and PM peak hours are summarized in **Table 6-6.**

Table 6-6: Intersection Capacity Analysis - Ninth Line & Site Access (2036)

Mvmt	2036 Future Background				2036 Future Total			
	Vol	V/C	LOS (Delay)	Queues (50/95)	Vol	V/C	LOS (Delay)	Queues (50/95)
AM Peak Hour								
NBT	560	NA			560	NA		
NBR	NA				2	NA		
WBR	NA				7	0.52	F (129)	-/14
SBT	585	NA			585	NA		
PM Peak Hour								
NBT	622	NA			622	NA		
NBR	NA				9	NA		
WBR	NA				5	0.54	F (184)	-/13
SBT	542	NA			545	NA		

Only future total conditions were analyzed for this intersection, as site traffic was considered to be negligible under existing and future background conditions.

2036 Future Total Conditions: Under 2036 future total conditions, there is an expected increase in delay for the WBR movement compared to 2031 conditions. However, the intersection is expected to continue operating with residual capacity and storage. No other critical movements are identified, and as such, no intersection modifications are recommended.

The large delay and resulting poor LOS for westbound right movements at this intersection are attributed to traffic along the Ninth Line corridor, whose growth over the analysis period is driven mainly by background traffic rather than site-generated traffic. Additionally, the large delays are not associated with movements within the public RoW, and many private driveways along the Ninth Line corridor are expected to experience similar delays during the weekday peak periods.

6.4 ROUNDABOUT INTERSECTIONS

The intersection capacity analysis results for the roundabout intersections in the study area are discussed in the following section. Detailed Arcady roundabout intersection analysis results are provided in **Appendix J**.

6.4.1 Existing Conditions

Intersection capacity analysis results under existing conditions are shown in **Table 6-7**.

Table 6-7: Roundabout Intersection Analysis – Existing

Roundabout	Leg	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
AM Peak Hour									
Ninth Line and Baker Hill Boulevard/Bayberry Street	Westbound	0.26	~1	4.41	0.20	A	4.83	A	91% (Southbound Leg)
	Southbound	0.76	1.08	5.59	0.41	A			
	Eastbound	0.12	~1	2.79	0.11	A			
	Northbound	0.58	1.04	4.92	0.36	A			
PM Peak Hour									
Ninth Line and Baker Hill Boulevard/Bayberry Street	Westbound	0.11	~1	3.74	0.10	A	4.03	A	146% (Northbound Leg)
	Southbound	0.40	~1	4.11	0.28	A			
	Eastbound	0.08	~1	2.41	0.08	A			
	Northbound	0.49	1.03	4.55	0.33	A			

Under existing weekday AM and PM peak hour conditions, the Ninth Line and Baker Hill Boulevard/Bayberry Street roundabout is operating well with all movements within capacity with V/C ratios below 1.00, minimal delay at LOS A, and minimal queuing.

6.4.2 Future Background

Intersection capacity analysis results under future background conditions for the 2031 and 2036 horizon years are shown in **Table 6-8** and **Table 6-9**, respectively.

Table 6-8: Roundabout Intersection Analysis – Future Background (2031)

Roundabout	Leg	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
AM Peak Hour									
Ninth Line and Baker Hill Boulevard/Bayberry Street	Westbound	0.29	~1	5.02	0.23	A	6.17	A	44% (Southbound Leg)
	Southbound	1.38	N/A*	7.51	0.57	A			
	Eastbound	0.15	~1	3.10	0.13	A			
	Northbound	0.92	1.04	5.99	0.47	A			
PM Peak Hour									
Ninth Line and Baker Hill Boulevard/Bayberry Street	Westbound	0.12	~1	4.20	0.11	A	4.87	A	81% (Northbound Leg)
	Southbound	0.63	~1	4.81	0.38	A			
	Eastbound	0.10	~1	2.56	0.09	A			
	Northbound	0.85	~1	5.62	0.45	A			

*Due to extremely small or large values of the mean queue, the 95% queue could not be reliably calculated in ARCADY. However, due to the minimal delay and ample residual capacity, it is expected that the 95% queue would not be significant.

Table 6-9: Roundabout Intersection Analysis – Future Background (2036)

Roundabout	Leg	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
AM Peak Hour									
Ninth Line and Baker Hill Boulevard/Bayberry Street	Westbound	0.32	~1	5.53	0.24	A	7.41	A	26% (Southbound Leg)
	Southbound	1.98	2.14	9.28	0.66	A			
	Eastbound	0.16	~1	3.27	0.14	A			
	Northbound	1.24	N/A*	6.94	0.55	A			
PM Peak Hour									
Ninth Line and Baker Hill Boulevard/Bayberry Street	Westbound	0.13	~1	4.50	0.12	A	5.45	A	60% (Northbound Leg)
	Southbound	0.79	~1	5.31	0.44	A			
	Eastbound	0.10	~1	2.63	0.09	A			
	Northbound	1.09	1.03	6.36	0.52	A			

Due to extremely small or large values of the mean queue, the 95% queue could not be reliably calculated in ARCADY. However, due to the minimal delay and ample residual capacity, it is expected that the 95% queue would not be significant.

Under 2031 and 2036 future background weekday AM and PM peak hour conditions, the roundabouts are expected to operate well with all movements within capacity with V/C ratios below 1.00, minimal delay at LOS A, and minimal queuing.

6.4.3 Future Total

Intersection capacity analysis results under future total conditions for the 2031 and 2036 horizon years are shown in **Table 6-10** and **Table 6-11**, respectively.

Table 6-10: Roundabout Intersection Analysis – Future total (2031)

Roundabout	Leg	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
AM Peak Hour									
Ninth Line and Baker Hill Boulevard/Bayberry Street	Westbound	0.29	~1	5.03	0.23	A	6.18	A	44% (Southbound Leg)
	Southbound	1.38	N/A*	7.51	0.57	A			
	Eastbound	0.15	~1	3.10	0.13	A			
	Northbound	0.93	~1	6.01	0.48	A			
PM Peak Hour									
Ninth Line and Baker Hill Boulevard/Bayberry Street	Westbound	0.12	~1	4.24	0.11	A	4.91	A	79% (Northbound Leg)
	Southbound	0.63	~1	4.83	0.39	A			
	Eastbound	0.10	~1	2.56	0.09	A			
	Northbound	0.87	~1	5.69	0.46	A			

**Due to extremely small or large values of the mean queue, the 95% queue could not be reliably calculated in ARCADY. However, due to the minimal delay and ample residual capacity, it is expected that the 95% queue would not be significant.*

Table 6-11: Roundabout Intersection Analysis – Future Total (2036)

Roundabout	Leg	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
AM Peak Hour									
Ninth Line and Baker Hill Boulevard/Bayberry Street	Westbound	0.32	~1	5.54	0.24	A	7.42	A	26% (Southbound Leg)
	Southbound	1.98	2.14	9.28	0.66	A			
	Eastbound	0.16	~1	3.27	0.14	A			
	Northbound	1.25	v	6.97	0.55	A			
PM Peak Hour									
Ninth Line and Baker Hill Boulevard/Bayberry Street	Westbound	0.13	~1	4.54	0.12	A	5.51	A	58% (Northbound Leg)
	Southbound	0.80	~1	5.34	0.44	A			
	Eastbound	0.10	~1	2.64	0.09	A			
	Northbound	1.12	N/A*	6.45	0.52	A			

*Due to extremely small or large values of the mean queue, the 95% queue could not be reliably calculated in ARCADY. However, due to the minimal delay and ample residual capacity, it is expected that the 95% queue would not be significant.

Under 2031 and 2036 future total weekday AM and PM peak hour conditions, the roundabouts are expected to operate well with all movements within capacity with V/C ratios below 1.00, minimal delay at LOS A, and minimal queuing. No intersection improvements are recommended at this time.

7 MULTI-MODAL LEVEL OF SERVICE

In order to evaluate the conditions of the study area existing road network in terms of supporting transit and active transportation activities, York Region's Transportation Mobility Plan Guidelines for Development Applications (2025) were adopted to generate levels of service (LOS) to describe the convenience and comfort level for active transportation infrastructures in the subject area. The results are on a scale of A to F, where A represents preferred conditions and F represents least preferred conditions, depending on the criteria of the mode. It should be noted that LOS is not always the desired target for all modes, rather each mode is considered independently, and the minimum LOS targets depend on the context of the street and surrounding area.

The pedestrian level of service (PLOS) and biking level of service (BLOS) evaluation was conducted for the worst section of the segments along Bethesda Side Road, Meridian Drive, Ninth Line, Bakerhill boulevard and Bayberry Street.

Since no regular transit route passes through our site boundaries and there are no transit trips generated by the site, the Transit Level of Service (TLOS) was not analyzed. A breakdown of the calculations and lookup tables from the MMLOS Guidelines are provided in **Appendix K**.

7.1 PEDESTRIAN LEVEL OF SERVICE

The Pedestrian Level of Service (PLOS) for the segments within the study area are summarized in **Table 7-1**.

Table 7-1: Pedestrian Level of Service Evaluation

Intersection	Direction	Existing Conditions		
		Segment		Intersection
		Description	LOS	LOS
Ninth Line and Bethesda Side Rd.	EB	Bethesda Side Rd.	F	F
	WB	Bethesda Side Rd.	F	F
	NB	Ninth Line	E	E
	SB	Ninth Line	E	E
Ninth Line and Meridian Dr.	EB	Meridian Dr.	B	B
	WB	Meridian Dr.	B	B
	NB	Ninth Line	E	E
	SB	Ninth Line	E	E
Ninth Line and Site Access	EB	Site Access	F	F
	WB	Site Access	F	F
	NB	Nine Line	B	B
	SB	Ninth Line	E	E
Ninth Line & Bakerhill Blvd & Bayberry St.	EB	Bayberry St. /Bakerhill Blvd.	B	B
	WB	Bayberry St. /Bakerhill Blvd.	B	B
	NB	Ninth Line	B	B
	SB	Ninth Line	B	B

Pedestrian facilities are provided along the Meridian Drive, Bakerhill Boulevard, and Bayberry Street corridors and along a portion of the NB Ninth Line corridor. However, portions of the NB Ninth Line corridor and the entire SB segment only have paved shoulders. The Bethesda Side Road corridor has no pedestrian facilities or paved shoulder. No changes are expected in the future background and future total conditions, so the pedestrian levels of service for these conditions will be the same as those shown for the existing conditions.

7.2 CYCLING ASSESSMENT

The Bicycle Level of Service (BLOS) for the segments within the study area are summarized in **Table 7-2**.

Table 7-2: Bicycle Level of Service Evaluation

Intersection	Direction	Existing Conditions		
		Segment		Intersection
		Description	LOS	LOS
Ninth Line and Bethesda Side Rd.	EB	Bethesda Side Rd.	F	F
	WB	Bethesda Side Rd.	F	F
	NB	Ninth Line	F	F
	SB	Ninth Line	F	F
Ninth Line and Meridian Dr.	EB	Meridian Dr.	F	F
	WB	Meridian Dr.	F	F
	NB	Ninth Line	F	F
	SB	Ninth Line	F	F
Ninth Line and Site Access	EB	Site Access	F	F
	WB	Site Access	F	F
	NB	Nine Line	F	F
	SB	Ninth Line	F	F
Ninth Line & Bakerhill Blvd & Bayberry St.	EB	Bayberry St. /Bakerhill Blvd.	F	F
	WB	Bayberry St. /Bakerhill Blvd.	F	F
	NB	Ninth Line	F	F
	SB	Ninth Line	F	F

There are no bicycle facilities provided along any of the corridors. The existing pedestrian infrastructure is also generally too narrow to allow for shared use. No changes are expected in the future background and future total conditions, so the bicycle levels of service for these conditions will be the same as those shown for the existing conditions.

The site is expected to generate the following two-way pedestrian trips:

- Pedestrian trips: 3 in the AM and 4 in the PM

These trips are expected to be supported by the multi-modal network surrounding the subject site. In addition, the Transportation Demand Management (TDM) plan for the proposed development, as explained in **Section 11**, includes strategies to support and encourage users to travel by alternative modes.

8 PARKING ASSESSMENT

The following sections review the vehicular and bicycle parking standards applicable to the proposed development.

8.1 ZONING BY-LAW REQUIREMENTS – BICYCLE PARKING

The Comprehensive Zoning By-law 2010-001-ZO does not require bicycle parking for apartment buildings. Notwithstanding this, the proposed development includes a total of 25 bicycle parking spaces, consisting of 6 short-term and 19 long-term spaces.

8.2 ZONING BY-LAW REQUIREMENTS – VEHICLE PARKING

The vehicle parking requirements for the subject site are governed by the parking standards set out in the Town of Stouffville's Comprehensive Zoning By-law 2010-001-ZO.

The applicable parking requirements and proposed vehicular parking supply are outlined in **Table 8-1**.

Table 8-1: Comprehensive Zoning By-law 2010-001-ZO Parking Requirements

Land Use	Units	Parking Rate (Minimum)	Minimum Spaces	Proposed Supply
Residential	40 units	1.25 spaces/unit	50 spaces	34* spaces
Visitors		0.25 spaces/unit	11 spaces	11 spaces
		Total	61 spaces	45 spaces

**Proposed residential supply does not include pick-up/drop-off space. Pick-up and drop-off spaces do not count in the proposed parking supply.*

As per By-law Zoning By-law 2010-001-ZO, the proposed development is required to provide a minimum of 61 vehicular parking spaces, consisting of 50 residential spaces and 11 visitor spaces.

The proposed development will provide 46 parking spaces, consisting of 34 residential spaces, and 11 visitor spaces. The proposed vehicle parking supply is deficient by 16 residential spaces compared to the applicable zoning requirements.

Given the existing and planned transportation network surrounding the subject site, as discussed in **Section 2** and **Section 3**, future residents and visitors will have access to alternative transportation options that do not require the use of a personal vehicle, including the existing YRT service, York Region On-Request bus service, availability of active transportation facilities, and nearby amenities.

Additionally, the proposed parking supply reflects the physical constraints of the subject site, including the limited site area and the need to efficiently accommodate the proposed residential building, pedestrian circulation, landscaping, and other required site design elements. Providing the full zoning-required parking supply would require additional parking area that would impact the overall site layout and functionality. Additional supporting justification for the proposed vehicle parking supply is provided in **Section 9.**

8.3 ACCESSIBLE VEHICLE PARKING REQUIREMENTS

A summary of the required and proposed accessible parking supply is provided in **Table 8-2** below.

Table 8-2: Accessible Parking Manual – Accessible Parking Requirements

Parking Spaces Required	Parking Rate	Minimum Required Parking		Proposed Supply
		Type A	Type B	
61 spaces	Requirement of 26 to 100 spaces – 4% of total Required parking	2 spaces	1 space	2 Type 'A' spaces

Based on the proposed parking supply of 61 spaces, the development requires a minimum of three (3) accessible parking spaces, including two (2) Type 'A' spaces and one (1) Type 'B' space. The proposed development provides two (2) Type 'A' accessible parking spaces, resulting in a minor deficiency of one (1) Type 'B' accessible parking space.

9 PARKING JUSTIFICATION

The proposed development will provide 45 vehicular parking spaces, consisting of 34 residential parking spaces and 11 visitor parking spaces. While this represents a deficiency of 16 residential parking spaces from the minimum parking requirements of Zoning By-law 2010-001-ZO, the proposed supply reflects the physical constraints of the site, while continuing to meet the applicable visitor parking requirements.

The following sections provide justification for the proposed residential parking supply.

9.1 EXISTING AND FUTURE TRANSPORTATION CONTEXT

9.1.1 Opportunities for Transit Users

The subject site has convenient access to the transit network provided by York Region Transit, including the YRT Route 9 – Ninth Line which is accessible approximately 600m south of the subject site at the intersection of Millard Street and Ninth Line. Route 9 provides local transit service within Stouffville, with connections to Stouffville GO Station, Markham Stouffville Hospital, Cornell Bus Terminal, and the broader York Region Transit network.

The subject site is also located approximately 1.7km northwest of Stouffville GO Station, providing access to GO Train service on the Stouffville Line, GO Bus Routes 70 and 71, and additional YRT services. In addition, residents and visitors of the site will have access to the YRT Stouffville On-Request service, which provides a flexible on-demand transit service throughout the Stouffville service area.

9.1.2 Opportunities for Active Transportation Users

The subject site is well connected to the surrounding pedestrian and cycling network. Continuous sidewalks are provided along both sides of Meridian Drive north of the site and along the east side of Ninth Line south of Meridian Drive. Protected pedestrian crossings are provided at the intersections of Meridian Drive and Ninth Line, and at the Ninth Line/Bayberry Street/Baker Hill Boulevard roundabout.

Nearby cycling facilities include shared roadways along Ninth Line, Boundary Street, and Bethesda Road. Bayberry Street and Ninth Line also form part of the Greenbelt Route, a signed regional cycling route through Ontario's Greenbelt.

The Town's Official Plan and Transportation Master Plan identify future active transportation improvements within the study area, including a boulevard pathway along Ninth Line and additional cycling facilities on surrounding roadways, which will further improve cycling connectivity.

9.2 POLICY REVIEW

There are a number of key Provincial and Town policy documents and initiatives providing overarching direction as it relates to the provision of vehicular parking, particularly within transit accessible areas. The subject site has convenient access to existing and planned local and regional transit services. The following section describes the relevant policies as it relates to reducing vehicular parking and increasing other modes of transportation.

9.2.1 Provincial Planning Statement (2024)

The Provincial Planning Statement (PPS) 2024 is a streamlined province-wide land use planning policy framework which came into effect on October 20, 2024 and replaces both the Provincial Policy Statement, 2020 and A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2019.

Under Section 3 of the Planning Act, all decisions affecting land use planning matters “shall be consistent with” the PPS. Key transportation-related policies promote land use patterns that:

- Efficiently use land and resources;
- Support active transportation;
- Are transit-supportive, as appropriate

Section 3.2.2 further encourages the efficient use of existing and planned infrastructure through transportation demand management strategies, where feasible. Section 2.4.1.2 directs planning authorities to support complete communities and plan strategic growth areas to accommodate and support transit networks.

The proposed parking supply will promote the efficient use of the transportation network that surrounds the subject site, situating future residents in an area where they can travel without requiring the use of a personal vehicle.

9.2.2 Town of Whitchurch-Stouffville Official Plan (2025)

The Town of Whitchurch-Stouffville Official Plan establishes a multi-modal transportation framework that supports a balanced transportation system and the integration of land use with transportation planning. The Official Plan recognizes active transportation as an important component of the Town's transportation network and supports the implementation of the active transportation system identified on Schedule P1 - Active Transportation Plan. The Plan also promotes the provision of safe and convenient pedestrian and cycling facilities as part of new development and roadway improvements, and encourages transportation choices that support walking, cycling, transit, and other sustainable modes of travel.

The proposed development supports these objectives by providing access to existing transit services, planned active transportation facilities, and implementing Transportation Demand Management measures that encourage travel by modes other than the private automobile.

9.3 OVERALL SUMMARY

The proposed development will provide 45 vehicular parking spaces, consisting of 34 residential parking spaces and 11 visitor parking spaces. While this represents a reduction of 16 residential parking spaces from the minimum parking requirements of Zoning By-law 2010-001-ZO, the proposed parking supply reflects the physical constraints of the subject site while meeting the applicable visitor parking requirement.

The proposed parking supply aligns with the transportation objectives of the Provincial Planning Statement (2024) and the Town of Whitchurch-Stouffville Official Plan, which support multi-modal transportation networks, active transportation, and transportation demand management. Future residents and visitors of the site will have access to existing and planned transportation options, including York Region Transit services, the Stouffville GO Station, YRT On-Request service, existing and planned active transportation facilities, and nearby amenities.

The proposed parking supply aligns with the transportation and parking objectives of both the Province and the Town of Whitchurch-Stouffville. This strategy will be supported by a robust Transportation Demand Management (TDM) Plan that enhances the convenience and attractiveness of travel by transit, cycling, and walking, as discussed in **Section 11**. Based on the above, it is our professional opinion that the proposed vehicle parking supply is appropriate and should be supported.

10 LOADING ASSESSMENT

The Town of Stouffville's Comprehensive Zoning By-law 2010-001-ZO does not provide minimum loading requirements. However, it is noted that in the Town of Stouffville's Comprehensive Zoning By-law 2010-001-ZO, guidance is provided regarding loading facilities, including the following dimensional requirements:

Small Loading Space

- minimum width of 3.6 metres;
- minimum length of 9.0 metres; and
- minimum vertical clearance of 4.25 metres.

Large Loading Space

- minimum width of 3.6 metres;
- minimum length of 15.0 metres; and
- minimum vertical clearance of 4.25 metres.

One (1) loading space is proposed for the site. Access to the loading space is provided via the existing driveway off Ninth Line.

A functional design review, including swept path diagrams demonstrating vehicular and loading functionality, is provided in **Appendix L.**

11 TRANSPORTATION DEMAND MANAGEMENT PLAN

Transportation Demand Management (TDM) is a set of strategies that strive towards a more efficient transportation network by influencing travel behaviour. Effective TDM measures can reduce vehicle usage and encourage residents to engage in more sustainable methods of travel. There are various opportunities to incorporate TDM measures for the subject site that will support alternative modes of transportation for future residents and visitors. **Table 11-1** summarizes the proposed strategies and the expected impact.

The combination of these TDM strategies listed below is expected to significantly reduce the auto-dependency of residents and visitors for the subject development and encourage more sustainable travel habits.

11.1 CYCLING-BASED STRATEGIES

Provision of Bicycle Parking

The proposed development will provide bicycle parking spaces to support and encourage active transportation. Long-term bicycle parking spaces will be provided in secure, weather-protected bicycle-storage rooms.

Promote and Increase Cycling Awareness

Information packages will be made available to residents of the proposed development, to help encourage active transportation and increase awareness of different travel alternatives. The package will include information regarding the environmental and health benefits of cycling, rules of the road, and maps which display active transportation infrastructure within walking/cycling distance of the site.

11.2 PEDESTRIAN-BASED STRATEGIES

On-Site Pedestrian Infrastructure and Connection to the Public Network: The development proposal should ensure safe, comfortable and convenient pedestrian connections to key destinations such as street level retail and existing transit stops within the surrounding area.

Proposed pedestrian walkways should be connected to Ninth Line. This creates convenient access for pedestrians, cyclists, and transit users. Additional pedestrian strategies that will enhance the experience and encourage residents and visitors to utilize walking as a mode of travel include:

- Increase pedestrian permeability through the design of internal walkways and connections to minimize unnecessary travel distances and provide direct access to the building entrance and public sidewalk network where possible,
- Consolidate vehicular access points and minimize curb cuts to provide a consistent pedestrian corridor,
- Provide a range of pedestrian amenities to increase the attractiveness and functionality of adjacent streets, including but not limited to street furniture, street lighting, tree cover, planting, and waste and recycling containers;
- Enhance connections between on-site pedestrian routes and adjacent public sidewalks by providing clear, direct, and barrier-free pedestrian corridors, and,

- Enhance pedestrian realm and consider persons with mobility difficulties. Where they exist, stairways leading to and from public streets should be outfitted with ramps or elevators. Pedestrian facilities should have minimal barriers to provide a permeable pedestrian corridor.

Pedestrian and public realm improvements

As shown in the site plan, the proposed development will contribute to public realm improvements along Ninth Line by providing widened sidewalks and landscape buffers, providing a more comfortable experience for pedestrians.

11.3 TRANSIT-BASED STRATEGIES

Connection to Transit Networks

The proposed development will have access to the York Region Transit (YRT) network, with Route 9 – Ninth Line accessible at the Millard Street and Ninth Line stop, approximately 600m south of the site. Route 9 provides local transit service within Stouffville and connections to Stouffville GO Station, Cornell Bus Terminal, and the broader YRT network. The availability of nearby existing surface bus routes as well as the York region On-Request bus services, will encourage future residents and visitors of the site to use public transit.

Transit Information Packages

For residents to take complete advantage of the local transit services, transit information packages will be distributed to residents to increase transit awareness. The information packages will contain public transit information such as route maps and timetables.

11.4 PARKING AND TRAVEL BASED STRATEGIES

Unbundled parking

It is recommended that the proposed development lease parking spaces separately from the cost of purchasing a unit. This will encourage other sustainable modes of transport and reduce auto-dependency by discouraging vehicle ownership as occupants recognize the costs of maintaining a parking space.

11.5 IMPACT OF TDM MEASURES

The proposed TDM measures are expected to support multi-modal travel by increasing the convenience and attractiveness of taking transit, walking, or cycling to/from the subject site. The proposed TDM measures will help reduce vehicle activity associated with the proposed development and encourage greater reliance upon transit and active transportation. **Table 11-1** summarizes the proposed strategies.

Table 11-1: Summary of TDM Measures

Recommended TDM Measure	Responsibility	Quantity	Total Cost
Pedestrian-Based Strategies			
On-Site Pedestrian Infrastructure and Connection to the Public Network	Applicant	N/A	Design Cost
Pedestrian and Public Realm Improvements			Design Cost
Cycling-Based Strategies			
Provision of Bicycle Parking Facilities	Applicant	25 spaces	Design Cost
Promote and Increase Cycling Awareness		40 units	$80 ($2.00 per unit)
Transit-Based Strategies			
Connection to Transit Networks	Applicant	N/A	Existing Condition
Transit Information Packages		40 units	$80 ($2.00 per unit)
Parking-Based Strategies			
Unbundled Parking	Applicant	N/A	Included in Site Plan
Total	-	-	**$160**

12 CONCLUSIONS AND RECOMMENDATIONS

- **Proposed Development:** LEA has been retained by Angil Development Group Inc. to undertake a TIS in support of the Zoning By-Law Amendment (ZBA) application for the residential development located at 12717 Ninth Line, in the Town of Whitchurch-Stouffville. The proposed development will replace the existing single detached residential dwelling and vacant lot to construct a new 4-storey apartment building comprising 40 residential units.
- **Surrounding Transit Network:** The subject site is served by the York Region Transit (YRT) network, with Route 9 - Ninth Line accessible at the Millard Street and Ninth Line stop, approximately 600m south of the site (equivalent to an 8-minute walk). Route 9 provides local service within Stouffville and connections to Stouffville GO Station, Markham Stouffville Hospital, Cornell Bus Terminal, and the broader YRT network, including Viva Purple rapid transit service. Stouffville GO Station, located approximately 1.7km southeast of the site, provides GO Train service on the Stouffville Line, GO Bus Routes 70/71, and connections to YRT Routes 9 and 15. The subject site is also served by YRT Stouffville On-Request transit service, providing flexible, on-demand transit throughout the Stouffville service area.
- **Surrounding Active Network:** The pedestrian network surrounding the subject site includes sidewalks and pedestrian crossings along portions of the surrounding road network. Continuous sidewalks are provided along both sides of Meridian Drive north of the site and along the east side of Ninth Line south of Meridian Drive, while Bethesda Road functions as a rural roadway without dedicated sidewalk infrastructure. Nearby cycling facilities include shared roadways along Ninth Line, Boundary Street, and Bethesda Road, with Bayberry Street and Ninth Line also forming part of the Greenbelt Route, a regional signed cycling route through Ontario's Greenbelt.
- **Site Trip Generation:** The proposed development is anticipated to generate 9 two-way auto trips (2 inbound and 7 outbound) during the AM peak hour and 14 two-way auto trips (9 inbound and 5 outbound) during the PM peak hour.
- **Intersection Capacity Analysis:** The analysis results confirm that the proposed development will have an acceptable impact on the surrounding road network, and that no roadway modifications are required due to the addition of site traffic.
- **Vehicle Parking:** As per By-law Zoning By-law 2010-001-ZO, the proposed development is required to provide a minimum of 61 vehicular parking spaces, consisting of 50 residential spaces and 11 visitor spaces.
- The proposed development will provide 45 parking spaces, consisting of 34 residential spaces, and 11 visitor spaces. The proposed vehicle parking supply is deficient by 16 residential spaces compared to the applicable zoning requirements.
- The proposed parking supply reflects the physical constraints of the subject site, including its limited size and the need to accommodate the proposed building, pedestrian circulation, landscaping, and other site design elements. Future residents and visitors will also benefit from access to existing and planned transportation options, including YRT Route 9, Stouffville GO Station, YRT On-Request service, and the Town's existing and planned active transportation network. Together with the proposed Transportation Demand Management (TDM) measures, these transportation options provide opportunities to reduce reliance on private vehicles for some trips.

- **Bicycle Parking:** The Town of Stouffville's Comprehensive Zoning By-law 2010-001-ZO does not include minimum bicycle parking requirements. Notwithstanding this, the proposed development includes a total of 25 bicycle parking spaces, consisting of 6 short-term and 19 long-term spaces.
- **Loading:** The Town of Stouffville's Comprehensive Zoning By-law 2010-001-ZO does not include minimum loading requirements. One (1) loading space is proposed for the site. Access to the loading space is provided via the existing driveway off Ninth Line.
- **Transportation Demand Management Plan:** The proposed development will be supported by a comprehensive set of TDM measures to promote the enhanced use of transit and active transportation.

Transportation Impact Study
Proposed Residential Development
12717 Ninth Line, Town of Whitchurch-Stouffville
27022

APPENDIX A

Terms of Reference

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WWW.LEA.CA

May 6th , 2026

Reference Number: 27022

Hena Kabir
Town of Whitchurch-Stouffville
Via Email: hena.kabir@townofws.ca

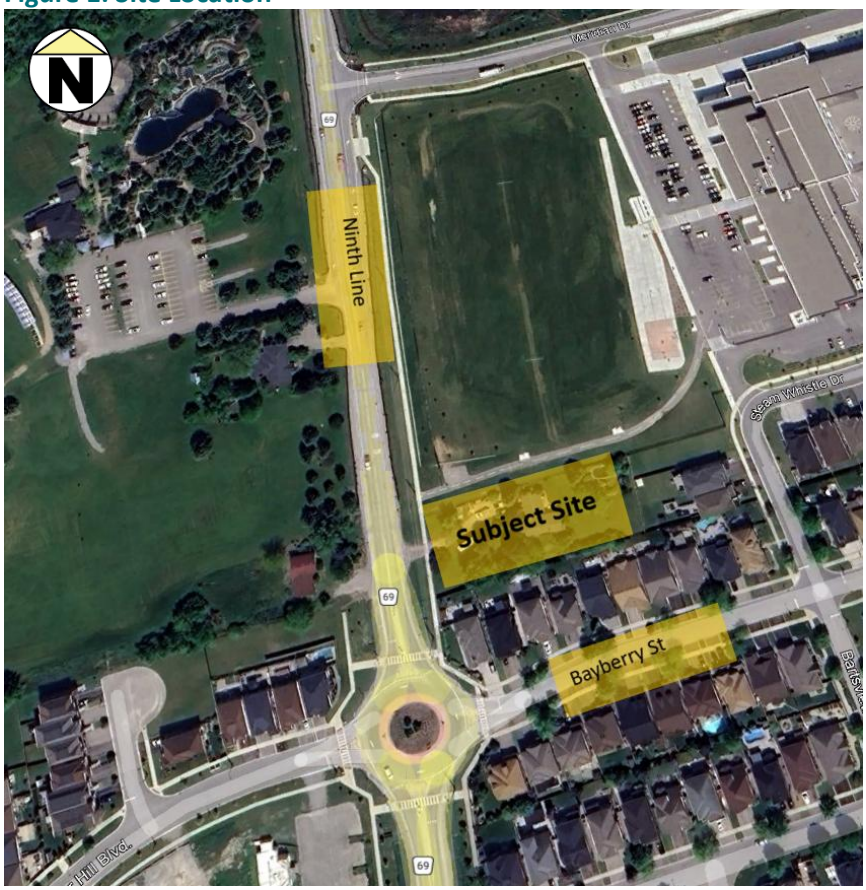
Ryan Wong
York Region
Via Email: ryan.wong@york.ca

Dear Ms. Kabir and Mr. Wong,

RE: Terms of Reference – Transportation Impact Study
Proposed Residential Development
12717 Ninth Line, Town of Whitchurch-Stouffville

We wish to confirm the following work plan for a Transportation Impact Study (TIS) in support of the Zoning By-law Amendment (ZBA) application for the proposed residential development located at 12717 Ninth Line, in the town of Whitchurch-Stouffville. **Figure 1** below illustrates the subject site location.

Figure 1: Site Location

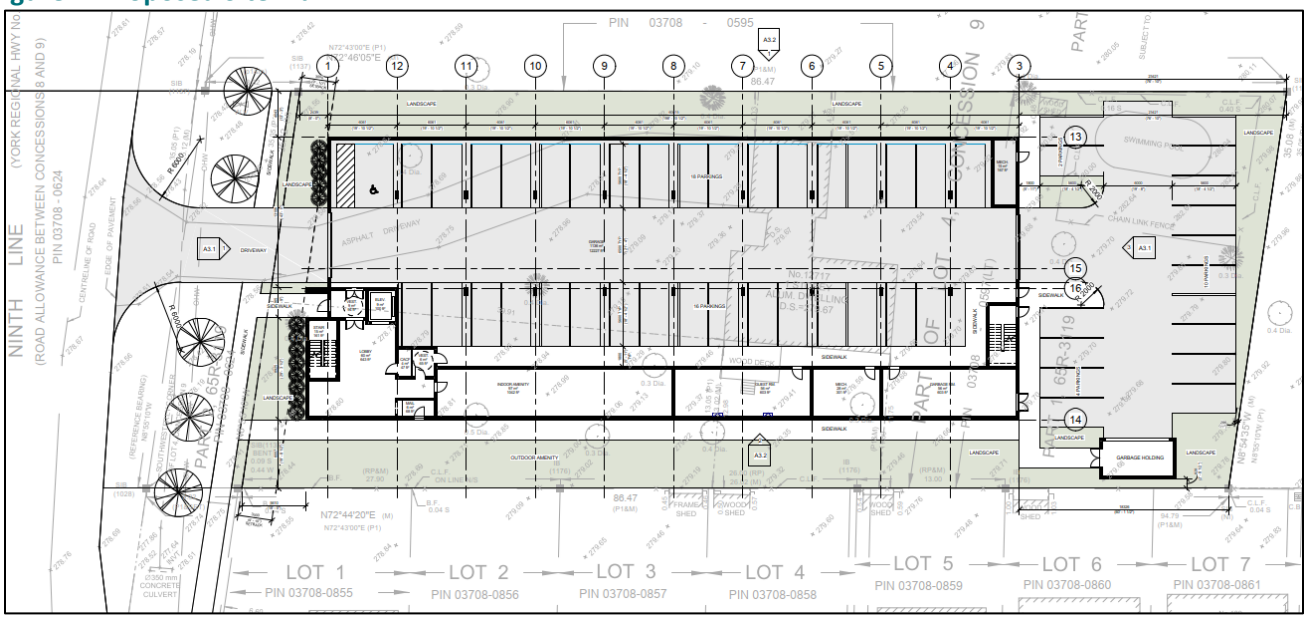


The TIS will be conducted in accordance with the applicable requirements, including the York Region Transportation Mobility Plan Guidelines (2025). The following outlines the proposed Terms of Reference for the TIS for your review and approval.

Proposed Development

The proposed development consists of a 40-unit, four-story apartment building and 50 residential parking spaces. Access to the site will be provided by a full moves driveway on Ninth Line. The proposed site plan is shown in **Figure 2**.

Figure 2: Proposed Site Plan



Study Area & Traffic Data

LEA will review the existing conditions of the proposed study area, including the existing road network, active transportation, and transit networks. The proposed study area includes the following intersections:

- Bayberry Street/Baker Hill Boulevard and Ninth Line (Roundabout);
- Meridian Drive and Ninth Line (Unsignalized); and
- Bethesda Side Road and Ninth Line (Unsignalized).

LEA proposes to obtain turning movement count (TMC) data for the above intersections. If counts less than two (2) years old are not readily available for purchase, LEA proposes to survey the intersections to collect turning movement data and assess traffic operations during the weekday AM and PM peak hours.

Traffic Assessment and Study Horizons

A five (5) year horizon period to the year 2031 will be assessed as part of the study. Synchro 12 software will be used to perform intersection capacity analysis during the weekday AM and PM peak hours, utilizing the methodology of the Highway Capacity Manual, 6th Edition, and input parameter values consistent with York Region guidelines. Due to the roundabout at the Ninth line and Bayberry Street/Baker Hill Boulevard, ARCADY/Junctions 8 will be used to evaluate roundabout capacity.

Future Background Traffic

General Corridor Growth Rate: LEA will obtain historical TMC data along the ninth line corridor from York Region and/or from the Town of Whitchurch-Stouffville to determine an appropriate growth rate for the 2031 study horizon. Should the Town have a preferred growth rate for application in the analysis, LEA would be pleased to incorporate it into the assessment.

Road Network Improvements: LEA is not aware of planned changes to the street network within the study area. It is requested that City staff provide information should there be any planned infrastructure changes.

Background Development Traffic: The following background developments were identified:

#	Address	Site Description	File Number and Status
1	5731 Bethesda Road	Residential: 148 Single Detached, 201 Townhouses,	19T(W)-22.022 (Draft Approved)
2	12668 Ninth Line	Residential: 71 Single Detached, 14 Townhouses.	19T(W)-20.001 (Registered and Under Construction)
3	5481 and 5551 Bethesda Road	Residential Subdivision: 134 Single Detached.	19T(W)-22.001 (Draft Approved)

It is requested that Town staff provide supporting traffic studies and identify any additional developments that should be included in the TIS analysis.

Trip Generation, Distribution and Assignment

Trip generation for the proposed development will be forecasted using ITE Trip Generation Manual 12th Edition for the proposed land use during the peak periods. The local mode split will be estimated using the 2022 Transportation Tomorrow Survey (TTS). Trip distribution and assignment will be based on a review of the 2022 TTS data as well as observations of traffic patterns and existing turn permissions/prohibitions.

Multi-Modal Transportation Assessment

A multi-modal level of service (MMLOS) evaluation of the surrounding transit, pedestrian, and cycling environments will be conducted adopting the York Region Transportation Mobility Plan Guidelines for Development Applications (2025). This evaluation will assess the level of convenience and comfort of transit and active transportation infrastructure users given existing conditions, planned background network changes, and the impact of site generated trips.

Remedial Measures

Any movements at the studied intersections that exceed a V/C ratio of 1.00 under future total conditions will be identified. If remedial actions such as signal optimization are unsuccessful this will also be identified. If remedial measures are to be employed, a scenario will be provided demonstrating the change in intersection operations.

Parking & Loading

A parking assessment will be undertaken to ensure that the proposed supply meets the zoning by-law requirements. If a shortfall from the requirements is proposed, justification will be provided to demonstrate adequacy of the proposed supply.

Transportation Demand Management

A comprehensive TDM Plan will be completed and provide recommendations to shift and reduce vehicle demand associated with truck and employee-related traffic associated with the proposed development.

Functional Design Review

A functional design will be conducted to confirm that the site plan is functionally sound and will accommodate all vehicles in an acceptable manner. LEA will investigate if vehicles can effectively access, circulate, and perform loading activities on-site. LEA will also review and assess the layout and design of the surface parking lot. This will involve plotting swept paths of the subject vehicles using AutoTurn, identifying points of conflict, and providing mitigation measures.

Should you have any questions or concerns regarding these terms of reference, please do not hesitate to contact me.

Yours truly,

LEA CONSULTING LTD.

Charlotte Bartos, B.A.Sc.
Project Coordinator, Transportation

Charlotte Bartos

From: Wong, Veronica <Veronica.Wong@york.ca>
Sent: May 29, 2026 12:06 PM
To: Charlotte Bartos
Cc: Schleihauf, David; Bui, Vi; Hena Kabir
Subject: RE: Terms of Reference - 12717 Ninth Line

External Sender

Hi Charlotte

Please see our comments below regarding the terms of reference.

1. The transportation study shall be consistent with the Region's Transportation Mobility Plan Guidelines (2025) and Access Guidelines (November 2020).
2. The proposed access onto Ninth Line does not meet the spacing requirements for a full-move access, therefore the access on to Ninth Line will be restricted to right-in/right-out.
3. Traffic Counts, Signal Timings, model outputs, and historical AADTs can be purchased through traffic.data@york.ca.
4. Future horizon years should include build-out year, and five-years post build-out.
5. We accept growth calculations in three different ways, namely from historic AADT analysis, EMME model analysis or from recently approved studies in the area. Please document the method used in the report, and provide relevant calculations in an appendix.
6. As per the Region's 2026 10-Year Roads and Transit Capital Construction Program, there are no planned improvements in the vicinity of the site
7. Minimum 5x5 metre daylight triangles will be required at the access onto Ninth Line.
8. The applicant is advised that a 36 metre right-of-way for this section of Ninth Line is required. As such, all municipal setbacks shall be referenced from a point 18 metres from the centreline of Ninth Line and any additional lands required for turn lanes at intersections will be conveyed to York Region for public highway purposes, free of all costs and encumbrances, to the satisfaction of York Region Solicitor.

Please note, this is not an approval, the Region will provide additional detailed comments when a study is submitted for review.

Thank you

Our working hours may be different. Please do not feel obligated to reply outside of your scheduled working hours.

Veronica Wong | Transportation Planner
Transportation & Infrastructure Planning | Public Works

The Regional Municipality of York| 17250 Yonge Street | Newmarket, ON L3Y 6Z1
O: 905-830-4444 | veronica.wong@york.ca | www.york.ca

Our Mission: **Working together to serve our thriving communities – today and tomorrow**

From: Charlotte Bartos <CBartos@lea.ca>
Sent: Monday, May 11, 2026 12:45 PM
To: Hena Kabir <hena.kabir@townofws.ca>; Wong, Ryan <Ryan.Wong@york.ca>
Cc: Elisabeth Hofbauer-Spitzer <ehofbauer-spitzer@lea.ca>
Subject: Terms of Reference - 12717 Ninth Line

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Hello Hena and Ryan,

LEA Consulting has been retained to conduct a Transportation Impact Study (TIS) for the proposed residential development located at 12717 Ninth Line in Whitchurch-Stouffville.

Please see attached the Terms of Reference (TOR) for your review and advise if you have any comments.

Thank you,

Charlotte Bartos, BASc
Project Coordinator – Transportation Division
LEA Consulting Ltd.
625 Cochrane Drive, 5th Floor | Markham, ON | L3R 9R9
M: 647 860 1677 **E:** cbartos@lea.ca **W:** www.LEA.ca
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APPENDIX B

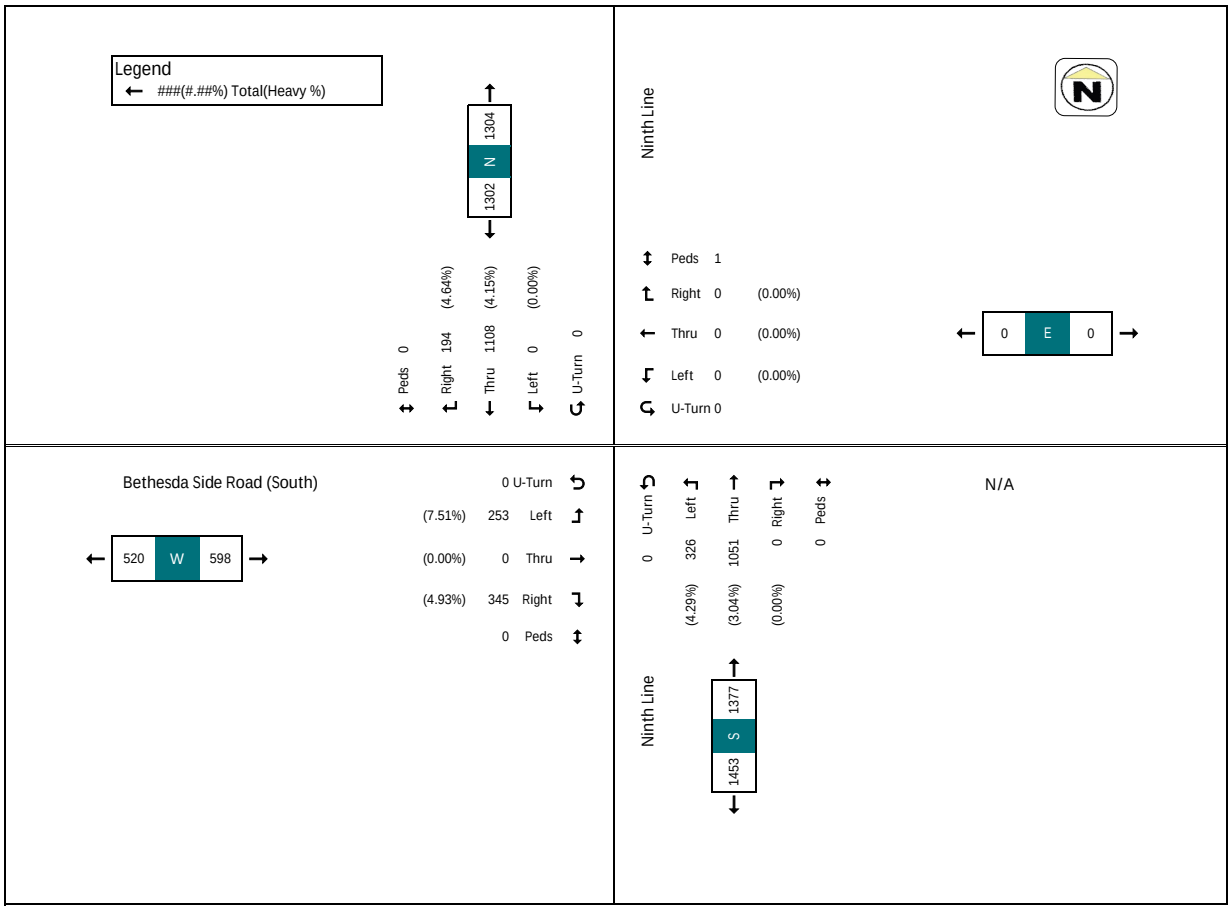
Traffic Data and Signal Timing Plans

LEA Consulting Ltd.
625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

Intersection : Ninth Line & Bethesda Side Road (South)
Survey Date : May 13, 2026
Project No. : 27022
Count ID : 26107

Turning Movement Count - Ninth Line & Bethesda Side Road (South)

	Ninth Line Southbound						N/A Westbound						Ninth Line Northbound						Bethesda Side Road (South) Eastbound						
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total
7:00	0	0	36	16	0	52	0	0	0	0	0	0	0	14	14	0	0	28	0	6	0	6	0	12	92
7:15	0	0	39	13	0	52	0	0	0	0	0	0	0	16	24	0	0	40	0	10	0	9	0	19	111
7:30	0	0	47	18	0	65	0	0	0	0	0	0	0	15	28	0	0	44	0	9	0	5	0	14	123
7:45	0	0	65	10	0	75	0	0	0	0	0	0	0	22	41	0	0	63	0	4	0	15	0	19	157
Hourly Total	0	0	187	57	0	244	0	0	0	0	0	0	0	68	107	0	0	175	0	29	0	35	0	64	483
8:00	0	0	76	7	0	83	0	0	0	0	0	0	0	35	49	0	0	84	0	14	0	19	0	33	200
8:15	0	0	57	12	0	69	0	0	0	0	0	0	0	22	52	0	0	74	0	5	0	13	0	18	161
8:30	0	0	52	14	0	66	0	0	0	0	0	0	0	22	30	0	0	52	0	7	0	21	0	28	146
8:45	0	0	72	12	0	84	0	0	0	0	0	0	0	9	44	0	0	53	0	6	0	22	0	28	165
Hourly Total	0	0	257	45	0	302	0	0	0	0	0	0	0	88	175	0	0	263	0	32	0	75	0	107	672
9:00	0	0	70	9	0	79	0	0	0	0	0	0	0	15	36	0	0	51	0	5	0	10	0	16	145
9:15	0	0	71	8	0	79	0	0	0	0	0	0	0	19	62	0	0	81	0	7	0	11	0	18	178
Hourly Total	0	0	141	17	0	158	0	0	0	0	0	0	0	34	98	0	0	132	0	12	0	21	0	33	323
* Break *																									
16:00	0	0	50	13	0	63	0	0	0	0	1	0	0	14	92	0	0	106	0	30	0	18	0	48	217
16:15	0	0	61	8	0	69	0	0	0	0	0	0	0	14	75	0	0	89	0	20	0	25	0	45	203
16:30	0	0	50	5	0	55	0	0	0	0	0	0	0	13	61	0	0	74	0	22	0	24	0	46	175
16:45	0	0	59	4	0	63	0	0	0	0	0	0	0	10	80	0	0	90	0	12	0	19	0	31	184
Hourly Total	0	0	220	30	0	250	0	0	0	0	1	0	0	51	308	0	0	359	0	84	0	86	0	170	779
17:00	0	0	51	10	0	61	0	0	0	0	0	0	0	14	59	0	0	73	0	19	0	24	0	43	177
17:15	0	0	71	11	0	82	0	0	0	0	0	0	0	18	68	0	0	86	0	17	0	16	0	33	201
17:30	0	0	56	7	0	63	0	0	0	0	0	0	0	15	67	0	0	82	0	17	0	23	0	40	185
17:45	0	0	52	4	0	56	0	0	0	0	0	0	0	13	65	0	0	78	0	10	0	26	0	36	170
Hourly Total	0	0	230	32	0	262	0	0	0	0	0	0	0	60	259	0	0	319	0	63	0	89	0	152	733
18:00	0	0	40	8	0	48	0	0	0	0	0	0	0	11	56	0	0	67	0	17	0	17	0	34	149
18:15	0	0	33	5	0	38	0	0	0	0	0	0	0	14	48	0	0	62	0	16	0	22	0	38	138
Hourly Total	0	0	73	13	0	86	0	0	0	0	0	0	0	25	104	0	0	129	0	33	0	39	0	72	287
Grand Total	0	0	1108	194	0	1302	0	0	0	0	1	0	0	326	1051	0	0	1377	0	253	0	345	0	598	3277
Approach %	0.0%	0.0%	85.1%	14.9%	-	-	-	-	-	-	-	-	0.0%	23.7%	76.3%	0.0%	-	-	0.0%	42.3%	0.0%	57.7%	-	-	-
Total %	0.0%	0.0%	33.8%	5.9%	-	39.7%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	9.9%	32.1%	0.0%	-	42.0%	0.0%	7.7%	0.0%	10.5%	-	18.2%	-
Lights	0	0	1062	185	-	1247	0	0	0	0	-	0	0	312	1019	0	-	1331	0	234	0	328	-	562	3140
% Lights	-	-	95.8%	95.4%	-	95.8%	-	-	-	-	-	-	-	95.7%	97.0%	-	-	96.7%	-	92.5%	-	95.1%	-	94.0%	95.8%
Buses	-	0	16	2	-	18	-	0	0	0	-	0	-	12	7	0	-	19	-	0	0	9	-	9	46
% Buses	-	-	1.4%	1.0%	-	1.4%	-	-	-	-	-	-	-	3.7%	0.7%	-	-	1.4%	-	0.0%	-	2.6%	-	1.5%	1.4%
Trucks	-	0	30	7	-	37	-	0	0	0	-	0	-	2	25	0	-	27	-	19	0	8	-	27	91
% Trucks	-	-	2.7%	-	-	2.8%	-	-	-	-	-	-	-	0.6%	2.4%	-	-	2.0%	-	7.5%	-	2.3%	-	4.5%	2.8%
Bicycles	-	-	-	-	0	0	-	-	-	-	2	2	-	-	-	-	0	0	-	-	-	-	0	0	2
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	1

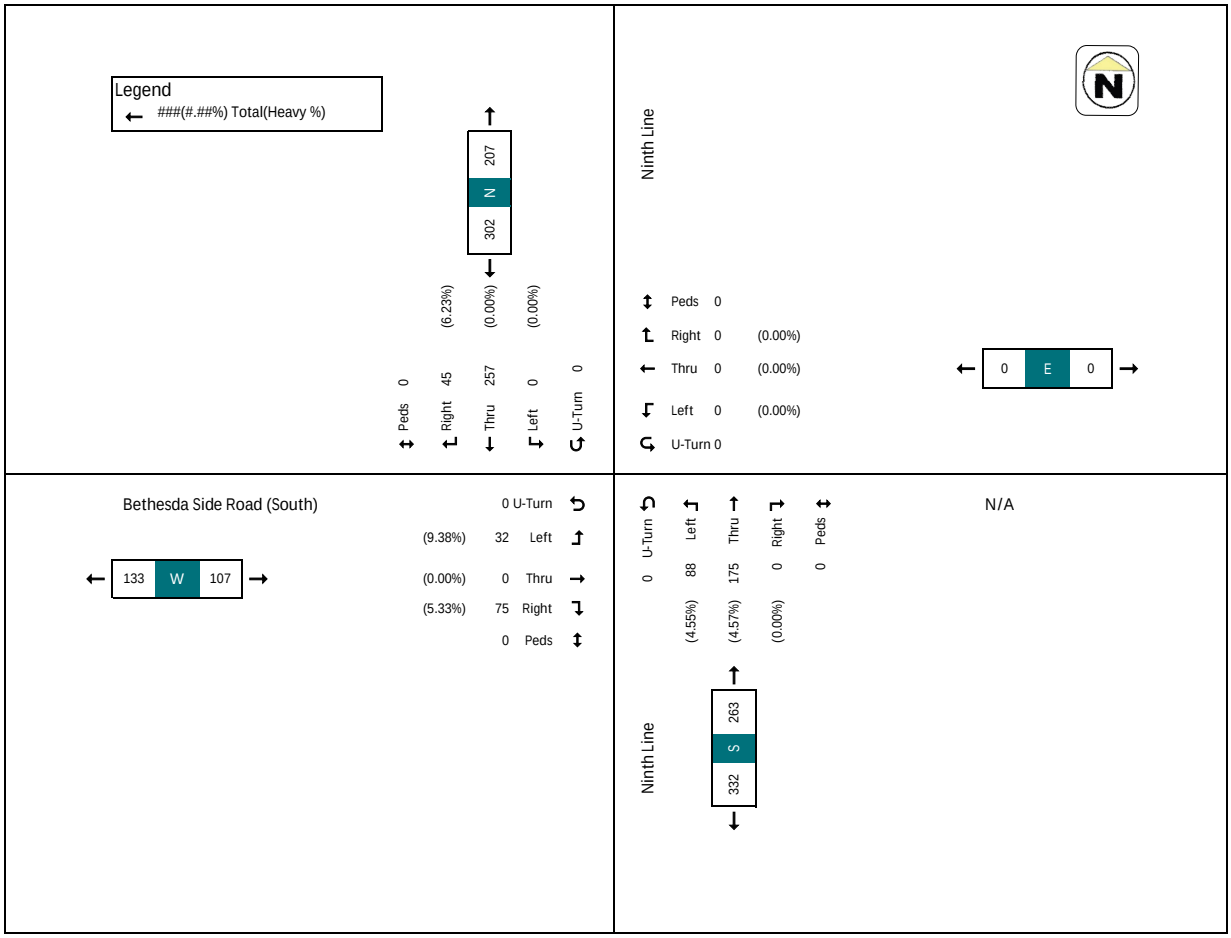


LEA Consulting Ltd.
625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

Intersection : Ninth Line & Bethesda Side Road (South)
Survey Date : May 13, 2026
Project No. : 27022
Count ID : 26107

AM Peak Hour - Ninth Line & Bethesda Side Road (South)

	Ninth Line Southbound						N/A Westbound						Ninth Line Northbound						Bethesda Side Road (South) Eastbound						
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total
8:00	0	0	76	7	0	83	0	0	0	0	0	0	0	35	49	0	0	84	0	14	0	19	0	33	200
8:15	0	0	57	12	0	69	0	0	0	0	0	0	0	22	52	0	0	74	0	5	0	13	0	18	161
8:30	0	0	52	14	0	66	0	0	0	0	0	0	0	22	30	0	0	52	0	7	0	21	0	28	146
8:45	0	0	72	12	0	84	0	0	0	0	0	0	0	9	44	0	0	53	0	6	0	22	0	28	165
Hourly Total	0	0	257	45	0	302	0	0	0	0	0	0	0	88	175	0	0	263	0	32	0	75	0	107	672
Approach %	0.0%	0.0%	85.1%	14.9%	-	-	-	-	-	-	-	-	0.0%	33.5%	66.5%	0.0%	-	-	0.0%	29.9%	0.0%	70.1%	-	-	-
Total %	0.0%	0.0%	38.2%	6.7%	-	44.9%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	13.1%	26.0%	0.0%	-	39.1%	0.0%	4.8%	0.0%	11.2%	-	15.9%	-
PHF	0	0	0.89	0.8	-	0.9	0	0	0	0	-	0	0	0.63	0.84	0	-	0.78	0	0.57	0	0.89	-	0.81	0.94
Lights	0	0	241	42	-	283	0	0	0	0	-	0	0	84	167	0	-	251	0	29	0	71	-	100	634
% Lights	-	-	93.8%	93.3%	-	93.7%	-	-	-	-	-	-	-	95.5%	95.4%	-	-	95.4%	-	90.6%	-	94.7%	-	93.5%	94.3%
Buses	-	0	6	1	-	7	-	0	0	0	-	0	-	2	2	0	-	5	-	0	0	4	-	4	16
% Buses	-	-	2.3%	2.2%	-	2.3%	-	-	-	-	-	-	-	2.4%	1.1%	-	-	1.9%	-	0.0%	-	5.3%	-	3.7%	2.4%
Trucks	-	0	10	2	-	12	-	0	0	0	-	0	-	2	6	0	-	7	-	3	0	0	-	3	22
% Trucks	-	-	3.9%	4.4%	-	4.0%	-	-	-	-	-	-	-	2.4%	3.4%	-	-	2.7%	-	9.4%	-	0.0%	-	2.8%	3.3%
Bicycles	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	0

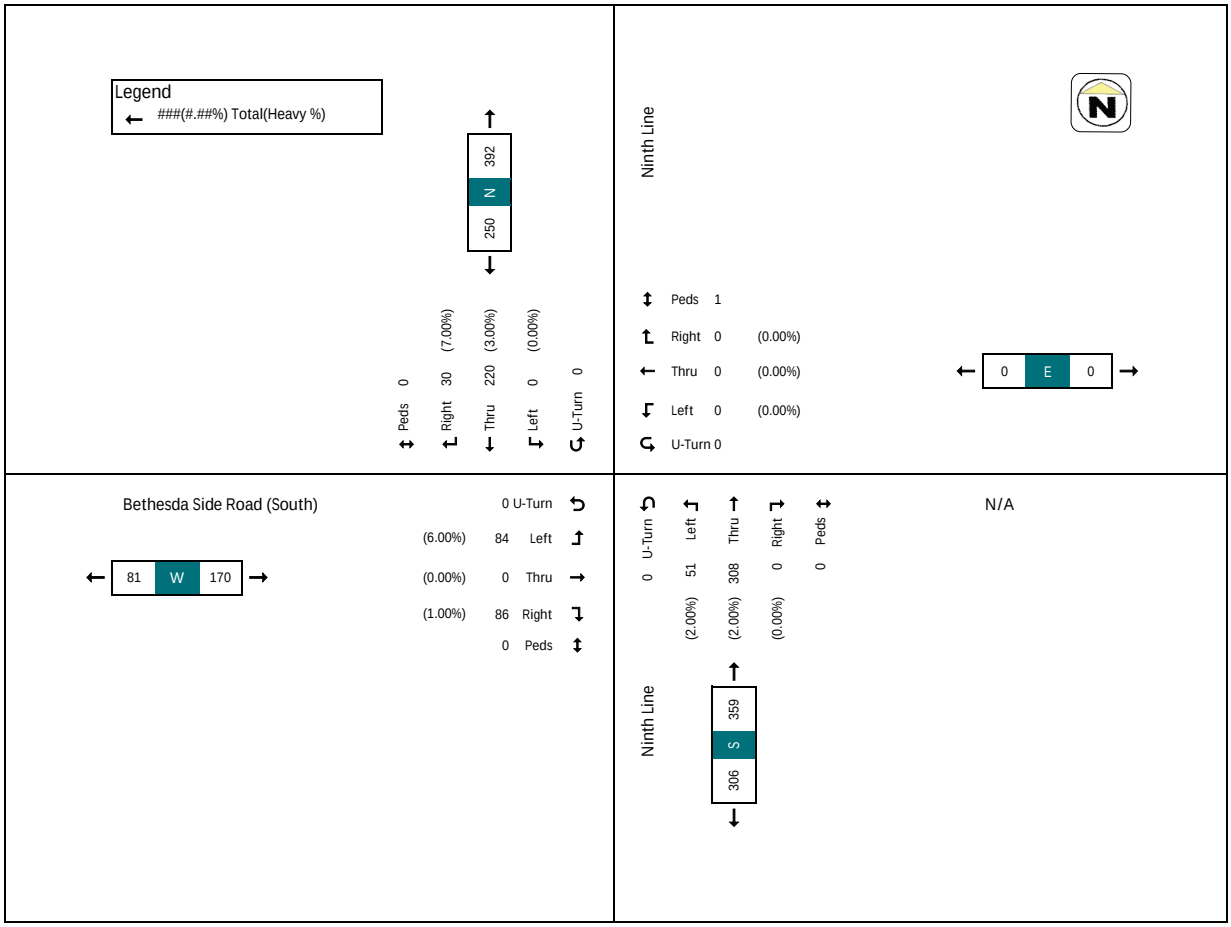


LEA Consulting Ltd.
625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

Intersection : Ninth Line & Bethesda Side Road (South)
Survey Date : May 13, 2026
Project No. : 27022
Count ID : 26107

PM Peak Hour - Ninth Line & Bethesda Side Road (South)

	Ninth Line Southbound						N/A Westbound						Ninth Line Northbound						Bethesda Side Road (South) Eastbound						
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total
16:00	0	0	50	13	0	63	0	0	0	0	1	0	0	14	92	0	0	106	0	30	0	18	0	48	217
16:15	0	0	61	8	0	69	0	0	0	0	0	0	0	14	75	0	0	89	0	20	0	25	0	45	203
16:30	0	0	50	5	0	55	0	0	0	0	0	0	0	13	61	0	0	74	0	22	0	24	0	46	175
16:45	0	0	59	4	0	63	0	0	0	0	0	0	0	10	80	0	0	90	0	12	0	19	0	31	184
Hourly Total	0	0	220	30	0	250	0	0	0	0	1	0	0	51	308	0	0	359	0	84	0	86	0	170	779
Approach %	0.0%	0.0%	88.0%	12.0%	-	-	-	-	-	-	-	-	0.0%	14.2%	85.8%	0.0%	-	-	0.0%	49.4%	0.0%	50.6%	-	-	
Total %	0.0%	0.0%	28.2%	3.9%	-	32.1%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	7.6%	45.8%	0.0%	-	46.1%	0.0%	12.5%	0.0%	12.8%	-	21.8%	
PHF	0	0	0.9	0.58	-	0.91	0	0	0	0	-	0	0	0.91	0.84	0	-	0.85	0	0.7	0	0.86	-	0.89	0.9
Lights	0	0	213	28	-	241	0	0	0	0	-	0	0	50	302	0	-	352	0	79	0	85	-	164	757
% Lights	-	-	96.8%	93.3%	-	96.4%	-	-	-	-	-	-	-	98.0%	98.1%	-	-	98.1%	-	94.0%	-	98.8%	-	96.5%	97.2%
Buses	-	0	6	0	-	6	-	0	0	0	-	0	-	1	2	0	-	3	-	0	0	1	-	1	10
% Buses	-	-	2.7%	0.0%	-	2.4%	-	-	-	-	-	-	-	2.0%	0.6%	-	-	0.8%	-	0.0%	-	1.2%	-	0.6%	1.3%
Trucks	-	0	3	2	-	5	-	0	0	0	-	0	-	0	4	0	-	4	-	5	0	0	-	5	14
% Trucks	-	-	1.4%	6.7%	-	2.0%	-	-	-	-	-	-	-	0.0%	1.3%	-	-	1.1%	-	6.0%	-	0.0%	-	2.9%	1.8%
Bicycles	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	0

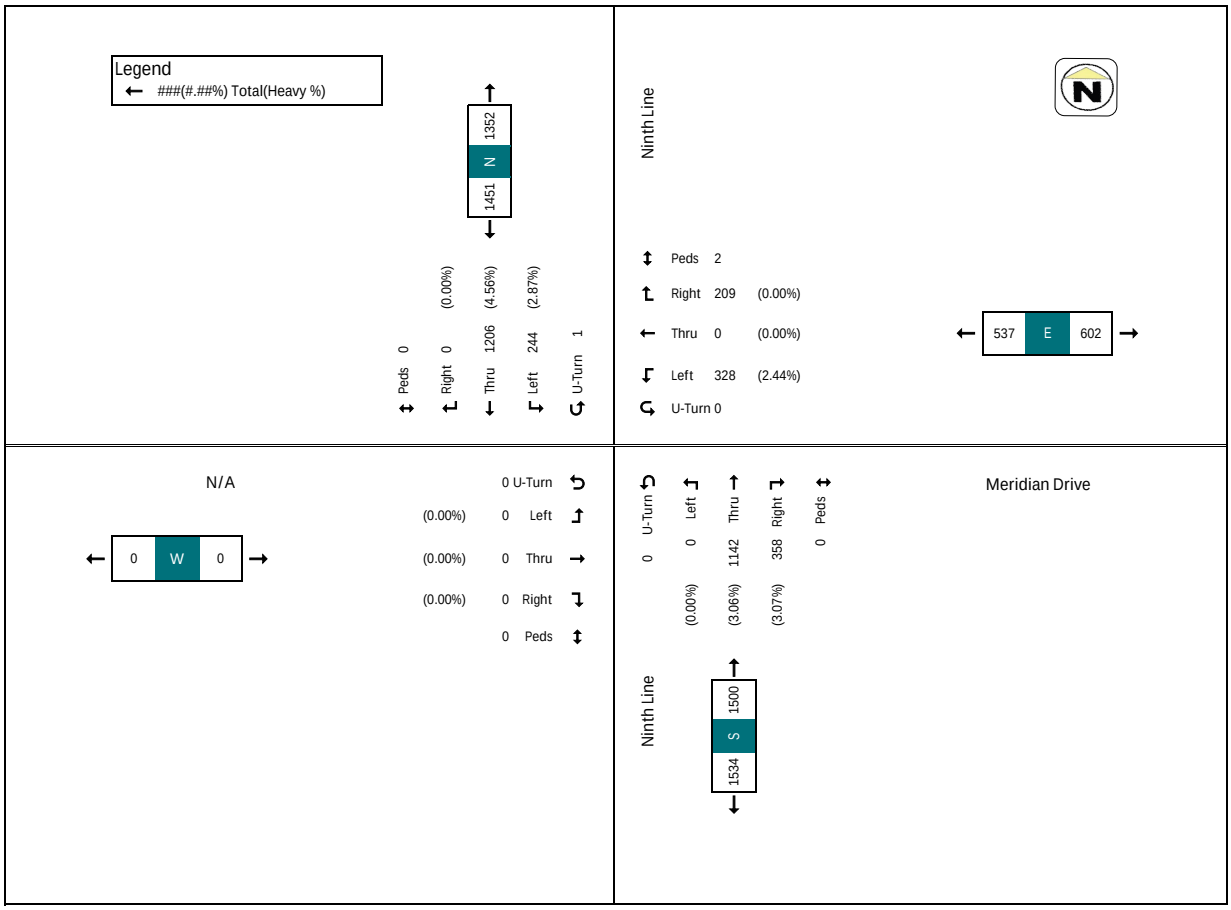


LEA Consulting Ltd.
625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

Intersection : Ninth Line & Meridian Drive
Survey Date : May 13, 2026
Project No. : 27022
Count ID : 26108

Turning Movement Count - Ninth Line & Meridian Drive

	Ninth Line Southbound						Meridian Drive Westbound						Ninth Line Northbound						N/A Eastbound						
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total
7:00	0	0	41	0	0	41	0	2	0	4	0	6	0	0	23	1	0	24	0	0	0	0	0	0	71
7:15	0	5	42	0	0	47	0	3	0	7	0	10	0	0	39	3	0	42	0	0	0	0	0	0	99
7:30	0	2	57	0	0	59	0	8	0	5	0	13	0	0	35	4	0	39	0	0	0	0	0	0	111
7:45	0	5	64	0	0	69	0	12	0	10	0	22	0	0	44	18	0	62	0	0	0	0	0	0	153
Hourly Total	0	12	204	0	0	216	0	25	0	26	0	51	0	0	141	26	0	167	0	0	0	0	0	0	434
8:00	0	28	68	0	0	96	0	41	0	27	0	68	0	0	56	35	0	91	0	0	0	0	0	0	255
8:15	0	9	61	0	0	70	0	12	0	13	0	25	0	0	55	21	0	76	0	0	0	0	0	0	171
8:30	0	25	57	0	0	82	0	12	0	6	1	18	0	0	51	12	0	63	0	0	0	0	0	0	163
8:45	0	20	67	0	0	87	0	20	0	5	0	25	0	0	42	27	0	69	0	0	0	0	0	0	181
Hourly Total	0	82	253	0	0	335	0	85	0	51	1	136	0	0	204	95	0	299	0	0	0	0	0	0	770
9:00	0	21	59	0	0	79	0	35	0	19	0	54	0	0	99	68	0	99	0	0	0	0	0	0	231
9:15	0	42	38	0	0	80	0	69	0	36	0	105	0	0	32	68	0	100	0	0	0	0	0	0	285
Hourly Total	0	63	96	0	0	159	0	104	0	55	0	159	0	0	71	127	0	198	0	0	0	0	0	0	516
* Break *																									
16:00	0	8	60	0	0	68	0	12	0	10	0	22	0	0	103	10	0	113	0	0	0	0	0	0	203
16:15	0	9	79	0	0	88	0	8	0	8	0	16	0	0	70	18	0	88	0	0	0	0	0	0	192
16:30	0	11	62	0	0	73	0	24	0	10	0	34	0	0	63	15	0	78	0	0	0	0	0	0	185
16:45	0	12	70	0	0	82	0	13	0	7	0	20	0	0	86	10	0	96	0	0	0	0	0	0	198
Hourly Total	0	40	271	0	0	311	0	57	0	35	0	92	0	0	322	53	0	375	0	0	0	0	0	0	778
17:00	0	6	74	0	0	80	0	9	0	6	0	15	0	0	65	12	0	77	0	0	0	0	0	0	172
17:15	0	5	78	0	0	83	0	8	0	7	1	15	0	0	78	9	0	87	0	0	0	0	0	0	185
17:30	0	11	69	0	0	80	0	10	0	6	0	16	0	0	79	9	0	88	0	0	0	0	0	0	184
17:45	1	11	66	0	0	78	0	12	0	14	0	26	0	0	65	18	0	83	0	0	0	0	0	0	187
Hourly Total	1	33	287	0	0	321	0	39	0	33	1	72	0	0	287	48	0	335	0	0	0	0	0	0	728
18:00	0	7	47	0	0	54	0	13	0	6	0	19	0	0	63	9	0	72	0	0	0	0	0	0	145
18:15	0	7	48	0	0	55	0	5	0	3	0	8	0	0	54	0	0	54	0	0	0	0	0	0	117
Hourly Total	0	14	95	0	0	109	0	18	0	9	0	27	0	0	117	9	0	126	0	0	0	0	0	0	262
Grand Total	1	244	1206	0	0	1451	0	328	0	209	2	537	0	0	1142	358	0	1500	0	0	0	0	0	0	3488
Approach %	0.1%	16.8%	83.1%	0.0%	-	-	0.0%	61.1%	0.0%	38.9%	-	-	0.0%	0.0%	76.1%	23.9%	-	-	-	-	-	-	-	-	-
Total %	0.0%	7.0%	34.6%	0.0%	-	41.6%	0.0%	9.4%	0.0%	6.0%	-	15.4%	0.0%	0.0%	32.7%	10.3%	-	43.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	-
Lights	1	237	1151	0	-	1389	0	320	0	200	-	520	0	0	1107	347	-	1454	0	0	0	0	-	0	3363
% Lights	100.0%	97.1%	95.4%	-	-	95.7%	-	97.6%	-	95.7%	-	96.8%	-	-	96.9%	96.9%	-	96.9%	-	-	-	-	-	-	96.4%
Buses	-	7	18	0	-	25	-	8	0	9	-	17	-	0	9	11	-	19	-	0	0	0	-	0	61
% Buses	-	2.9%	1.5%	-	-	1.7%	-	2.4%	-	4.3%	-	3.2%	-	-	0.7%	3.1%	-	1.3%	-	-	-	-	-	-	1.7%
Trucks	-	0	37	0	-	37	-	0	0	0	-	0	-	-	27	0	-	27	-	0	0	0	-	0	64
% Trucks	-	0.0%	3.1%	-	-	2.5%	-	0.0%	-	0.0%	-	0.0%	-	-	2.4%	0.0%	-	1.8%	-	-	-	-	-	-	1.8%
Bicycles	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	0
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	2

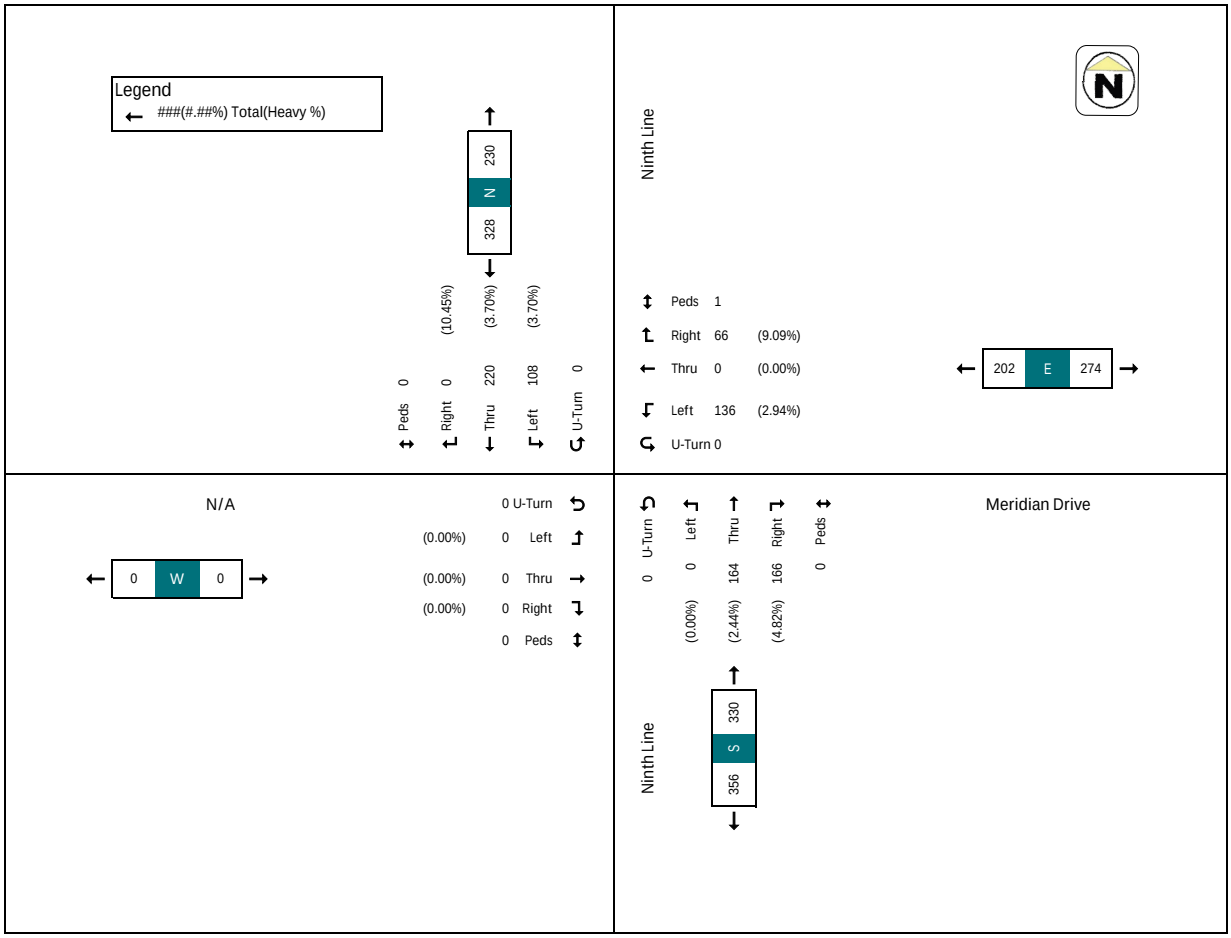


LEA Consulting Ltd.
625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

Intersection : Ninth Line & Meridian Drive
Survey Date : May 13, 2026
Project No. : 27022
Count ID : 26108

AM Peak Hour - Ninth Line & Meridian Drive

	Ninth Line Southbound						Meridian Drive Westbound						Ninth Line Northbound						N/A Eastbound						
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total
8:30	0	25	57	0	0	82	0	12	0	6	1	18	0	0	51	12	0	63	0	0	0	0	0	0	163
8:45	0	20	67	0	0	87	0	20	0	5	0	25	0	0	42	27	0	69	0	0	0	0	0	0	181
9:00	0	21	58	0	0	79	0	35	0	19	0	54	0	0	39	59	0	98	0	0	0	0	0	0	231
9:15	0	42	38	0	0	80	0	69	0	36	0	105	0	0	32	68	0	100	0	0	0	0	0	0	285
Hourly Total	0	108	220	0	0	328	0	136	0	66	1	202	0	0	164	166	0	330	0	0	0	0	0	0	860
Approach %	0.0%	32.9%	67.1%	0.0%	-	-	0.0%	67.3%	0.0%	32.7%	-	-	0.0%	0.0%	49.7%	50.3%	-	-	-	-	-	-	-	-	-
Total %	0.0%	12.6%	25.6%	0.0%	-	38.1%	0.0%	15.8%	0.0%	7.7%	-	23.5%	0.0%	0.0%	19.1%	19.3%	-	38.4%	0.0%	0.0%	0.0%	0.0%	-	0.0%	-
PHF	0	0.64	0.82	0	-	0.94	0	0.49	0	0.46	-	0.49	0	0	0.8	0.61	-	0.83	0	0	0	0	-	-	0.75
Lights	0	104	197	0	-	301	0	132	0	60	-	192	0	0	160	158	-	318	0	0	0	0	-	0	811
% Lights	-	96.3%	89.5%	-	-	91.8%	-	97.1%	-	90.9%	-	95.0%	-	-	97.6%	95.2%	-	96.4%	-	-	-	-	-	-	94.3%
Buses	-	4	7	0	-	11	-	4	0	6	-	10	-	0	1	8	-	9	-	0	0	0	-	0	30
% Buses	-	3.7%	3.2%	-	-	3.4%	-	2.9%	-	9.1%	-	5.0%	-	-	0.6%	4.8%	-	2.7%	-	-	-	-	-	-	3.5%
Trucks	-	0	16	0	-	16	-	0	0	0	-	0	-	0	3	0	-	3	-	0	0	0	-	0	19
% Trucks	-	0.0%	7.3%	-	-	4.9%	-	0.0%	-	0.0%	-	0.0%	-	-	1.8%	0.0%	-	0.9%	-	-	-	-	-	-	2.2%
Bicycles	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	0
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	1

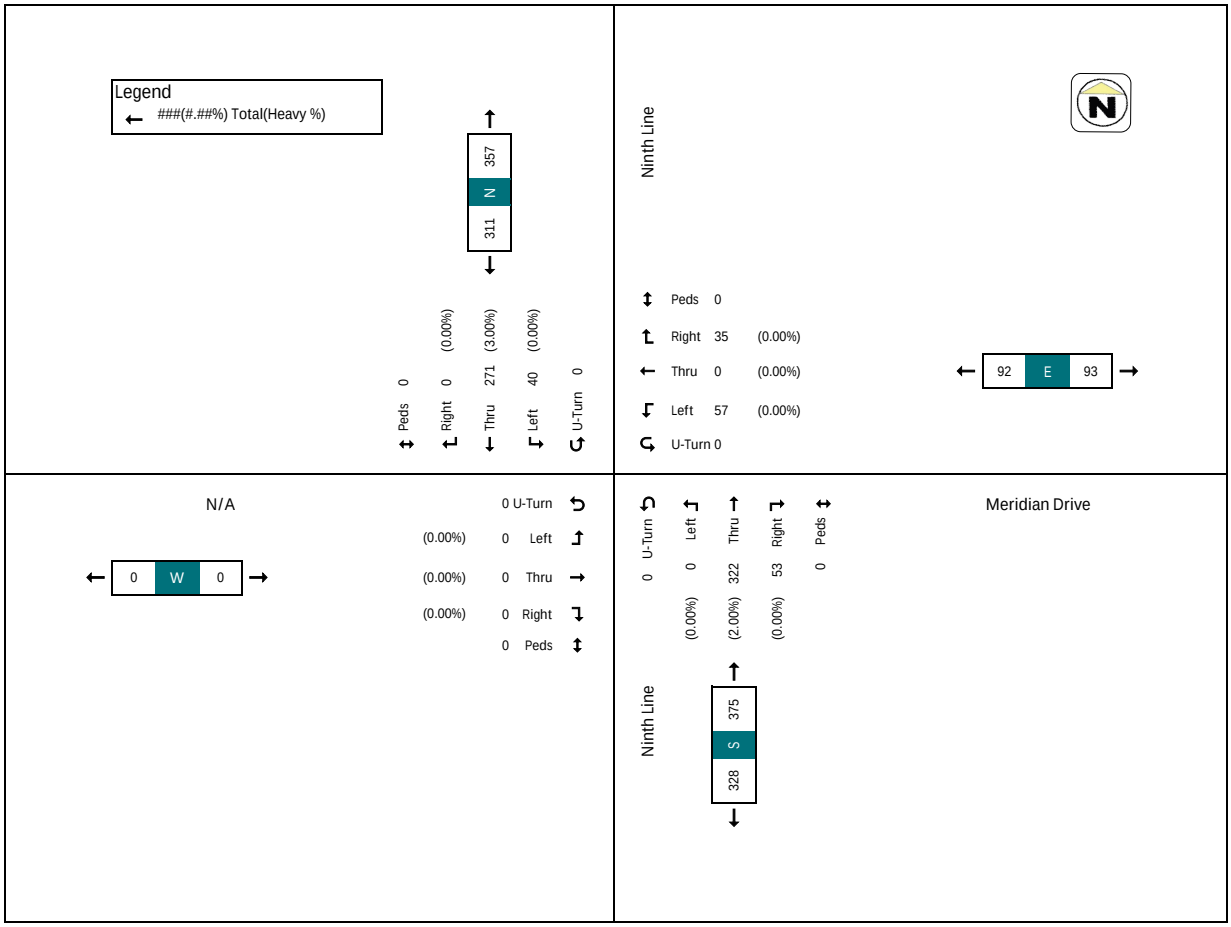


LEA Consulting Ltd.
625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

Intersection : Ninth Line & Meridian Drive
Survey Date : May 13, 2026
Project No. : 27022
Count ID : 26108

PM Peak Hour - Ninth Line & Meridian Drive

	Ninth Line Southbound						Meridian Drive Westbound						Ninth Line Northbound						N/A Eastbound						
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total
16:00	0	8	60	0	0	68	0	12	0	10	0	22	0	0	103	10	0	113	0	0	0	0	0	0	203
16:15	0	9	79	0	0	88	0	8	0	8	0	16	0	0	70	18	0	88	0	0	0	0	0	0	192
16:30	0	11	62	0	0	73	0	24	0	10	0	34	0	0	63	15	0	78	0	0	0	0	0	0	185
16:45	0	12	70	0	0	82	0	13	0	7	0	20	0	0	86	10	0	96	0	0	0	0	0	0	198
Hourly Total	0	40	271	0	0	311	0	57	0	35	0	92	0	0	322	53	0	375	0	0	0	0	0	0	778
Approach %	0.0%	12.9%	87.1%	0.0%	-	-	0.0%	62.0%	0.0%	38.0%	-	-	0.0%	0.0%	85.9%	14.1%	-	-	-	-	-	-	-	-	
Total %	0.0%	5.1%	34.8%	0.0%	-	40.0%	0.0%	7.3%	0.0%	4.5%	-	11.8%	0.0%	0.0%	37.4%	6.2%	-	48.2%	0.0%	0.0%	0.0%	0.0%	-	0.0%	
PHF	0	0.83	0.86	0	-	0.88	0	0.59	0	0.88	-	0.68	0	0	0.78	0.74	-	0.83	0	0	0	0	-	0	0.96
Lights	0	40	264	0	-	304	0	57	0	35	-	92	0	0	315	53	-	368	0	0	0	0	-	0	764
% Lights	-	100.0%	97.4%	-	-	97.7%	-	100.0%	-	100.0%	-	100.0%	-	-	97.8%	100.0%	-	98.1%	-	-	-	-	-	-	98.2%
Buses	-	0	7	0	-	7	-	0	0	0	-	0	-	-	3	0	-	3	-	0	0	0	-	0	10
% Buses	-	0.0%	2.6%	-	-	2.3%	-	0.0%	-	0.0%	-	0.0%	-	-	0.9%	0.0%	-	0.8%	-	-	-	-	-	-	1.3%
Trucks	-	0	0	0	-	0	-	0	0	0	-	0	-	0	4	0	-	4	-	0	0	1	-	1	5
% Trucks	-	0.0%	0.0%	-	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	1.2%	0.0%	-	1.1%	-	-	-	-	-	-	0.6%
Bicycles	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	0

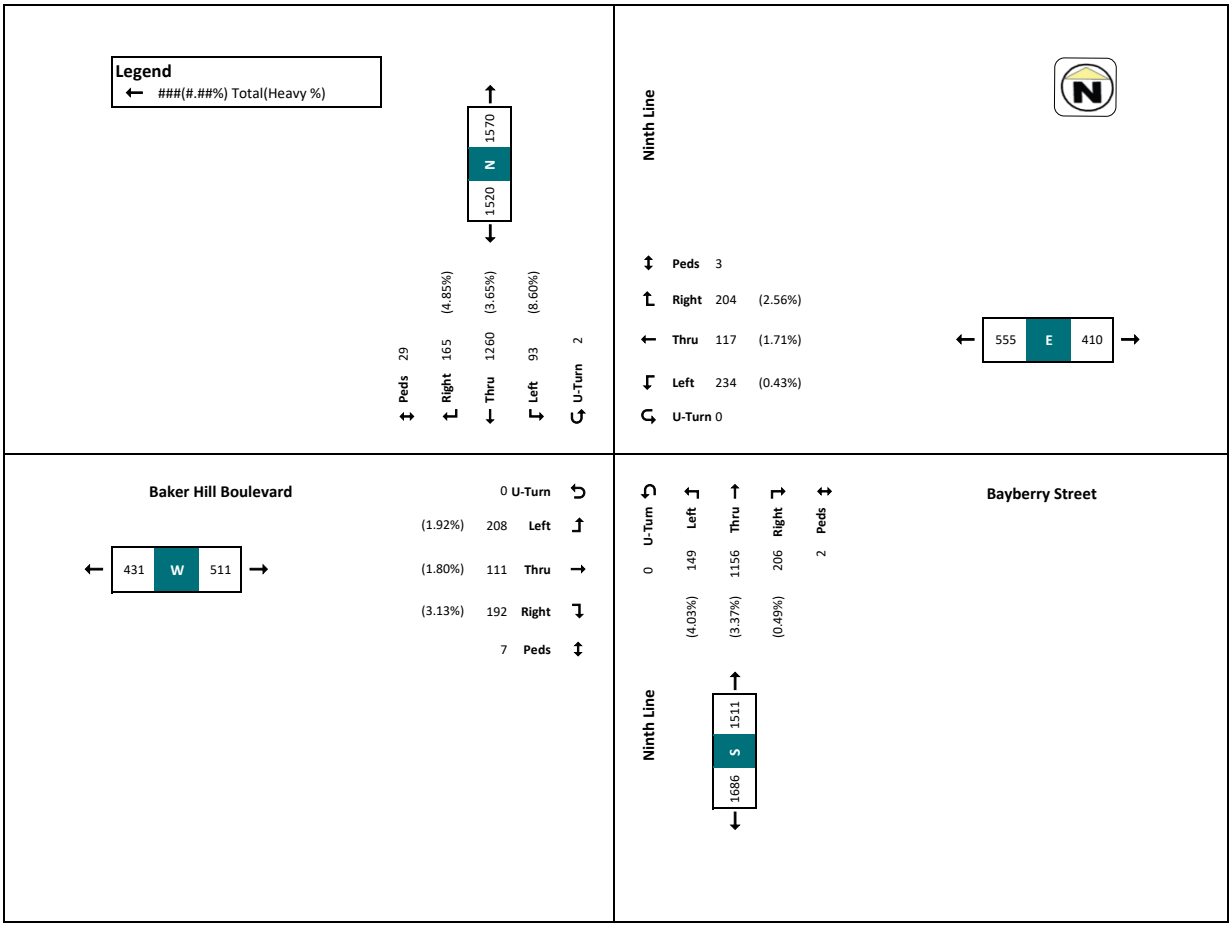


LEA Consulting Ltd.
625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

Intersection : Ninth Line & Bayberry Street
Survey Date : May 13, 2026
Project No. : 27022
Count ID : 26109

Turning Movement Count - Ninth Line & Bayberry Street

	Ninth Line Southbound						Bayberry Street Westbound						Ninth Line Northbound						Baker Hill Boulevard Eastbound						
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total
7:00	0	4	39	7	0	50	0	9	1	5	0	15	0	2	15	1	0	18	0	4	0	2	0	6	89
7:15	0	3	36	0	0	39	0	10	2	5	0	17	0	2	27	0	0	29	0	4	1	4	0	9	94
7:30	0	1	54	3	0	58	0	14	3	7	0	24	0	6	28	2	0	36	0	6	1	6	1	13	131
7:45	0	2	68	11	3	81	0	22	17	8	0	47	0	26	45	3	0	74	0	12	3	16	1	31	233
Hourly Total	0	10	197	21	3	228	0	55	23	25	0	103	0	36	115	6	0	157	0	26	5	28	2	59	547
8:00	0	1	87	18	1	106	0	23	5	12	0	40	0	25	52	3	0	80	0	26	14	38	2	78	304
8:15	0	3	56	13	0	72	0	14	6	7	0	27	0	10	53	11	0	74	0	15	4	13	0	32	205
8:30	0	1	60	4	0	65	0	22	1	10	0	33	0	2	42	4	0	48	0	6	4	5	0	15	161
8:45	0	3	78	8	0	89	0	15	5	6	0	26	0	4	57	5	0	66	0	9	6	4	0	19	200
Hourly Total	0	8	281	43	1	332	0	74	17	35	0	126	0	41	204	23	0	268	0	56	28	60	2	144	870
9:00	0	1	82	14	2	97	0	28	16	8	0	52	0	2	64	16	0	82	0	17	9	9	0	35	266
9:15	0	3	88	12	12	103	0	27	19	4	0	50	0	0	75	21	0	96	0	22	22	1	0	45	294
Hourly Total	0	4	170	26	14	200	0	55	35	12	0	102	0	2	139	37	0	178	0	39	31	10	0	80	560
* Break *																									
16:00	0	4	53	4	1	61	0	4	0	21	0	25	0	6	88	17	0	111	0	12	5	3	0	20	217
16:15	0	11	69	6	1	86	0	7	10	9	0	26	0	10	79	16	0	105	0	9	8	4	0	21	238
16:30	0	5	74	7	2	86	0	3	9	21	0	33	0	7	66	8	0	81	0	8	8	6	0	22	222
16:45	0	8	66	10	2	84	0	5	5	9	0	19	0	9	79	16	0	104	0	10	7	12	0	29	236
Hourly Total	0	28	262	27	6	317	0	19	24	60	0	103	0	32	312	57	0	401	0	39	28	25	0	92	913
17:00	0	9	64	10	0	83	0	8	1	15	0	24	0	6	66	13	0	85	0	7	3	38	0	48	240
17:15	0	7	69	8	0	84	0	10	2	13	0	25	0	7	66	11	1	84	0	10	1	13	0	24	217
17:30	1	9	64	7	1	81	0	4	1	8	0	13	0	8	74	11	0	93	0	9	4	4	1	17	204
17:45	1	3	67	7	2	78	0	3	6	14	0	23	0	9	67	17	1	93	0	8	2	4	1	14	208
Hourly Total	2	28	264	32	3	326	0	25	10	50	0	85	0	30	273	52	2	355	0	34	10	59	2	103	869
18:00	0	9	49	10	1	68	0	2	5	8	3	15	0	3	65	18	0	86	0	7	4	9	0	20	189
18:15	0	6	37	6	1	49	0	4	3	14	0	21	0	5	48	13	0	66	0	7	5	1	1	13	149
Hourly Total	0	15	86	16	2	117	0	6	8	22	3	36	0	8	113	31	0	152	0	14	9	10	1	33	338
Grand Total	2	93	1260	165	29	1520	0	234	117	204	3	555	0	149	1156	206	2	1511	0	208	111	192	7	511	4097
Approach %	0.1%	6.1%	82.9%	10.9%	-	-	0.0%	42.2%	21.1%	36.8%	-	-	0.0%	9.9%	76.5%	13.6%	-	-	0.0%	40.7%	21.7%	37.6%	-	-	-
Total %	0.0%	2.3%	30.8%	4.0%	-	37.1%	0.0%	5.7%	2.9%	5.0%	-	13.5%	0.0%	3.6%	28.2%	5.0%	-	36.9%	0.0%	5.1%	2.7%	4.7%	-	12.5%	-
Lights	2	85	1214	157	-	1458	0	233	115	201	-	549	0	143	1117	205	-	1465	0	204	109	186	-	499	3971
% Lights	100.0%	91.4%	96.3%	95.2%	-	95.9%	-	99.6%	98.3%	98.5%	-	98.9%	-	96.0%	96.6%	99.5%	-	97.0%	-	98.1%	98.2%	96.9%	-	97.7%	96.9%
Buses	-	4	15	6	-	25	-	1	1	1	-	3	-	5	13	1	-	19	-	4	1	4	-	9	56
% Buses	-	4.3%	1.2%	3.6%	-	1.6%	-	0.4%	0.9%	0.5%	-	0.5%	-	3.4%	1.1%	0.5%	-	1.3%	-	1.9%	0.9%	2.1%	-	1.8%	1.4%
Trucks	-	4	31	2	-	37	-	0	1	2	-	3	-	1	26	0	-	27	-	0	1	2	-	3	70
% Trucks	-	4.3%	2.5%	-	-	2.4%	-	0.0%	0.9%	1.0%	-	0.5%	-	0.7%	2.2%	0.0%	-	1.8%	-	0.0%	0.9%	1.0%	-	0.6%	1.7%
Bicycles	-	-	-	-	1	1	-	-	-	-	0	0	-	-	-	-	3	3	-	-	-	-	1	1	5
Pedestrians	-	-	-	-	29	-	-	-	-	-	3	-	-	-	-	-	2	-	-	-	-	-	7	-	41

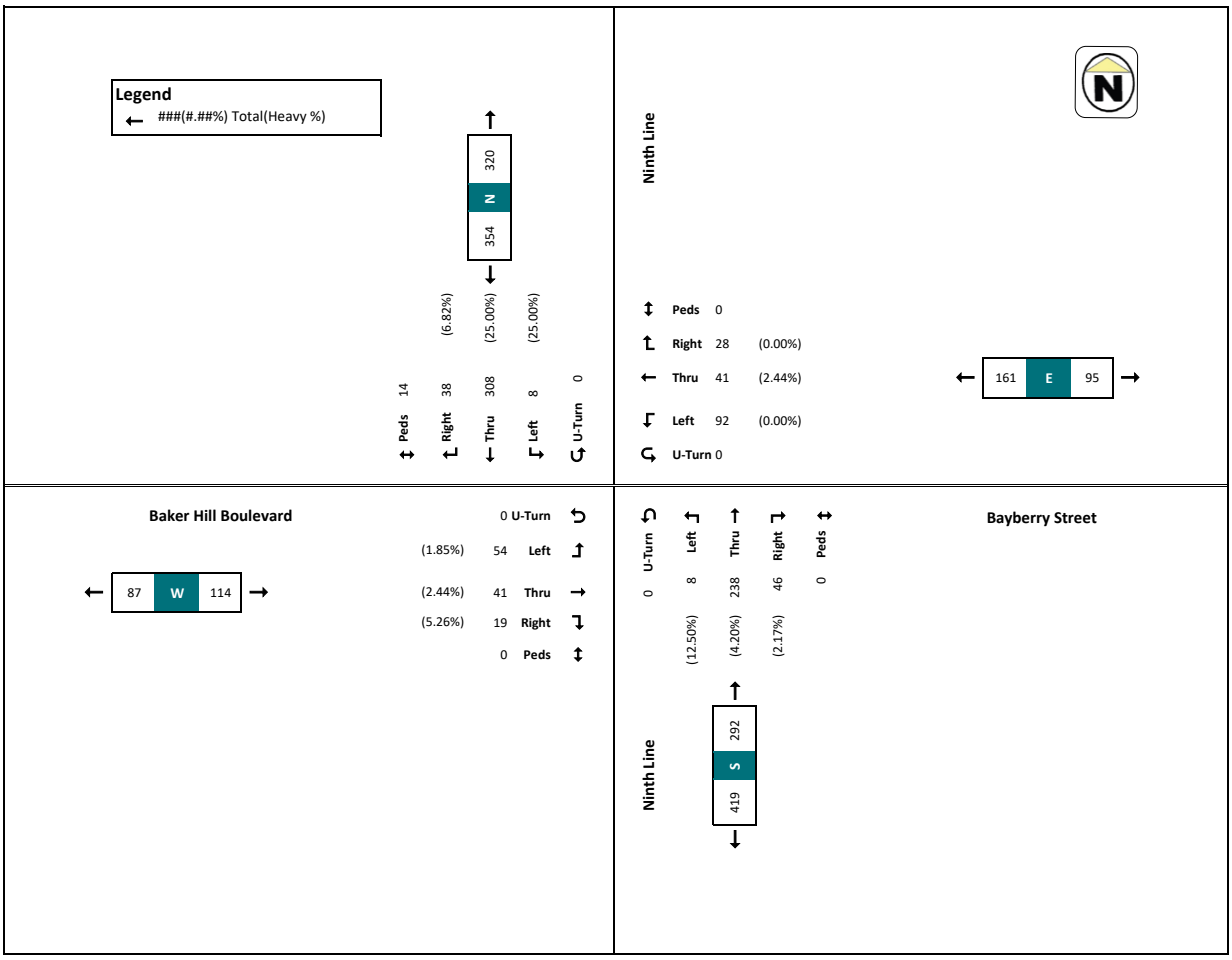


LEA Consulting Ltd.
625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

Intersection : Ninth Line & Bayberry Street
Survey Date : May 13, 2026
Project No. : 27022
Count ID : 26109

AM Peak Hour - Ninth Line & Bayberry Street

	Ninth Line Southbound						Bayberry Street Westbound						Ninth Line Northbound						Baker Hill Boulevard Eastbound						
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total
8:30	0	1	60	4	0	65	0	22	1	10	0	33	0	2	42	4	0	48	0	6	4	5	0	15	161
8:45	0	3	78	8	0	89	0	15	5	6	0	26	0	4	57	5	0	66	0	9	6	4	0	19	200
9:00	0	1	82	14	2	97	0	28	16	8	0	52	0	2	64	16	0	82	0	17	9	9	0	35	266
9:15	0	3	88	12	12	103	0	27	19	4	0	50	0	0	75	21	0	96	0	22	22	1	0	45	294
Hourly Total	0	8	308	38	14	354	0	92	41	28	0	161	0	8	238	46	0	292	0	54	41	19	0	114	921
Approach %	0.0%	2.3%	87.0%	10.7%	-	-	0.0%	57.1%	25.5%	17.4%	-	-	0.0%	2.7%	81.5%	15.8%	-	-	0.0%	47.4%	36.0%	16.7%	-	-	-
Total %	0.0%	0.9%	33.4%	4.1%	-	38.4%	0.0%	10.0%	4.5%	3.0%	-	17.5%	0.0%	0.9%	25.8%	5.0%	-	31.7%	0.0%	5.9%	4.5%	2.1%	-	12.4%	-
PHF	0	0.67	0.88	0.68	-	0.86	0	0.82	0.54	0.7	-	0.77	0	0.5	0.79	0.55	-	0.76	0	0.61	0.47	0.53	-	0.63	0.78
Lights	0	6	287	35	-	328	0	92	40	28	-	160	0	7	228	45	-	280	0	53	40	18	-	111	879
% Lights	-	75.0%	93.2%	92.1%	-	92.7%	-	100.0%	97.6%	100.0%	-	99.4%	-	87.5%	95.8%	97.8%	-	95.9%	-	98.1%	97.6%	94.7%	-	97.4%	95.4%
Buses	-	1	7	3	-	11	-	0	0	0	-	0	-	1	8	1	-	10	-	1	0	0	-	1	22
% Buses	-	12.5%	2.3%	7.9%	-	3.1%	-	0.0%	0.0%	0.0%	-	0.0%	-	12.5%	3.4%	2.2%	-	3.4%	-	1.9%	0.0%	0.0%	-	0.9%	2.4%
Trucks	-	1	14	0	-	15	-	0	1	0	-	1	-	0	2	0	-	2	-	0	1	1	-	2	20
% Trucks	-	12.5%	4.5%	0.0%	-	4.2%	-	0.0%	2.4%	0.0%	-	0.6%	-	0.0%	0.8%	0.0%	-	0.7%	-	0.0%	2.4%	5.3%	-	1.8%	2.2%
Bicycles	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	1	1	1
Pedestrians	-	-	-	-	14	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	14

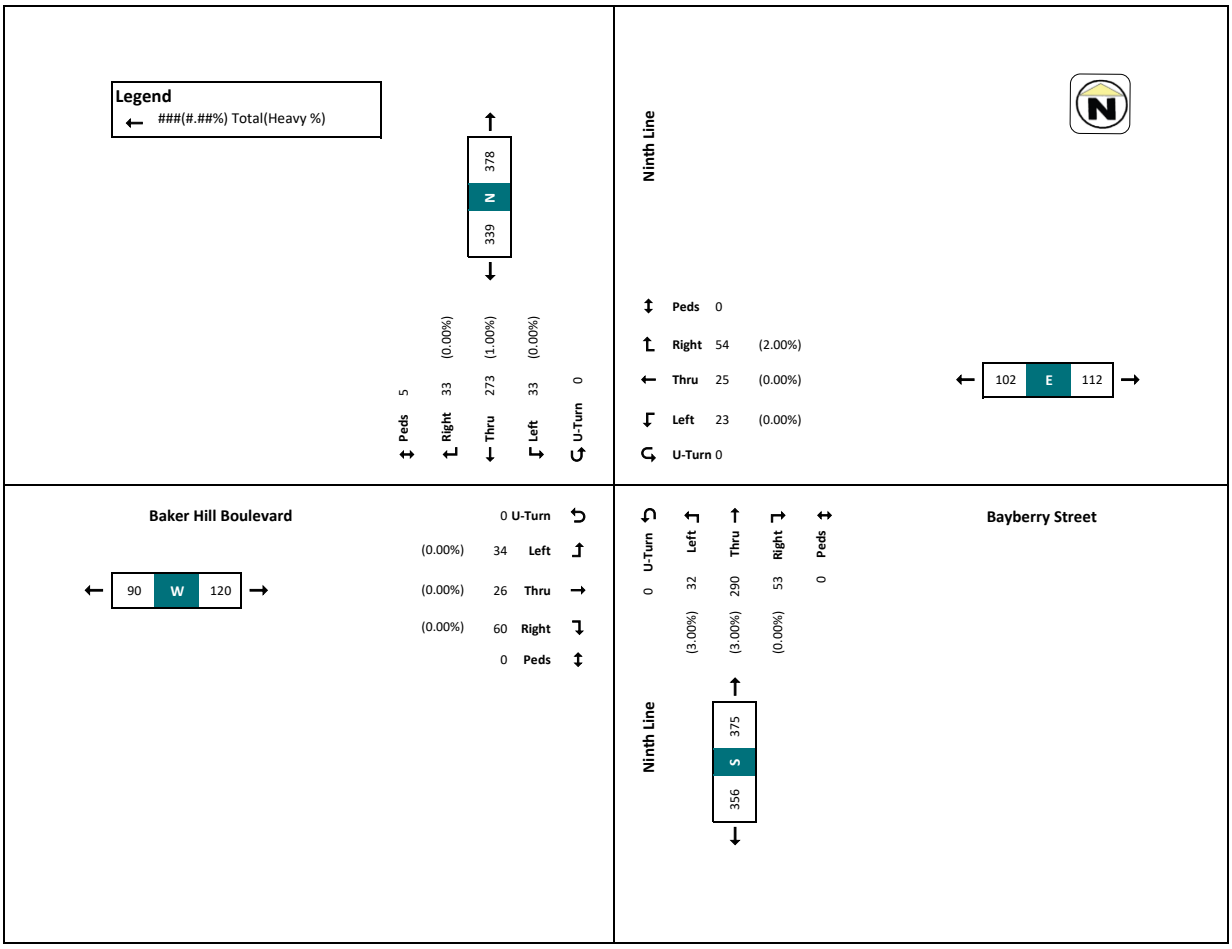


LEA Consulting Ltd.
625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

Intersection : Ninth Line & Bayberry Street
Survey Date : May 13, 2026
Project No. : 27022
Count ID : 26109

PM Peak Hour - Ninth Line & Bayberry Street

	Ninth Line Southbound						Bayberry Street Westbound						Ninth Line Northbound						Baker Hill Boulevard Eastbound						
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total
16:15	0	11	69	6	1	86	0	7	10	9	0	26	0	10	79	16	0	105	0	9	8	4	0	21	238
16:30	0	5	74	7	2	86	0	3	9	21	0	33	0	7	66	8	0	81	0	8	8	6	0	22	222
16:45	0	8	66	10	2	84	0	5	5	9	0	19	0	9	79	16	0	104	0	10	7	12	0	29	236
17:00	0	9	64	10	0	83	0	8	1	15	0	24	0	6	66	13	0	85	0	7	3	38	0	48	240
Hourly Total	0	33	273	33	5	339	0	23	25	54	0	102	0	32	290	53	0	375	0	34	26	60	0	120	936
Approach %	0.0%	9.7%	80.5%	9.7%	-	-	0.0%	22.5%	24.5%	52.9%	-	-	0.0%	8.5%	77.3%	14.1%	-	-	0.0%	28.3%	21.7%	50.0%	-	-	-
Total %	0.0%	3.5%	29.2%	3.5%	-	36.2%	0.0%	2.5%	2.7%	5.8%	-	10.9%	0.0%	3.5%	31.5%	5.8%	-	40.1%	0.0%	3.7%	2.8%	6.5%	-	12.8%	-
PHF	0	0.75	0.92	0.83	-	0.99	0	0.72	0.63	0.64	-	0.77	0	0.8	0.92	0.83	-	0.89	0	0.85	0.81	0.39	-	0.63	0.98
Lights	0	33	269	33	-	335	0	23	25	53	-	101	0	31	282	53	-	366	0	34	26	60	-	120	922
% Lights	-	100.0%	98.5%	100.0%	-	98.8%	-	100.0%	100.0%	98.1%	-	99.0%	-	96.9%	97.2%	100.0%	-	97.6%	-	100.0%	100.0%	100.0%	-	100.0%	98.5%
Buses	-	0	7	0	-	7	-	0	0	1	-	1	-	0	1	0	-	1	-	0	0	0	-	0	9
% Buses	-	0.0%	2.6%	0.0%	-	2.1%	-	0.0%	0.0%	1.9%	-	1.0%	-	0.0%	0.3%	0.0%	-	0.3%	-	0.0%	0.0%	0.0%	-	0.0%	1.0%
Trucks	-	0	1	0	-	1	-	0	0	0	-	0	-	1	7	0	-	8	-	0	0	0	-	0	9
% Trucks	-	0.0%	0.4%	0.0%	-	0.3%	-	0.0%	0.0%	0.0%	-	0.0%	-	3.1%	2.4%	0.0%	-	2.1%	-	0.0%	0.0%	0.0%	-	0.0%	1.0%
Bicycles	-	-	-	-	1	1	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	1
Pedestrians	-	-	-	-	5	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	5

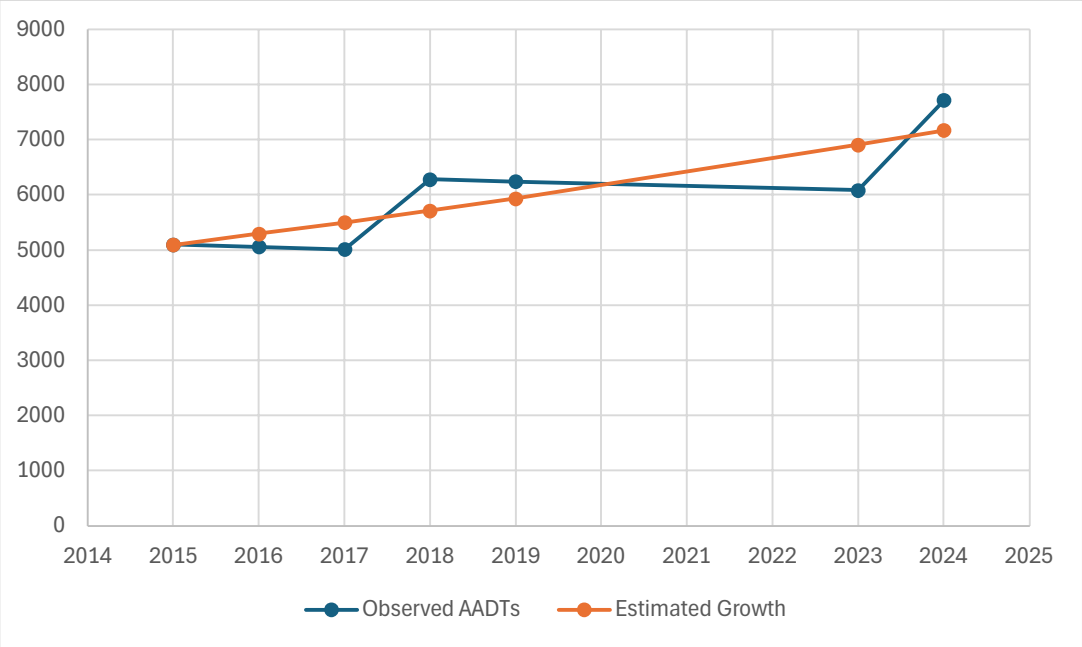


APPENDIX C

Corridor Growth Rates

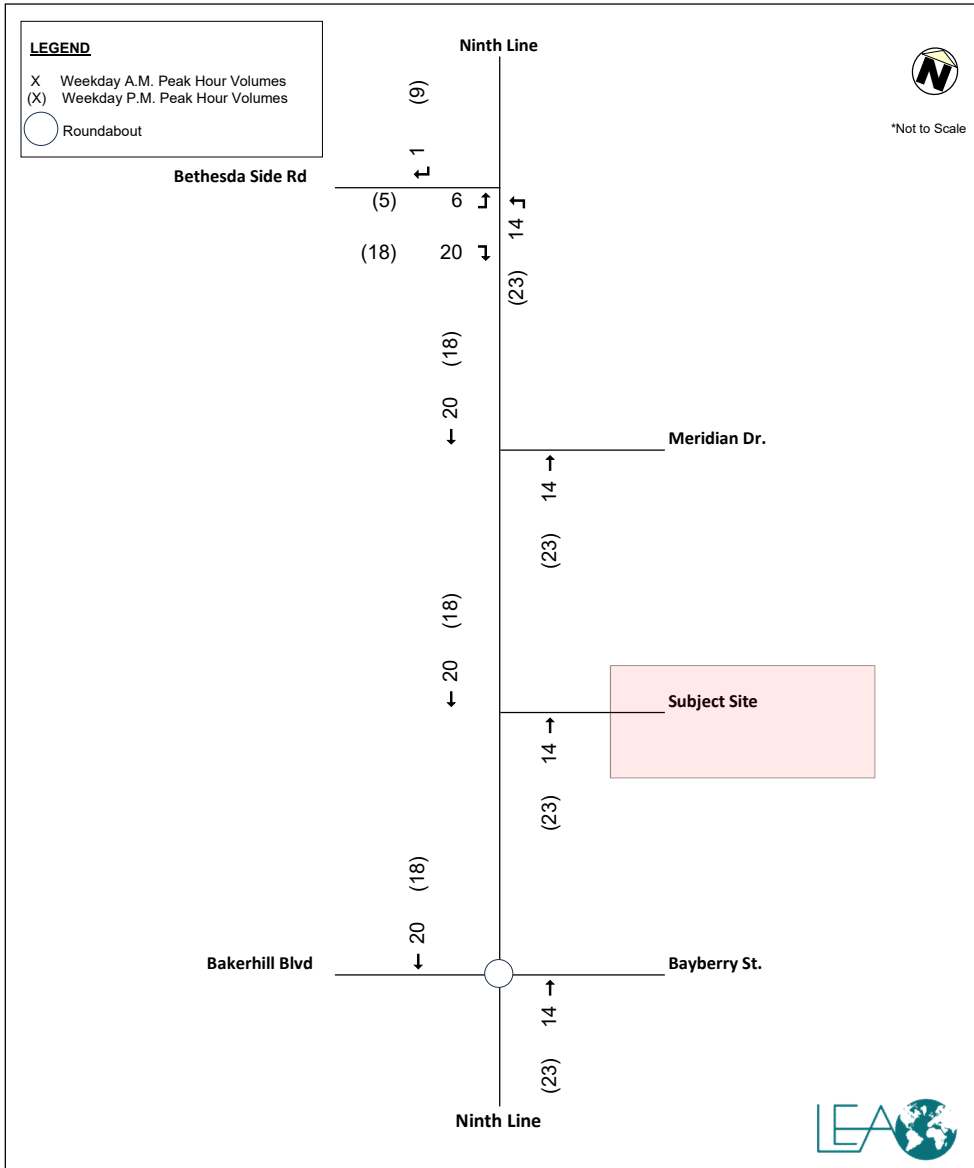
Growth Rate 3.87% Estimated by minimizing the squared difference

Year	time (t)	AADT	Estimated AADT	Difference	Squared difference
2015	0	5097	5097	0	0
2016	1	5053	5294.249	241.2493	58201.24
2017	2	5009	5499.132	490.132	240229.4
2018	3	6278	5711.943	-566.057	320420
2019	4	6239	5932.991	-306.009	93641.76
2023	8	6081	6906.097	825.0972	680785.3
2024	9	7720	7173.357	-546.643	298818.6
Total					1692096

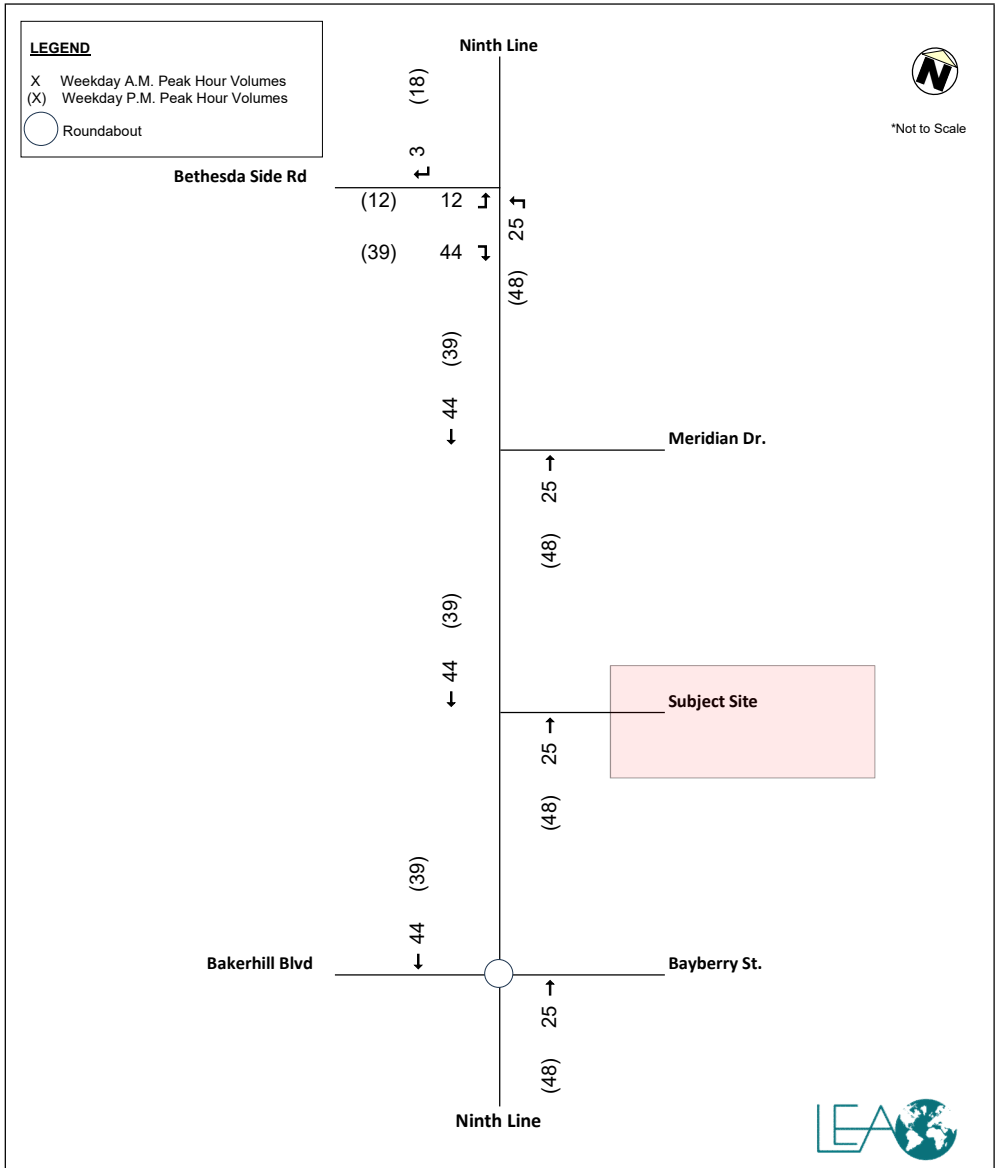


APPENDIX D

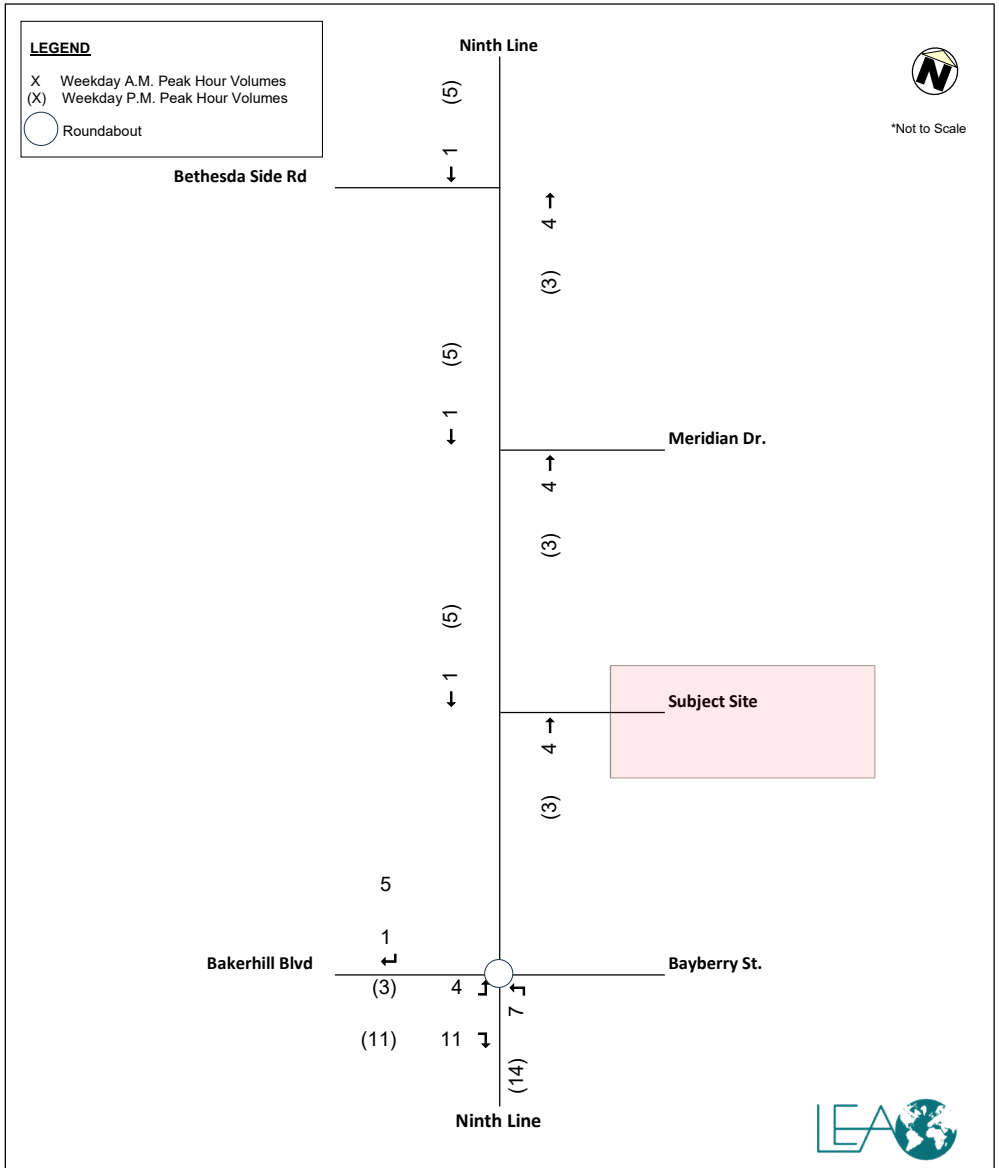
Background Developments



5481&5551 Bethesda Road
Proposed Residential Development
12717 Ninth Line



5731 Bethesda Road
Proposed Residential Development
12717 Ninth Line



12668 Ninth Line
Proposed Residential Development
12717 Ninth Line

APPENDIX E

TTS Mode Split and Distribution Data

AM Inbound

Thu May 14 2026 13:00:13 GMT-0400 (Eastern Daylight Time) - Run Time: 3311ms

Cross Tabulation Query Form - Trip - 2022

Row: Type of dwelling unit - dwell_type

Column: Primary travel mode of trip - mode_prime

Filters:

2022 TTS zone of destination - tts22_dest In 3489,3492,3493,3500,3501,3490,3491,3494,3495

and

2022 Trip purpose of destination - purp_dest2022 In 80,

and

Start time of trip - start_time In 600-1000

Trip 2022

Table:

Dwelling Type	Auto driver	Auto passenger	Walk
House	1372	116	395
Apartment	38	0	24
Townhouse	251	25	11
Sum	1661	141	430
Grand Total			2232

Mode	%
Auto Driver	74%
Auto Passenger	6%
rideshare	0%
Transit	0%
Pedestrian	19%
Cycling	0%
E-scooter	0%
Motorcycle	0%
Total	100%

AM Outbound

Thu May 14 2026 13:05:06 GMT-0400 (Eastern Daylight Time) - Run Time: 3646ms

Cross Tabulation Query Form - Trip - 2022

Row: Type of dwelling unit - dwell_type

Column: Primary travel mode of trip - mode_prime

Filters:

2022 TTS zone of origin - tts22_orig In 3489,3492,3493,3500,3501,3490,3491,3494,3495

and

2022 Trip Purpose of Origin - purp_orig2022 In 80,

and

Start time of trip - start_time In 600-1000

Trip 2022

Table:

Dwelling Type	Transit excluding GO rail	Cycle	Auto driver	E-scooter	GO rail only	Joint GO rail and local transit	Auto passenger	School bus	Walk
House	221	112	7090	18	308	89	2504	601	2818
Apartment	39	0	525	0	0	0	86	0	24
Townhouse	0	80	1304	0	21	0	547	152	56
Sum	260	192	8919	18	329	89	3137	753	2898
								Grand Total	15842

Mode	%
Auto Driver	58%
Auto Passenger	20%
rideshare	0
Transit	2%
Pedestrian	18%
Cycling	1%
E-scooter	0%
Motorcycle	0%
Total	100%

PM Inbound

Thu May 14 2026 13:01:48 GMT-0400 (Eastern Daylight Time) - Run Time: 3704ms

Cross Tabulation Query Form - Trip - 2022

Row: Type of dwelling unit - dwell_type

Column: Primary travel mode of trip - mode_prime

Filters:

2022 TTS zone of destination - tts22_dest In 3489,3492,3493,3500,3501,3490,3491,3494,3495

and

2022 Trip purpose of destination - purp_dest2022 In 80,

and

Start time of trip - start_time In 1500-1900

Trip 2022

Table:

Dwelling Type	Transit excluding GO rail	Cycle	Auto driver	E-scooter	GO rail only	Joint GO rail and local transit	Auto passenger	School bus	Walk
House	230	155	7704	18	317	105	2294	288	2635
Apartment	0	0	547	0	0	0	30	0	0
Townhouse	0	80	1131	0	10	0	387	152	76
sum	230	235	9382	18	327	105	2711	440	2711
								Grand Total	15719

Mode	%
Auto Driver	62%
Auto Passenger	17%
rideshare	0
Transit	2%
Pedestrian	17%
Cycling	1%
E-scooter	0%
Motorcycle	0%
Total	100%

PM Outbound

Thu May 14 2026 13:04:10 GMT-0400 (Eastern Daylight Time) - Run Time: 3146ms

Cross Tabulation Query Form - Trip - 2022

Row: Type of dwelling unit - dwell_type

Column: Primary travel mode of trip - mode_prime

Filters:

2022 TTS zone of origin - tts22_orig In 3489,3492,3493,3500,3501,3490,3491,3494,3495

and

2022 Trip Purpose of Origin - purp_orig2022 In 80,

and

Start time of trip - start_time In 1500-1900

Trip 2022

Table:

Dwelling Type	Cycle	Auto driver	Motorcycle	Auto passenger	Walk
House	130	3293	9	1050	415
Apartment	0	188	0	31	0
Townhouse	80	368	0	130	0
sum	210	3849	9	1211	415
				Grand Total	5694

Mode	%
Auto Driver	68%
Auto Passenger	21%
rideshare	0
Transit	0%
Pedestrian	7%
Cycling	4%
E-scooter	0%
Motorcycle	0%
Total	100%

AM In

Thu May 14 2026 12:46:02 GMT-0400 (Eastern Daylight Time) - Run Time: 3649ms

Cross Tabulation Query Form - Trip - 2022

Row: Planning district of origin - pd_orig

Column: 2022 Trip Purpose of Origin - purp_orig2022

Filters:

2022 TTS zone of destination - tts22_dest In 3489,3492,3493,3500,3501,3490,3491,3494,3495

and

2022 Trip purpose of destination - purp_dest2022 In 80,

and

Start time of trip - start_time In 600-1000

Trip 2022

Table:

Thu May 14 2026 13:39:29 GMT-0400 (Eastern Daylight Time) - Run Time: 3059ms

Cross Tabulation Query Form - Trip - 2022

Row: 2022 TTS zone of origin - tts22_orig

Column: 2022 Trip Purpose of Origin - purp_orig2022

Filters:

2022 TTS zone of destination - tts22_dest In 3489,3492,3493,3500,3501,3490,3491,3494,3495

and

2022 Trip purpose of destination - purp_dest2022 In 80,

and

Start time of trip - start_time In 600-1000

and

2022 TTS zone of origin - tts22_orig In 3482-3502

Trip 2022

Table:

Origin	Trips from origin to site
PD 16 of Toronto	52
Uxbridge	41
Richmond Hill	76
Markham	504
Hamilton	25
Tiny	26
3489	200
3490	254
3491	289
3493	84
3498	31
3501	403
3502	249

AM Out

Thu May 14 2026 12:50:54 GMT-0400 (Eastern Daylight Time) - Run Time: 3542ms

Cross Tabulation Query Form - Trip - 2022

Row: Planning district of destination - pd_dest
Column: 2022 Trip purpose of destination - purp_dest2022

Filters:
2022 TTS zone of origin - tts22_orig In 3489,3492,3493,3500,3501,3490,3491,3494,3495
and
2022 Trip Purpose of Origin - purp_orig2022 In 80,
and
Start time of trip - start_time In 600-1000

Trip 2022
Table:

Thu May 14 2026 13:53:32 GMT-0400 (Eastern Daylight Time) - Run Time: 323

Cross Tabulation Query Form - Trip - 2022

Row: 2022 TTS zone of destination - tts22_dest
Column: 2022 Trip purpose of destination - purp_dest2022

Filters:
2022 TTS zone of origin - tts22_orig In 3489,3492,3493,3500,3501,3490,3491,3
and
2022 Trip Purpose of Origin - purp_orig2022 In 80,
and
Start time of trip - start_time In 600-1000
and
2022 TTS zone of destination - tts22_dest In 3482-3502

Trip 2022
Table:

Destination	Trips from site to destination
PD 1 of Toronto	509
PD 2 of Toronto	25
PD 3 of Toronto	67
PD 4 of Toronto	97
PD 5 of Toronto	49
PD 6 of Toronto	20
PD 8 of Toronto	8
PD 9 of Toronto	25
PD 10 of Toronto	50
PD 11 of Toronto	135
PD 12 of Toronto	154
PD 13 of Toronto	194
PD 15 of Toronto	72
PD 16 of Toronto	575
Brock	0
Uxbridge	206
Pickering	122
Ajax	32
Whitby	268
Oshawa	53
Clarington	37
East Gwillimbury	22
Newmarket	209
Aurora	74
Richmond Hill	509
Markham	2738
King	17
Vaughan	356
Caledon	54
Brampton	72
Mississauga	107
Oakville	28
Burlington	4
Bradford-West Gwillimbury	30
Peterborough	40
Selwyn	8
External	19
3482	71
3483	28
3487	170
3488	64
3489	476
3490	442
3491	545
3492	169
3493	346
3494	242
3497	7
3498	31
3500	43
3501	607
3502	621

PM In

Thu May 14 2026 12:55:48 GMT-0400 (Eastern Daylight Time) - Run Time: 3257ms

Cross Tabulation Query Form - Trip - 2022

Row: Planning district of origin - pd_orig

Column: 2022 Trip Purpose of Origin - purp_orig2022

Filters:

2022 TTS zone of destination - tts22_dest In 3489,3492,3493,3500,3501,3490,3491,3494,3495

and

2022 Trip purpose of destination - purp_dest2022 In 80,

and

Start time of trip - start_time In 1500-1900

Trip 2022

Table:

Thu May 14 2026 13:44:35 GMT-0400 (Eastern Daylight Time) - Run Time: 3290ms

Cross Tabulation Query Form - Trip - 2022

Row: 2022 TTS zone of origin - tts22_orig

Column: 2022 Trip Purpose of Origin - purp_orig2022

Filters:

2022 TTS zone of destination - tts22_dest In 3489,3492,3493,3500,3501,3490,3491,3494,3495

and

2022 Trip purpose of destination - purp_dest2022 In 80,

and

Start time of trip - start_time In 1500-1900

and

2022 TTS zone of origin - tts22_orig In 3482-3502

Trip 2022

Table:

Origin	Trips from origin to site
PD 1 of Toronto	525
PD 3 of Toronto	41
PD 4 of Toronto	59
PD 5 of Toronto	53
PD 6 of Toronto	89
PD 8 of Toronto	8
PD 9 of Toronto	71
PD 10 of Toronto	180
PD 11 of Toronto	34
PD 12 of Toronto	244
PD 13 of Toronto	69
PD 15 of Toronto	73
PD 16 of Toronto	371
Uxbridge	208
Scugog	37
Pickering	52
Ajax	110
Whitby	196
Oshawa	67
Clarington	37
Newmarket	222
Aurora	102
Richmond Hill	417
Markham	3117
King	17
Vaughan	294
Caledon	54
Brampton	72
Mississauga	54
Bradford-West Gwillimbury	30
Peterborough	40
Rest of Peterborough	38
3482	71
3483	13
3485	8
3487	160
3489	537
3490	288
3491	389
3492	126
3493	379
3494	122
3495	59
3496	26
3498	31
3499	45
3500	77
3501	1376
3502	720

PM Out

Thu May 14 2026 12:53:08 GMT-0400 (Eastern Daylight Time) - Run Time: 3311ms

Cross Tabulation Query Form - Trip - 2022

Row: Planning district of destination - pd_dest

Column: 2022 Trip purpose of destination - purp_dest2022

Filters:

2022 TTS zone of origin - tts22_orig In 3489,3492,3493,3500,3501,3490,3491,3494,3495

and

2022 Trip Purpose of Origin - purp_orig2022 In 80,

and

Start time of trip - start_time In 1500-1900

Trip 2022

Table:

Destination	Trips from site to destination
PD 3 of Toronto	39
PD 10 of Toronto	125
PD 12 of Toronto	55
PD 13 of Toronto	79
PD 16 of Toronto	104
Uxbridge	231
Scugog	9
Pickering	8
Whitby	161
East Gwillimbury	37
Newmarket	24
Aurora	47
Richmond Hill	195
Markham	1223
Caledon	55
Mississauga	8
Barrie	16
Rest of Peterborough	38
3485	8
3486	16
3487	97
3489	308
3490	231
3491	367
3492	19
3493	126
3494	10
3495	54
3496	36
3498	31
3499	36
3501	1198
3502	654

Thu May 14 2026 13:50:01 GMT-0400 (Eastern Daylight Time) - Run Time: 3490ms

Cross Tabulation Query Form - Trip - 2022

Row: 2022 TTS zone of destination - tts22_dest

Column: 2022 Trip purpose of destination - purp_dest2022

Filters:

2022 TTS zone of origin - tts22_orig In 3489,3492,3493,3500,3501,3490,3491,3494,3495

and

2022 Trip Purpose of Origin - purp_orig2022 In 80,

and

Start time of trip - start_time In 1500-1900

and

2022 TTS zone of destination - tts22_dest In 3482-3502

Trip 2022

Table:

APPENDIX F

LOS Definition Summary

LEVELS OF SERVICE FOR SIGNALIZED INTERSECTIONS: METHODOLOGY

Signalized intersection analyses contained in this report were carried out using methodology described in the ***Highway Capacity Manual, 6th edition***, by the Transportation Research Board and implemented using Synchro 11 (Build 2, Revision 9) software.

Analyses of signalized intersections compare the volume of traffic passing through an intersection with the capacity of each of the intersection's approaches. Volumes can be either observed or estimated whereas an intersection's capacity is a function of its geometry, the number of lanes per approach, speeds, signal timing, and other considerations. The level of service is evaluated in terms of the average control delay (seconds) per vehicle, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Delay is a complex measure and is calculated as a function of a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group in question.

The criteria for each level of service are given below.

Level of Service	Features	Control Delay (sec/veh)
A	Very low control delay. Occurs when signal progression (i.e. coordination) is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not have to stop.	0.0 – 10.0
B	Occurs with good progression, short cycle length, or both. More vehicles stop than with LOS A.	10.1 – 20.0
C	Occurs with fair progression, longer cycle length, or both. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.	20.0 – 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles have to stop. Individual cycle failures are noticeable (i.e. some vehicles require more than one cycle to make it through the intersection).	35.0 – 55.0
E	Considered by many agencies to be the limit of acceptable delay. High delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.	55.0- 80.0
F	Considered to be unacceptable to most drivers and often occurs with oversaturation. It may also occur at high v/c ratios below 1.0 with many individual cycle failures.	80.1 +

LEVELS OF SERVICE FOR UNSIGNALIZED INTERSECTIONS: METHODOLOGY

Unsignalized intersection analyses contained in this report were carried out using methodology described in the ***Highway Capacity Manual 6th edition*** by the Transportation Research Board and implemented using the Synchro 11 (Build 2, Revision 9) software.

Analyses of unsignalized intersections compare observed or estimated traffic volumes with the capacity of each of the intersection's approaches. The analysis derives an estimation of queue lengths and the resulting delays experienced by vehicles from the time they join a queue to the moment they cross the stop bar at the intersection. Queuing and delays at unsignalized approaches are a function of the volumes of all other conflicting movements and the characteristics of the intersection. Traffic volumes can be either observed or estimated while an intersection's capacity is a function of its geometry, lane configurations, speeds, and other operational considerations. The resulting statistic is termed "average total delay" for each approach and is measured in seconds per vehicle. The delay can then be assigned a letter grade, which provides a simple qualitative assessment of the Level of Service for any unsignalized intersection.

The Level of Service grading for unsignalized intersections is more sensitive than that used for signalized analyses: delays are more onerous at unsignalized intersections as drivers must remain attentive while waiting for acceptable conditions to complete their movement. As a result, the thresholds between grades are lower for unsignalized analyses.

Level of Service	Features	Average Total Delay (sec/veh)
A	Almost no delay occurs. Approaches appear clear and turns are made easily.	0.0 – 10.0
B	Short delays are experienced. Drivers find their movement becoming more restricted.	10.1 – 15.0
C	Longer delays occur. Operation of both the minor and major streets are generally stable but movements from the minor street become more difficult. This level is often used for urban intersection design standards.	15.1 – 25.0
D	Motorists encounter increasing traffic restrictions and substantial delays. Delays on the major street occur as turning traffic interferes with the flow of traffic. Traffic flows are approaching the capacity of the intersection.	25.1 - 35.0
E	At level "E", capacity is reached. There are long queues of vehicles waiting upstream for the approach to clear. Delays to vehicles reach frustrating levels.	35.1- 50.0
F	Intersection saturation occurs as vehicle demand has exceeded the capacity. Drivers will often accept less than ideal gap opportunities; safety is compromised.	50.1 +

APPENDIX G

Existing Intersection Capacity Analysis

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	32	75	88	175	257	45
Future Vol, veh/h	32	75	88	175	257	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	9	5	5	5	6	7
Mvmt Flow	38	89	105	208	306	54

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	751	333	360	0	-	0
Stage 1	333	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Critical Hdwy	6.49	6.25	4.15	-	-	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.345	2.245	-	-	-
Pot Cap-1 Maneuver	369	702	1182	-	-	-
Stage 1	711	-	-	-	-	-
Stage 2	650	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	332	702	1182	-	-	-
Mov Cap-2 Maneuver	332	-	-	-	-	-
Stage 1	640	-	-	-	-	-
Stage 2	650	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14	2.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1182	-	527	-	-
HCM Lane V/C Ratio	0.089	-	0.242	-	-
HCM Ctrl Dly (s/v)	8.3	0	14	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q (veh)	0.3	-	0.9	-	-

Intersection	
Int Delay, s/veh	7.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	136	75	188	166	108	220
Future Vol, veh/h	136	75	188	166	108	220
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	95	0	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	9	2	5	4	10
Mvmt Flow	181	100	251	221	144	293

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	833	252	0	0	473	0
Stage 1	252	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Critical Hdwy	6.43	6.29	-	-	4.14	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.381	-	-	2.236	-
Pot Cap-1 Maneuver	337	770	-	-	1079	-
Stage 1	788	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	292	769	-	-	1078	-
Mov Cap-2 Maneuver	292	-	-	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	482	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	26.6	0	2.9
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	292	769	1078	-
HCM Lane V/C Ratio	-	-	0.621	0.13	0.134	-
HCM Ctrl Dly (s/v)	-	-	35.6	10.4	8.9	-
HCM Lane LOS	-	-	E	B	A	-
HCM 95th %tile Q (veh)	-	-	3.8	0.4	0.5	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	354	0	0	356
Future Vol, veh/h	0	0	354	0	0	356
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	25	25	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	1416	0	0	1424

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1416	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	170	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	170	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Ctrl Dly (s/v)	-	-	0	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q (veh)	-	-	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	84	86	51	308	220	30
Future Vol, veh/h	84	86	51	308	220	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	6	1	2	2	3	7
Mvmt Flow	93	96	57	342	244	33

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	717	261	277	0	-	0
Stage 1	261	-	-	-	-	-
Stage 2	456	-	-	-	-	-
Critical Hdwy	6.46	6.21	4.12	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.309	2.218	-	-	-
Pot Cap-1 Maneuver	390	780	1286	-	-	-
Stage 1	773	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	369	780	1286	-	-	-
Mov Cap-2 Maneuver	369	-	-	-	-	-
Stage 1	730	-	-	-	-	-
Stage 2	630	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	16.4	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1286	-	503	-	-
HCM Lane V/C Ratio	0.044	-	0.376	-	-
HCM Ctrl Dly (s/v)	7.9	0	16.4	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q (veh)	0.1	-	1.7	-	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	57	35	322	53	40	271
Future Vol, veh/h	57	35	322	53	40	271
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	0	0	3
Mvmt Flow	59	36	335	55	42	282

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	701	335	0	0	390	0
Stage 1	335	-	-	-	-	-
Stage 2	366	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	408	712	-	-	1180	-
Stage 1	729	-	-	-	-	-
Stage 2	706	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	393	712	-	-	1180	-
Mov Cap-2 Maneuver	393	-	-	-	-	-
Stage 1	729	-	-	-	-	-
Stage 2	681	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	13.7	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	393	712	1180	-
HCM Lane V/C Ratio	-	-	0.151	0.051	0.035	-
HCM Ctrl Dly (s/v)	-	-	15.8	10.3	8.2	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q (veh)	-	-	0.5	0.2	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	375	0	0	328
Future Vol, veh/h	0	0	375	0	0	328
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	25	25	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	1500	0	0	1312

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1500	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	152	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	152	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Ctrl Dly (s/v)	-	-	0	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q (veh)	-	-	-	-

APPENDIX H

Future Background Intersection Capacity Analysis

2031 Future Background Intersection Capacity Analysis

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	139	127	216	312	49
Future Vol, veh/h	50	139	127	216	312	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	60	165	151	257	371	58

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	959	400	429	0	-	0
Stage 1	400	-	-	-	-	-
Stage 2	559	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	288	654	1141	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	576	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	244	654	1141	-	-	-
Mov Cap-2 Maneuver	244	-	-	-	-	-
Stage 1	576	-	-	-	-	-
Stage 2	576	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	20.5	3.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1141	-	453	-	-
HCM Lane V/C Ratio	0.133	-	0.497	-	-
HCM Ctrl Dly (s/v)	8.6	0	20.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q (veh)	0.5	-	2.7	-	-

Intersection	
Int Delay, s/veh	12.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	136	75	270	166	108	331
Future Vol, veh/h	136	75	270	166	108	331
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	95	0	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	181	100	360	221	144	441

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1090	361	0	0	582	0
Stage 1	361	-	-	-	-	-
Stage 2	729	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	240	688	-	-	1002	-
Stage 1	710	-	-	-	-	-
Stage 2	481	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	205	687	-	-	1001	-
Mov Cap-2 Maneuver	205	-	-	-	-	-
Stage 1	709	-	-	-	-	-
Stage 2	412	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	58.2	0	2.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	205	687	1001	-
HCM Lane V/C Ratio	-	-	0.885	0.146	0.144	-
HCM Ctrl Dly (s/v)	-	-	84.1	11.1	9.2	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q (veh)	-	-	6.9	0.5	0.5	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	471	0	0	495
Future Vol, veh/h	0	0	471	0	0	495
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	25	25	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	1884	0	0	1980

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1884	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	89	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	89	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Ctrl Dly (s/v)	-	-	0	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q (veh)	-	-	-	-

Intersection	
Int Delay, s/veh	9.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	101	143	122	375	271	57
Future Vol, veh/h	101	143	122	375	271	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	112	159	136	417	301	63

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1022	333	364	0	-	0
Stage 1	333	-	-	-	-	-
Stage 2	689	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	264	713	1206	-	-	-
Stage 1	731	-	-	-	-	-
Stage 2	502	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	225	713	1206	-	-	-
Mov Cap-2 Maneuver	225	-	-	-	-	-
Stage 1	624	-	-	-	-	-
Stage 2	502	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	35.8	2.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1206	-	376	-	-
HCM Lane V/C Ratio	0.112	-	0.721	-	-
HCM Ctrl Dly (s/v)	8.4	0	35.8	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q (veh)	0.4	-	5.5	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	57	35	463	53	40	390
Future Vol, veh/h	57	35	463	53	40	390
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	59	36	482	55	42	406

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	972	482	0	0	537	0
Stage 1	482	-	-	-	-	-
Stage 2	490	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	282	588	-	-	1041	-
Stage 1	625	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	271	588	-	-	1041	-
Mov Cap-2 Maneuver	271	-	-	-	-	-
Stage 1	625	-	-	-	-	-
Stage 2	595	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	18	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	271	588	1041	-
HCM Lane V/C Ratio	-	-	0.219	0.062	0.04	-
HCM Ctrl Dly (s/v)	-	-	22	11.5	8.6	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q (veh)	-	-	0.8	0.2	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	527	0	0	459
Future Vol, veh/h	0	0	527	0	0	459
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	25	25	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	2108	0	0	1836

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	2108	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	65	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	65	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Ctrl Dly (s/v)	-	-	0	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q (veh)	-	-	-	-

2036 Future Background Intersection Capacity Analysis

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	139	127	260	377	49
Future Vol, veh/h	50	139	127	260	377	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	60	165	151	310	449	58

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1090	478	507	0	-	0
Stage 1	478	-	-	-	-	-
Stage 2	612	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	240	591	1068	-	-	-
Stage 1	628	-	-	-	-	-
Stage 2	545	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	199	591	1068	-	-	-
Mov Cap-2 Maneuver	199	-	-	-	-	-
Stage 1	521	-	-	-	-	-
Stage 2	545	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	26.2	2.9	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1068	-	389	-	-
HCM Lane V/C Ratio	0.142	-	0.578	-	-
HCM Ctrl Dly (s/v)	8.9	0	26.2	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q (veh)	0.5	-	3.5	-	-

Intersection	
Int Delay, s/veh	18.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	136	75	317	166	108	387
Future Vol, veh/h	136	75	317	166	108	387
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	95	0	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	181	100	423	221	144	516

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1228	424	0	0	645	0
Stage 1	424	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	199	634	-	-	950	-
Stage 1	664	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 169	634	-	-	949	-
Mov Cap-2 Maneuver	~ 169	-	-	-	-	-
Stage 1	663	-	-	-	-	-
Stage 2	377	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	97.9	0	2.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	169	634	949	-
HCM Lane V/C Ratio	-	-	1.073	0.158	0.152	-
HCM Ctrl Dly (s/v)	-	-	145.5	11.7	9.5	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q (veh)	-	-	9.1	0.6	0.5	-

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	560	0	0	585
Future Vol, veh/h	0	0	560	0	0	585
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	25	25	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	2240	0	0	2340

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	2240	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	54	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	54	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Ctrl Dly (s/v)	-	-	0	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q (veh)	-	-	-	-

Intersection	
Int Delay, s/veh	12.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	101	143	122	453	327	57
Future Vol, veh/h	101	143	122	453	327	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	112	159	136	503	363	63

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1170	395	426	0	-	0
Stage 1	395	-	-	-	-	-
Stage 2	775	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	215	659	1144	-	-	-
Stage 1	685	-	-	-	-	-
Stage 2	458	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	180	659	1144	-	-	-
Mov Cap-2 Maneuver	180	-	-	-	-	-
Stage 1	572	-	-	-	-	-
Stage 2	458	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	59.2	1.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1144	-	314	-	-
HCM Lane V/C Ratio	0.118	-	0.863	-	-
HCM Ctrl Dly (s/v)	8.6	0	59.2	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q (veh)	0.4	-	7.8	-	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	57	35	544	53	40	459
Future Vol, veh/h	57	35	544	53	40	459
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	59	36	567	55	42	478

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1129	567	0	0	622	0
Stage 1	567	-	-	-	-	-
Stage 2	562	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	228	527	-	-	969	-
Stage 1	572	-	-	-	-	-
Stage 2	575	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	218	527	-	-	969	-
Mov Cap-2 Maneuver	218	-	-	-	-	-
Stage 1	572	-	-	-	-	-
Stage 2	550	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	21.8	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	218	527	969	-
HCM Lane V/C Ratio	-	-	0.272	0.069	0.043	-
HCM Ctrl Dly (s/v)	-	-	27.6	12.3	8.9	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q (veh)	-	-	1.1	0.2	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	622	0	0	542
Future Vol, veh/h	0	0	622	0	0	542
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	25	25	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	2488	0	0	2168

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	2488	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	38	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	38	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Ctrl Dly (s/v)	-	-	0	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q (veh)	-	-	-	-

APPENDIX I

Future Total Intersection Capacity Analysis

2031 Future Total Intersection Capacity Analysis

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	139	131	218	312	49
Future Vol, veh/h	50	139	131	218	312	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	60	165	156	260	371	58

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	972	400	429	0	-	0
Stage 1	400	-	-	-	-	-
Stage 2	572	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	282	654	1141	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	237	654	1141	-	-	-
Mov Cap-2 Maneuver	237	-	-	-	-	-
Stage 1	572	-	-	-	-	-
Stage 2	569	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	21	3.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1141	-	446	-	-
HCM Lane V/C Ratio	0.137	-	0.504	-	-
HCM Ctrl Dly (s/v)	8.7	0	21	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q (veh)	0.5	-	2.8	-	-

Intersection	
Int Delay, s/veh	12.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	136	75	276	167	108	331
Future Vol, veh/h	136	75	276	167	108	331
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	95	0	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	181	100	368	223	144	441

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1098	369	0	0	592	0
Stage 1	369	-	-	-	-	-
Stage 2	729	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	238	681	-	-	994	-
Stage 1	704	-	-	-	-	-
Stage 2	481	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	203	680	-	-	993	-
Mov Cap-2 Maneuver	203	-	-	-	-	-
Stage 1	703	-	-	-	-	-
Stage 2	411	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	59.7	0	2.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	203	680	993	-
HCM Lane V/C Ratio	-	-	0.893	0.147	0.145	-
HCM Ctrl Dly (s/v)	-	-	86.5	11.2	9.2	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q (veh)	-	-	7	0.5	0.5	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	471	2	0	495
Future Vol, veh/h	0	7	471	2	0	495
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	25	25	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	28	1884	8	0	1980

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1888	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	89	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	89	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	63	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	89	-
HCM Lane V/C Ratio	-	-	0.315	-
HCM Ctrl Dly (s/v)	-	-	63	-
HCM Lane LOS	-	-	F	-
HCM 95th %tile Q (veh)	-	-	1.2	-

Intersection	
Int Delay, s/veh	9.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	101	145	125	376	272	57
Future Vol, veh/h	101	145	125	376	272	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	112	161	139	418	302	63

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1030	334	365	0	-	0
Stage 1	334	-	-	-	-	-
Stage 2	696	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	261	712	1205	-	-	-
Stage 1	730	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	222	712	1205	-	-	-
Mov Cap-2 Maneuver	222	-	-	-	-	-
Stage 1	621	-	-	-	-	-
Stage 2	498	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	36.7	2.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1205	-	374	-	-
HCM Lane V/C Ratio	0.115	-	0.731	-	-
HCM Ctrl Dly (s/v)	8.4	0	36.7	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q (veh)	0.4	-	5.6	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	57	35	467	54	40	393
Future Vol, veh/h	57	35	467	54	40	393
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	59	36	486	56	42	409

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	979	486	0	0	542	0
Stage 1	486	-	-	-	-	-
Stage 2	493	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	280	585	-	-	1037	-
Stage 1	623	-	-	-	-	-
Stage 2	618	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	269	585	-	-	1037	-
Mov Cap-2 Maneuver	269	-	-	-	-	-
Stage 1	623	-	-	-	-	-
Stage 2	593	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	18.1	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	269	585	1037	-
HCM Lane V/C Ratio	-	-	0.221	0.062	0.04	-
HCM Ctrl Dly (s/v)	-	-	22.1	11.6	8.6	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q (veh)	-	-	0.8	0.2	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	5	527	9	0	462
Future Vol, veh/h	0	5	527	9	0	462
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	25	25	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	20	2108	36	0	1848

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	2126	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	64	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	64	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	85	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	64	-
HCM Lane V/C Ratio	-	-	0.313	-
HCM Ctrl Dly (s/v)	-	-	85	-
HCM Lane LOS	-	-	F	-
HCM 95th %tile Q (veh)	-	-	1.1	-

2036 Future Total Intersection Capacity Analysis

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	139	131	262	377	49
Future Vol, veh/h	50	139	131	262	377	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	60	165	156	312	449	58

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1102	478	507	0	-	0
Stage 1	478	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	236	591	1068	-	-	-
Stage 1	628	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	194	591	1068	-	-	-
Mov Cap-2 Maneuver	194	-	-	-	-	-
Stage 1	517	-	-	-	-	-
Stage 2	538	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	26.9	3	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1068	-	383	-	-
HCM Lane V/C Ratio	0.146	-	0.587	-	-
HCM Ctrl Dly (s/v)	8.9	0	26.9	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q (veh)	0.5	-	3.6	-	-

Intersection	
Int Delay, s/veh	19

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	136	75	323	167	108	387
Future Vol, veh/h	136	75	323	167	108	387
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	95	0	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	181	100	431	223	144	516

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1236	432	0	0	655	0
Stage 1	432	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	196	628	-	-	942	-
Stage 1	659	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 166	628	-	-	941	-
Mov Cap-2 Maneuver	~ 166	-	-	-	-	-
Stage 1	658	-	-	-	-	-
Stage 2	376	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	102.7	0	2.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	166	628	941	-
HCM Lane V/C Ratio	-	-	1.092	0.159	0.153	-
HCM Ctrl Dly (s/v)	-	-	152.8	11.8	9.5	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q (veh)	-	-	9.3	0.6	0.5	-

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	560	2	0	585
Future Vol, veh/h	0	7	560	2	0	585
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	25	25	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	28	2240	8	0	2340

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	2244	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	54	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	54	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	128.5	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	54	-
HCM Lane V/C Ratio	-	-	0.519	-
HCM Ctrl Dly (s/v)	-	-	128.5	-
HCM Lane LOS	-	-	F	-
HCM 95th %tile Q (veh)	-	-	2	-

Intersection	
Int Delay, s/veh	13.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	101	145	125	454	328	57
Future Vol, veh/h	101	145	125	454	328	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	112	161	139	504	364	63

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1178	396	427	0	-	0
Stage 1	396	-	-	-	-	-
Stage 2	782	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	213	658	1143	-	-	-
Stage 1	684	-	-	-	-	-
Stage 2	454	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	177	658	1143	-	-	-
Mov Cap-2 Maneuver	177	-	-	-	-	-
Stage 1	568	-	-	-	-	-
Stage 2	454	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	62.3	1.9	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1143	-	311	-	-
HCM Lane V/C Ratio	0.122	-	0.879	-	-
HCM Ctrl Dly (s/v)	8.6	0	62.3	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q (veh)	0.4	-	8	-	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	57	35	548	54	40	462
Future Vol, veh/h	57	35	548	54	40	462
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	59	36	571	56	42	481

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1136	571	0	0	627	0
Stage 1	571	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	225	524	-	-	965	-
Stage 1	569	-	-	-	-	-
Stage 2	573	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	215	524	-	-	965	-
Mov Cap-2 Maneuver	215	-	-	-	-	-
Stage 1	569	-	-	-	-	-
Stage 2	548	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	22.1	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	215	524	965	-
HCM Lane V/C Ratio	-	-	0.276	0.07	0.043	-
HCM Ctrl Dly (s/v)	-	-	28	12.4	8.9	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q (veh)	-	-	1.1	0.2	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	5	622	9	0	545
Future Vol, veh/h	0	5	622	9	0	545
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	25	25	25	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	20	2488	36	0	2180

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	2506	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	37	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	37	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	184.3	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	37	-
HCM Lane V/C Ratio	-	-	0.541	-
HCM Ctrl Dly (s/v)	-	-	184.3	-
HCM Lane LOS	-	-	F	-
HCM 95th %tile Q (veh)	-	-	1.9	-

APPENDIX J

Roundabout Analysis

Junctions 8

ARCADY 8 Lite

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: 27022 - Ninth Line and Bayberry St.arc8
Path: F:\27022\Traffic\Roundabout Analysis
Report generation date: 2026-07-16 2:31:30 PM

Summary of intersection performance

	AM								PM							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Network - EX 2026															
Bayberry Street (WB)	0.26	~1	4.41	0.20	A	4.83	A	91 % [Ninth Line (SB)]	0.11	~1	3.74	0.10	A	4.03	A	146 % [Ninth Line (NB)]
Ninth Line (SB)	0.76	1.08	5.59	0.41	A				0.40	~1	4.11	0.28	A			
Baker Hill Boulevard (EB)	0.12	~1	2.79	0.11	A				0.08	~1	2.41	0.08	A			
Ninth Line (NB)	0.58	1.04	4.92	0.36	A				0.49	1.03	4.55	0.33	A			
	Network - FB 2031															
Bayberry Street (WB)	0.29	~1	5.02	0.23	A	6.17	A	44 % [Ninth Line (SB)]	0.12	~1	4.20	0.11	A	4.87	A	81 % [Ninth Line (NB)]
Ninth Line (SB)	1.38	?	7.51	0.57	A				0.63	~1	4.81	0.38	A			
Baker Hill Boulevard (EB)	0.15	~1	3.10	0.13	A				0.10	~1	2.56	0.09	A			
Ninth Line (NB)	0.92	1.04	5.99	0.47	A				0.85	~1	5.62	0.45	A			
	Network - FB 2036															
Bayberry Street (WB)	0.32	~1	5.53	0.24	A	7.41	A	26 % [Ninth Line (SB)]	0.13	~1	4.50	0.12	A	5.45	A	60 % [Ninth Line (NB)]
Ninth Line (SB)	1.98	2.14	9.28	0.66	A				0.79	~1	5.31	0.44	A			
Baker Hill Boulevard (EB)	0.16	~1	3.27	0.14	A				0.10	~1	2.63	0.09	A			
Ninth Line (NB)	1.24	?	6.94	0.55	A				1.09	1.03	6.36	0.52	A			
	Network - FT 2031															
Bayberry Street (WB)	0.29	~1	5.03	0.23	A	6.18	A	44 % [Ninth Line (SB)]	0.12	~1	4.24	0.11	A	4.91	A	79 % [Ninth Line (NB)]
Ninth Line (SB)	1.38	?	7.51	0.57	A				0.63	~1	4.83	0.39	A			
Baker Hill Boulevard (EB)	0.15	~1	3.10	0.13	A				0.10	~1	2.56	0.09	A			
Ninth Line (NB)	0.93	~1	6.01	0.48	A				0.87	~1	5.69	0.46	A			
	Network - FT 2036															
Bayberry Street (WB)	0.32	~1	5.54	0.24	A	7.42	A	26 % [Ninth Line (SB)]	0.13	~1	4.54	0.12	A	5.51	A	58 % [Ninth Line (NB)]
Ninth Line (SB)	1.98	2.14	9.28	0.66	A				0.80	~1	5.34	0.44	A			
Baker Hill Boulevard (EB)	0.16	~1	3.27	0.14	A				0.10	~1	2.64	0.09	A			
Ninth Line (NB)	1.25	?	6.97	0.55	A				1.12	?	6.45	0.52	A			

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

"D1 - EX 2026, AM " model duration: 8:30 AM - 9:30 AM
"D2 - EX 2026, PM" model duration: 4:15 PM - 5:15 PM
"D3 - FB 2031, AM" model duration: 8:30 AM - 9:30 AM
"D4 - FB 2031, PM" model duration: 4:15 PM - 5:15 PM
"D5 - FB 2036, AM" model duration: 8:30 AM - 9:30 AM
"D6 - FB 2036, PM" model duration: 4:15 PM - 5:15 PM
"D7 - FT 2031, AM" model duration: 8:30 AM - 9:30 AM
"D8 - FT 2031, PM" model duration: 4:15 PM - 5:15 PM
"D9 - FT 2036, AM" model duration: 8:30 AM - 9:30 AM
"D10 - FT 2036, PM" model duration: 4:15 PM - 5:15 PM

Run using Junctions 8.0.6.541 at 2026-07-16 2:31:01 PM

File summary

Title	27022 Ninth Line and Bayberry Street
Date	2026-05-29
Version	
Status	(new file)
Client	
Analyst	lcheng
Description	

Analysis Options

Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
✓	V/C Ratio	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

Network - EX 2026, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	Bayberry Street (WB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Baker Hill Boulevard (EB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Ninth Line (NB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Network	ARCADY	27022 - 12717 Ninth Line, Whitchurch-Stouffville	100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
EX 2026	AM	PHF	08:30	09:30	60	15	

Roundabout details

Legs

Name	Leg	Name	Truck Proportion
Bayberry Street (WB)	1	Bayberry Street (WB)	1.0
Ninth Line (SB)	2	Ninth Line (SB)	8.0
Baker Hill Boulevard (EB)	3	Baker Hill Boulevard (EB)	3.0
Ninth Line (NB)	4	Ninth Line (NB)	4.0

Capacity Options

Name	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
Bayberry Street (WB)	0.00	99999.00	100.00	100.00	0.479	1308.872
Ninth Line (SB)	0.00	99999.00	100.00	100.00	0.497	1275.623
Baker Hill Boulevard (EB)	0.00	99999.00	100.00	100.00	0.590	1813.585
Ninth Line (NB)	0.00	99999.00	100.00	100.00	0.486	1253.576

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Bayberry Street (WB)	4.02	5.05	8.97	26.91	56.82	61.00	
Ninth Line (SB)	3.31	4.60	10.88	43.48	56.82	40.00	
Baker Hill Boulevard (EB)	5.45	6.35	7.46	26.91	56.82	39.00	
Ninth Line (NB)	3.18	4.80	10.86	43.48	56.82	47.00	

Pedestrian Crossings

Name	Crossing Type	Average Pedestrian Flow (Ped/hr)	Space between crossing and intersection entry (PCE)	Vehicles queueing on exit (PCE)	Central Refuge	Crossing length (m)	Crossing length (entry side) (m)	Crossing length (exit side) (m)
Bayberry Street (WB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		6.57	7.07
Ninth Line (SB)	Unsignalled Pedestrian Crossing	14.00	1.00	2.00	✓		7.75	7.83
Baker Hill Boulevard (EB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		8.97	8.07
Ninth Line (NB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		7.86	8.22

Traffic Demand

Turning Counts / Proportions (PCE/hr) - 6th Line and Webster Boulevard (for whole period)

		To			
		Bayberry Street (WB)	**Ninth Line (SB)**	**Baker Hill Boulevard (EB)**	**Ninth Line (NB)**
From	**Bayberry Street (WB)**	0.000	31.000	42.000	92.000
	Ninth Line (SB)	10.000	0.000	42.000	330.000
	Baker Hill Boulevard (EB)	42.000	62.000	0.000	20.000
	Ninth Line (NB)	47.000	274.000	10.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
165.00	0.78	SecondQuarter
382.00	0.78	SecondQuarter
124.00	0.78	SecondQuarter
331.00	0.78	SecondQuarter

Results

Results Summary for whole modelled period

Name	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
Bayberry Street (WB)	0.20	4.41	0.26	~1	A
Ninth Line (SB)	0.41	5.59	0.76	1.08	A
Baker Hill Boulevard (EB)	0.11	2.79	0.12	~1	A
Ninth Line (NB)	0.36	4.92	0.58	1.04	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	6th Line and Webster Boulevard	4.83	A	91	Ninth Line (SB)

Main Results for each time segment

Main results: (08:30-08:45)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	133.97	133.44	279.79	0.00	1148.22	0.117	0.13	3.581	A
Ninth Line (SB)	310.17	308.70	116.46	14.00	1216.14	0.255	0.37	4.277	A
Baker Hill Boulevard (EB)	100.68	100.41	349.16	0.00	1607.62	0.063	0.07	2.460	A
Ninth Line (NB)	268.76	267.58	92.30	0.00	1208.72	0.222	0.30	3.973	A

Main results: (08:45-09:00)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	211.54	211.04	442.52	0.00	1035.30	0.204	0.26	4.408	A
Ninth Line (SB)	489.74	488.19	184.18	14.00	1182.64	0.414	0.76	5.586	A
Baker Hill Boulevard (EB)	158.97	158.76	552.19	0.00	1487.87	0.107	0.12	2.789	A
Ninth Line (NB)	424.36	423.23	145.93	0.00	1182.65	0.359	0.58	4.923	A

Main results: (09:00-09:15)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	180.51	180.73	378.99	0.00	1080.94	0.167	0.20	4.041	A
Ninth Line (SB)	417.91	418.60	157.73	14.00	1195.72	0.350	0.59	5.007	A
Baker Hill Boulevard (EB)	135.66	135.75	473.34	0.00	1534.37	0.088	0.10	2.652	A
Ninth Line (NB)	362.12	362.60	124.81	0.00	1192.92	0.304	0.46	4.511	A

Main results: (09:15-09:30)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	133.97	134.25	281.54	0.00	1147.07	0.117	0.13	3.590	A
Ninth Line (SB)	310.17	311.02	117.17	14.00	1215.78	0.255	0.37	4.302	A
Baker Hill Boulevard (EB)	100.68	100.81	351.68	0.00	1606.14	0.063	0.07	2.462	A
Ninth Line (NB)	268.76	269.39	92.69	0.00	1208.53	0.222	0.30	3.990	A

Network - EX 2026, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	Bayberry Street (WB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Baker Hill Boulevard (EB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Ninth Line (NB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Network	ARCADY	27022 - 12717 Ninth Line, Whitchurch-Stouffville	100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
EX 2026	PM	PHF	16:15	17:15	60	15	

Roundabout details

Legs

Name	Leg	Name	Truck Proportion
Bayberry Street (WB)	1	Bayberry Street (WB)	2.0
Ninth Line (SB)	2	Ninth Line (SB)	1.0
Baker Hill Boulevard (EB)	3	Baker Hill Boulevard (EB)	0.0
Ninth Line (NB)	4	Ninth Line (NB)	3.0

Capacity Options

Name	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
Bayberry Street (WB)	0.00	99999.00	100.00	100.00	0.479	1308.872
Ninth Line (SB)	0.00	99999.00	100.00	100.00	0.497	1275.623
Baker Hill Boulevard (EB)	0.00	99999.00	100.00	100.00	0.590	1813.585
Ninth Line (NB)	0.00	99999.00	100.00	100.00	0.486	1253.576

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Bayberry Street (WB)	4.02	5.05	8.97	26.91	56.82	61.00	
Ninth Line (SB)	3.31	4.60	10.88	43.48	56.82	40.00	
Baker Hill Boulevard (EB)	5.45	6.35	7.46	26.91	56.82	39.00	
Ninth Line (NB)	3.18	4.80	10.86	43.48	56.82	47.00	

Pedestrian Crossings

Name	Crossing Type	Average Pedestrian Flow (Ped/hr)	Space between crossing and intersection entry (PCE)	Vehicles queueing on exit (PCE)	Central Refuge	Crossing length (m)	Crossing length (entry side) (m)	Crossing length (exit side) (m)
Bayberry Street (WB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		6.57	7.07
Ninth Line (SB)	Unsignalled Pedestrian Crossing	5.00	1.00	2.00	✓		7.75	7.83
Baker Hill Boulevard (EB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		8.97	8.07
Ninth Line (NB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		7.86	8.22

Traffic Demand

Turning Counts / Proportions (PCE/hr) - 6th Line and Webster Boulevard (for whole period)

		To			
		Bayberry Street (WB)	Ninth Line (SB)	Baker Hill Boulevard (EB)	Ninth Line (NB)
From	Bayberry Street (WB)	0.000	56.000	25.000	23.000
	Ninth Line (SB)	33.000	0.000	33.000	276.000
	Baker Hill Boulevard (EB)	26.000	34.000	0.000	60.000
	Ninth Line (NB)	53.000	299.000	33.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
104.00	0.98	SecondQuarter
342.00	0.98	SecondQuarter
120.00	0.98	SecondQuarter
385.00	0.98	SecondQuarter

Results

Results Summary for whole modelled period

Name	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
Bayberry Street (WB)	0.10	3.74	0.11	~1	A
Ninth Line (SB)	0.28	4.11	0.40	~1	A
Baker Hill Boulevard (EB)	0.08	2.41	0.08	~1	A
Ninth Line (NB)	0.33	4.55	0.49	1.03	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	6th Line and Webster Boulevard	4.03	A	146	Ninth Line (NB)

Main Results for each time segment

Main results: (16:15-16:30)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	102.59	102.17	359.32	0.00	1096.59	0.094	0.10	3.690	A
Ninth Line (SB)	337.35	335.84	79.54	5.00	1235.95	0.273	0.38	4.033	A
Baker Hill Boulevard (EB)	118.37	118.05	326.03	0.00	1621.27	0.073	0.08	2.394	A
Ninth Line (NB)	379.76	377.89	91.43	0.00	1209.14	0.314	0.47	4.451	A

Main results: (16:30-16:45)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	106.12	106.10	373.38	0.00	1086.88	0.098	0.11	3.743	A
Ninth Line (SB)	348.98	348.90	82.63	5.00	1234.41	0.283	0.40	4.106	A
Baker Hill Boulevard (EB)	122.45	122.44	338.70	0.00	1613.79	0.076	0.08	2.413	A
Ninth Line (NB)	392.86	392.76	94.88	0.00	1207.46	0.325	0.49	4.551	A

Main results: (16:45-17:00)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	104.71	104.71	368.51	0.00	1090.25	0.096	0.11	3.724	A
Ninth Line (SB)	344.33	344.34	81.55	5.00	1234.95	0.279	0.39	4.084	A
Baker Hill Boulevard (EB)	120.82	120.82	334.27	0.00	1616.41	0.075	0.08	2.408	A
Ninth Line (NB)	387.62	387.64	93.64	0.00	1208.07	0.321	0.49	4.521	A

Main results: (17:00-17:15)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	102.59	102.60	361.07	0.00	1095.39	0.094	0.11	3.700	A
Ninth Line (SB)	337.35	337.39	79.91	5.00	1235.76	0.273	0.38	4.047	A
Baker Hill Boulevard (EB)	118.37	118.38	327.53	0.00	1620.39	0.073	0.08	2.398	A
Ninth Line (NB)	379.76	379.82	91.74	0.00	1208.99	0.314	0.47	4.473	A

Network - FB 2031, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	Bayberry Street (WB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Baker Hill Boulevard (EB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Ninth Line (NB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Network	ARCADY	27022 - 12717 Ninth Line, Whitchurch-Stouffville	100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
FB 2031	AM	PHF	08:30	09:30	60	15	

Roundabout details

Legs

Name	Leg	Name	Truck Proportion
Bayberry Street (WB)	1	Bayberry Street (WB)	1.0
Ninth Line (SB)	2	Ninth Line (SB)	8.0
Baker Hill Boulevard (EB)	3	Baker Hill Boulevard (EB)	4.0
Ninth Line (NB)	4	Ninth Line (NB)	4.0

Capacity Options

Name	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
Bayberry Street (WB)	0.00	99999.00	100.00	100.00	0.479	1308.872
Ninth Line (SB)	0.00	99999.00	100.00	100.00	0.497	1275.623
Baker Hill Boulevard (EB)	0.00	99999.00	100.00	100.00	0.590	1813.585
Ninth Line (NB)	0.00	99999.00	100.00	100.00	0.486	1253.576

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Bayberry Street (WB)	4.02	5.05	8.97	26.91	56.82	61.00	
Ninth Line (SB)	3.31	4.60	10.88	43.48	56.82	40.00	
Baker Hill Boulevard (EB)	5.45	6.35	7.46	26.91	56.82	39.00	
Ninth Line (NB)	3.18	4.80	10.86	43.48	56.82	47.00	

Pedestrian Crossings

Name	Crossing Type	Average Pedestrian Flow (Ped/hr)	Space between crossing and intersection entry (PCE)	Vehicles queueing on exit (PCE)	Central Refuge	Crossing length (m)	Crossing length (entry side) (m)	Crossing length (exit side) (m)
Bayberry Street (WB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		6.57	7.07
Ninth Line (SB)	Unsignalled Pedestrian Crossing	14.00	1.00	2.00	✓		7.75	7.83
Baker Hill Boulevard (EB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		8.97	8.07

Ninth Line (NB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		7.86	8.22

Traffic Demand

Turning Counts / Proportions (PCE/hr) - 6th Line and Webster Boulevard (for whole period)

		To			
		Bayberry Street (WB)	Ninth Line (SB)	Baker Hill Boulevard (EB)	Ninth Line (NB)
From	Bayberry Street (WB)	0.000	31.000	42.000	92.000
	Ninth Line (SB)	10.000	0.000	43.000	467.000
	Baker Hill Boulevard (EB)	42.000	66.000	0.000	32.000
	Ninth Line (NB)	47.000	372.000	17.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
165.00	0.78	SecondQuarter
520.00	0.78	SecondQuarter
140.00	0.78	SecondQuarter
436.00	0.78	SecondQuarter

Results

Results Summary for whole modelled period

Name	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
Bayberry Street (WB)	0.23	5.02	0.29	~1	A
Ninth Line (SB)	0.57	7.51	1.38	?	A
Baker Hill Boulevard (EB)	0.13	3.10	0.15	~1	A
Ninth Line (NB)	0.47	5.99	0.92	1.04	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	6th Line and Webster Boulevard	6.17	A	44	Ninth Line (SB)

Main Results for each time segment

Main results: (08:30-08:45)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	133.97	133.41	367.76	0.00	1091.02	0.123	0.14	3.795	A
Ninth Line (SB)	422.22	419.94	122.08	14.00	1213.35	0.348	0.57	4.887	A
Baker Hill Boulevard (EB)	113.68	113.35	459.60	0.00	1542.48	0.074	0.08	2.619	A
Ninth Line (NB)	354.02	352.30	95.51	0.00	1207.16	0.293	0.43	4.371	A

Main results: (08:45-09:00)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	211.54	210.93	581.43	0.00	934.92	0.226	0.29	5.018	A
Ninth Line (SB)	666.67	663.43	193.02	14.00	1178.27	0.566	1.38	7.506	A
Baker Hill Boulevard (EB)	179.49	179.20	726.18	0.00	1385.23	0.130	0.15	3.104	A
Ninth Line (NB)	558.97	556.99	151.00	0.00	1180.19	0.474	0.92	5.988	A

Main results: (09:00-09:15)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	180.51	180.79	498.63	0.00	997.59	0.181	0.22	4.454	A
Ninth Line (SB)	568.89	570.42	165.45	14.00	1191.90	0.477	1.00	6.273	A
Baker Hill Boulevard (EB)	153.16	153.28	624.05	0.00	1445.48	0.106	0.12	2.899	A
Ninth Line (NB)	476.99	477.88	129.22	0.00	1190.78	0.401	0.70	5.260	A

Main results: (09:15-09:30)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	133.97	134.30	370.47	0.00	1089.17	0.123	0.14	3.811	A
Ninth Line (SB)	422.22	423.89	122.92	14.00	1212.94	0.348	0.58	4.937	A
Baker Hill Boulevard (EB)	113.68	113.84	463.72	0.00	1540.05	0.074	0.08	2.626	A
Ninth Line (NB)	354.02	355.08	95.97	0.00	1206.93	0.293	0.43	4.401	A

Network - FB 2031, PM

Data Errors and Warnings

Severity	Area	Item	Description

Warning	Pedestrian Crossing	Bayberry Street (WB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Baker Hill Boulevard (EB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Ninth Line (NB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Network	ARCADY	27022 - 12717 Ninth Line, Whitchurch-Stouffville	100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
FB 2031	PM	PHF	16:15	17:15	60	15	

Roundabout details

Legs

Name	Leg	Name	Truck Proportion
Bayberry Street (WB)	1	Bayberry Street (WB)	2.0
Ninth Line (SB)	2	Ninth Line (SB)	1.0
Baker Hill Boulevard (EB)	3	Baker Hill Boulevard (EB)	0.0
Ninth Line (NB)	4	Ninth Line (NB)	3.0

Capacity Options

Name	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
Bayberry Street (WB)	0.00	99999.00	100.00	100.00	0.479	1308.872
Ninth Line (SB)	0.00	99999.00	100.00	100.00	0.497	1275.623
Baker Hill Boulevard (EB)	0.00	99999.00	100.00	100.00	0.590	1813.585
Ninth Line (NB)	0.00	99999.00	100.00	100.00	0.486	1253.576

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Bayberry Street (WB)	4.02	5.05	8.97	26.91	56.82	61.00	
Ninth Line (SB)	3.31	4.60	10.88	43.48	56.82	40.00	
Baker Hill Boulevard (EB)	5.45	6.35	7.46	26.91	56.82	39.00	
Ninth Line (NB)	3.18	4.80	10.86	43.48	56.82	47.00	

Pedestrian Crossings

Name	Crossing Type	Average Pedestrian Flow (Ped/hr)	Space between crossing and intersection entry (PCE)	Vehicles queueing on exit (PCE)	Central Refuge	Crossing length (m)	Crossing length (entry side) (m)	Crossing length (exit side) (m)
Bayberry Street (WB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		6.57	7.07
Ninth Line (SB)	Unsignalled Pedestrian Crossing	5.00	1.00	2.00	✓		7.75	7.83
Baker Hill Boulevard (EB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		8.97	8.07
Ninth Line (NB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		7.86	8.22

Traffic Demand

Turning Counts / Proportions (PCE/hr) - 6th Line and Webster Boulevard (for whole period)

		To			
		Bayberry Street (WB)	**Ninth Line (SB)**	**Baker Hill Boulevard (EB)**	**Ninth Line (NB)**
From	**Bayberry Street (WB)**	0.000	56.000	25.000	23.000
	Ninth Line (SB)	33.000	0.000	38.000	391.000
	Baker Hill Boulevard (EB)	26.000	37.000	0.000	71.000
	Ninth Line (NB)	53.000	435.000	48.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
104.00	0.98	SecondQuarter
462.00	0.98	SecondQuarter
134.00	0.98	SecondQuarter
536.00	0.98	SecondQuarter

Results

Results Summary for whole modelled period

Name	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS

Bayberry Street (WB)	0.11	4.20	0.12	~1	A
Ninth Line (SB)	0.38	4.81	0.63	~1	A
Baker Hill Boulevard (EB)	0.09	2.56	0.10	~1	A
Ninth Line (NB)	0.45	5.62	0.85	~1	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	6th Line and Webster Boulevard	4.87	A	81	Ninth Line (NB)

Main Results for each time segment

Main results: (16:15-16:30)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	102.59	102.12	509.96	0.00	994.49	0.103	0.12	4.113	A
Ninth Line (SB)	455.71	453.35	94.19	5.00	1228.67	0.371	0.59	4.676	A
Baker Hill Boulevard (EB)	132.18	131.81	438.65	0.00	1554.84	0.085	0.09	2.529	A
Ninth Line (NB)	528.71	525.53	94.35	0.00	1207.72	0.438	0.79	5.411	A

Main results: (16:30-16:45)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	106.12	106.10	530.42	0.00	979.49	0.108	0.12	4.204	A
Ninth Line (SB)	471.43	471.29	97.93	5.00	1226.82	0.384	0.63	4.811	A
Baker Hill Boulevard (EB)	136.73	136.72	455.99	0.00	1544.61	0.089	0.10	2.556	A
Ninth Line (NB)	546.94	546.73	97.94	0.00	1205.98	0.454	0.85	5.623	A

Main results: (16:45-17:00)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	104.71	104.71	523.57	0.00	984.54	0.106	0.12	4.174	A
Ninth Line (SB)	465.14	465.17	96.66	5.00	1227.45	0.379	0.62	4.769	A
Baker Hill Boulevard (EB)	134.91	134.92	450.06	0.00	1548.11	0.087	0.10	2.548	A
Ninth Line (NB)	539.65	539.68	96.66	0.00	1206.60	0.447	0.84	5.559	A

Main results: (17:00-17:15)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	102.59	102.60	513.03	0.00	992.27	0.103	0.12	4.128	A
Ninth Line (SB)	455.71	455.79	94.71	5.00	1228.42	0.371	0.60	4.706	A
Baker Hill Boulevard (EB)	132.18	132.19	440.99	0.00	1553.46	0.085	0.09	2.532	A
Ninth Line (NB)	528.71	528.83	94.70	0.00	1207.55	0.438	0.81	5.466	A

Network - FB 2036, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	Bayberry Street (WB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Baker Hill Boulevard (EB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Ninth Line (NB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Network	ARCADY	27022 - 12717 Ninth Line, Whitchurch-Stouffville	100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
FB 2036	AM	PHF	08:30	09:30	60	15	

Roundabout details

Legs

Name	Leg	Name	Truck Proportion
Bayberry Street (WB)	1	Bayberry Street (WB)	1.0
Ninth Line (SB)	2	Ninth Line (SB)	7.0
Baker Hill Boulevard (EB)	3	Baker Hill Boulevard (EB)	4.0
Ninth Line (NB)	4	Ninth Line (NB)	4.0

Capacity Options

Name	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
Bayberry Street (WB)	0.00	99999.00	100.00	100.00	0.479	1308.872
Ninth Line (SB)	0.00	99999.00	100.00	100.00	0.497	1275.623
Baker Hill Boulevard (EB)	0.00	99999.00	100.00	100.00	0.590	1813.585
Ninth Line (NB)	0.00	99999.00	100.00	100.00	0.486	1253.576

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Bayberry Street (WB)	4.02	5.05	8.97	26.91	56.82	61.00	
Ninth Line (SB)	3.31	4.60	10.88	43.48	56.82	40.00	
Baker Hill Boulevard (EB)	5.45	6.35	7.46	26.91	56.82	39.00	
Ninth Line (NB)	3.18	4.80	10.86	43.48	56.82	47.00	

Pedestrian Crossings

Name	Crossing Type	Average Pedestrian Flow (Ped/hr)	Space between crossing and intersection entry (PCE)	Vehicles queueing on exit (PCE)	Central Refuge	Crossing length (m)	Crossing length (entry side) (m)	Crossing length (exit side) (m)
Bayberry Street (WB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		6.57	7.07
Ninth Line (SB)	Unsignalled Pedestrian Crossing	14.00	1.00	2.00	✓		7.75	7.83
Baker Hill Boulevard (EB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		8.97	8.07
Ninth Line (NB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		7.86	8.22

Traffic Demand

Turning Counts / Proportions (PCE/hr) - 6th Line and Webster Boulevard (for whole period)

		To			
		Bayberry Street (WB)	Ninth Line (SB)	Baker Hill Boulevard (EB)	Ninth Line (NB)
From	Bayberry Street (WB)	0.000	31.000	42.000	92.000
	Ninth Line (SB)	10.000	0.000	43.000	550.000
	Baker Hill Boulevard (EB)	42.000	66.000	0.000	32.000
	Ninth Line (NB)	47.000	440.000	17.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
165.00	0.78	SecondQuarter
603.00	0.78	SecondQuarter
140.00	0.78	SecondQuarter
504.00	0.78	SecondQuarter

Results

Results Summary for whole modelled period

Name	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
Bayberry Street (WB)	0.24	5.53	0.32	~1	A
Ninth Line (SB)	0.66	9.28	1.98	2.14	A
Baker Hill Boulevard (EB)	0.14	3.27	0.16	~1	A
Ninth Line (NB)	0.55	6.94	1.24	?	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	6th Line and Webster Boulevard	7.41	A	26	Ninth Line (SB)

Main Results for each time segment

Main results: (08:30-08:45)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	133.97	133.39	422.58	0.00	1053.17	0.127	0.15	3.950	A
Ninth Line (SB)	489.62	486.75	122.06	14.00	1213.42	0.404	0.72	5.281	A
Baker Hill Boulevard (EB)	113.68	113.34	526.41	0.00	1503.07	0.076	0.08	2.694	A
Ninth Line (NB)	409.23	407.11	95.50	0.00	1207.16	0.339	0.53	4.667	A

Main results: (08:45-09:00)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	211.54	210.83	667.80	0.00	868.01	0.244	0.32	5.527	A
Ninth Line (SB)	773.08	768.02	192.92	14.00	1178.36	0.656	1.98	9.275	A
Baker Hill Boulevard (EB)	179.49	179.18	830.80	0.00	1323.52	0.136	0.16	3.271	A
Ninth Line (NB)	646.15	643.32	150.96	0.00	1180.21	0.547	1.24	6.938	A

Main results: (09:00-09:15)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	180.51	180.84	573.43	0.00	941.81	0.192	0.24	4.779	A
Ninth Line (SB)	659.69	662.22	165.51	14.00	1191.93	0.553	1.35	7.308	A
Baker Hill Boulevard (EB)	153.16	153.30	715.83	0.00	1391.34	0.110	0.13	3.023	A
Ninth Line (NB)	551.38	552.70	129.24	0.00	1190.77	0.463	0.91	5.879	A

Main results: (09:15-09:30)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	133.97	134.35	426.08	0.00	1050.70	0.128	0.15	3.970	A
Ninth Line (SB)	489.62	492.09	122.96	14.00	1212.97	0.404	0.73	5.363	A
Baker Hill Boulevard (EB)	113.68	113.85	531.90	0.00	1499.83	0.076	0.09	2.703	A
Ninth Line (NB)	409.23	410.71	95.99	0.00	1206.93	0.339	0.54	4.710	A

Network - FB 2036, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	Bayberry Street (WB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Baker Hill Boulevard (EB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Ninth Line (NB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Network	ARCADY	27022 - 12717 Ninth Line, Whitchurch-Stouffville	100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
FB 2036	PM	PHF	16:15	17:15	60	15	

Roundabout details

Legs

Name	Leg	Name	Truck Proportion
Bayberry Street (WB)	1	Bayberry Street (WB)	2.0
Ninth Line (SB)	2	Ninth Line (SB)	1.0
Baker Hill Boulevard (EB)	3	Baker Hill Boulevard (EB)	0.0
Ninth Line (NB)	4	Ninth Line (NB)	3.0

Capacity Options

Name	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
Bayberry Street (WB)	0.00	99999.00	100.00	100.00	0.479	1308.872
Ninth Line (SB)	0.00	99999.00	100.00	100.00	0.497	1275.623
Baker Hill Boulevard (EB)	0.00	99999.00	100.00	100.00	0.590	1813.585
Ninth Line (NB)	0.00	99999.00	100.00	100.00	0.486	1253.576

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Bayberry Street (WB)	4.02	5.05	8.97	26.91	56.82	61.00	
Ninth Line (SB)	3.31	4.60	10.88	43.48	56.82	40.00	
Baker Hill Boulevard (EB)	5.45	6.35	7.46	26.91	56.82	39.00	
Ninth Line (NB)	3.18	4.80	10.86	43.48	56.82	47.00	

Pedestrian Crossings

Name	Crossing Type	Average Pedestrian Flow (Ped/hr)	Space between crossing and intersection entry (PCE)	Vehicles queueing on exit (PCE)	Central Refuge	Crossing length (m)	Crossing length (entry side) (m)	Crossing length (exit side) (m)
Bayberry Street (WB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		6.57	7.07
Ninth Line (SB)	Unsignalled Pedestrian Crossing	5.00	1.00	2.00	✓		7.75	7.83
Baker Hill Boulevard (EB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		8.97	8.07
Ninth Line (NB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		7.86	8.22

Traffic Demand

Turning Counts / Proportions (PCE/hr) - 6th Line and Webster Boulevard (for whole period)

	To

		Bayberry Street (WB)	Ninth Line (SB)	Baker Hill Boulevard (EB)	Ninth Line (NB)
From	Bayberry Street (WB)	0.000	56.000	25.000	23.000
	Ninth Line (SB)	33.000	0.000	38.000	461.000
	Baker Hill Boulevard (EB)	26.000	37.000	0.000	71.000
	Ninth Line (NB)	53.000	510.000	48.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
104.00	0.98	SecondQuarter
532.00	0.98	SecondQuarter
134.00	0.98	SecondQuarter
611.00	0.98	SecondQuarter

Results

Results Summary for whole modelled period

Name	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
Bayberry Street (WB)	0.12	4.50	0.13	~1	A
Ninth Line (SB)	0.44	5.31	0.79	~1	A
Baker Hill Boulevard (EB)	0.09	2.63	0.10	~1	A
Ninth Line (NB)	0.52	6.36	1.09	1.03	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	6th Line and Webster Boulevard	5.45	A	60	Ninth Line (NB)

Main Results for each time segment

Main results: (16:15-16:30)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	102.59	102.09	583.10	0.00	940.43	0.109	0.12	4.377	A
Ninth Line (SB)	524.76	521.78	94.15	5.00	1228.70	0.427	0.75	5.122	A
Baker Hill Boulevard (EB)	132.18	131.80	507.09	0.00	1514.47	0.087	0.10	2.603	A
Ninth Line (NB)	602.69	598.64	94.33	0.00	1207.73	0.499	1.01	6.048	A

Main results: (16:30-16:45)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	106.12	106.09	606.86	0.00	922.44	0.115	0.13	4.497	A
Ninth Line (SB)	542.86	542.66	97.92	5.00	1226.82	0.442	0.79	5.313	A
Baker Hill Boulevard (EB)	136.73	136.72	527.36	0.00	1502.51	0.091	0.10	2.635	A
Ninth Line (NB)	623.47	623.16	97.94	0.00	1205.98	0.517	1.09	6.357	A

Main results: (16:45-17:00)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	104.71	104.71	599.08	0.00	928.36	0.113	0.13	4.459	A
Ninth Line (SB)	535.62	535.65	96.66	5.00	1227.45	0.436	0.79	5.255	A
Baker Hill Boulevard (EB)	134.91	134.92	520.55	0.00	1506.53	0.090	0.10	2.624	A
Ninth Line (NB)	615.16	615.19	96.66	0.00	1206.60	0.510	1.08	6.270	A

Main results: (17:00-17:15)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	102.59	102.60	587.06	0.00	937.47	0.109	0.13	4.399	A
Ninth Line (SB)	524.76	524.87	94.72	5.00	1228.42	0.427	0.76	5.170	A
Baker Hill Boulevard (EB)	132.18	132.19	510.07	0.00	1512.71	0.087	0.10	2.609	A
Ninth Line (NB)	602.69	602.86	94.71	0.00	1207.55	0.499	1.04	6.133	A

Network - FT 2031, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	Bayberry Street (WB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Baker Hill Boulevard (EB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Ninth Line (NB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Network	ARCADY	27022 - 12717 Ninth Line, Whitchurch-Stouffville	100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
FT 2031	AM	PHF	08:30	09:30	60	15	

Roundabout details

Legs

Name	Leg	Name	Truck Proportion
Bayberry Street (WB)	1	Bayberry Street (WB)	1.0
Ninth Line (SB)	2	Ninth Line (SB)	8.0
Baker Hill Boulevard (EB)	3	Baker Hill Boulevard (EB)	4.0
Ninth Line (NB)	4	Ninth Line (NB)	4.0

Capacity Options

Name	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
Bayberry Street (WB)	0.00	99999.00	100.00	100.00	0.479	1308.872
Ninth Line (SB)	0.00	99999.00	100.00	100.00	0.497	1275.623
Baker Hill Boulevard (EB)	0.00	99999.00	100.00	100.00	0.590	1813.585
Ninth Line (NB)	0.00	99999.00	100.00	100.00	0.486	1253.576

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Bayberry Street (WB)	4.02	5.05	8.97	26.91	56.82	61.00	
Ninth Line (SB)	3.31	4.60	10.88	43.48	56.82	40.00	
Baker Hill Boulevard (EB)	5.45	6.35	7.46	26.91	56.82	39.00	
Ninth Line (NB)	3.18	4.80	10.86	43.48	56.82	47.00	

Pedestrian Crossings

Name	Crossing Type	Average Pedestrian Flow (Ped/hr)	Space between crossing and intersection entry (PCE)	Vehicles queueing on exit (PCE)	Central Refuge	Crossing length (m)	Crossing length (entry side) (m)	Crossing length (exit side) (m)
Bayberry Street (WB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		6.57	7.07
Ninth Line (SB)	Unsignalled Pedestrian Crossing	14.00	1.00	2.00	✓		7.75	7.83
Baker Hill Boulevard (EB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		8.97	8.07
Ninth Line (NB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		7.86	8.22

Traffic Demand

Turning Counts / Proportions (PCE/hr) - 6th Line and Webster Boulevard (for whole period)

		To			
		Bayberry Street (WB)	**Ninth Line (SB)**	**Baker Hill Boulevard (EB)**	**Ninth Line (NB)**
From	**Bayberry Street (WB)**	0.000	31.000	42.000	92.000
	Ninth Line (SB)	10.000	0.000	43.000	467.000
	Baker Hill Boulevard (EB)	42.000	66.000	0.000	32.000
	Ninth Line (NB)	47.000	374.000	17.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
165.00	0.78	SecondQuarter
520.00	0.78	SecondQuarter
140.00	0.78	SecondQuarter
438.00	0.78	SecondQuarter

Results

Results Summary for whole modelled period

Name	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
Bayberry Street (WB)	0.23	5.03	0.29	~1	A
Ninth Line (SB)	0.57	7.51	1.38	?	A
Baker Hill Boulevard (EB)	0.13	3.10	0.15	~1	A
Ninth Line (NB)	0.48	6.01	0.93	~1	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	6th Line and Webster Boulevard	6.18	A	44	Ninth Line (SB)

Main Results for each time segment

Main results: (08:30-08:45)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	133.97	133.41	369.37	0.00	1089.93	0.123	0.14	3.799	A
Ninth Line (SB)	422.22	419.94	122.08	14.00	1213.35	0.348	0.57	4.887	A
Baker Hill Boulevard (EB)	113.68	113.35	459.60	0.00	1542.48	0.074	0.08	2.619	A
Ninth Line (NB)	355.64	353.92	95.51	0.00	1207.16	0.295	0.43	4.379	A

Main results: (08:45-09:00)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	211.54	210.93	583.97	0.00	932.98	0.227	0.29	5.031	A
Ninth Line (SB)	666.67	663.43	193.01	14.00	1178.27	0.566	1.38	7.506	A
Baker Hill Boulevard (EB)	179.49	179.20	726.18	0.00	1385.24	0.130	0.15	3.104	A
Ninth Line (NB)	561.54	559.54	151.00	0.00	1180.19	0.476	0.93	6.013	A

Main results: (09:00-09:15)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	180.51	180.79	500.83	0.00	995.98	0.181	0.22	4.461	A
Ninth Line (SB)	568.89	570.42	165.46	14.00	1191.90	0.477	1.00	6.270	A
Baker Hill Boulevard (EB)	153.16	153.28	624.05	0.00	1445.48	0.106	0.12	2.897	A
Ninth Line (NB)	479.18	480.08	129.22	0.00	1190.78	0.402	0.71	5.276	A

Main results: (09:15-09:30)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	133.97	134.30	372.11	0.00	1088.06	0.123	0.14	3.812	A
Ninth Line (SB)	422.22	423.89	122.92	14.00	1212.94	0.348	0.58	4.937	A
Baker Hill Boulevard (EB)	113.68	113.84	463.72	0.00	1540.05	0.074	0.08	2.626	A
Ninth Line (NB)	355.64	356.72	95.97	0.00	1206.93	0.295	0.44	4.408	A

Network - FT 2031, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	Bayberry Street (WB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Baker Hill Boulevard (EB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Ninth Line (NB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Network	ARCADY	27022 - 12717 Ninth Line, Whitchurch-Stouffville	100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
FT 2031	PM	PHF	16:15	17:15	60	15	

Roundabout details

Legs

Name	Leg	Name	Truck Proportion
Bayberry Street (WB)	1	Bayberry Street (WB)	2.0
Ninth Line (SB)	2	Ninth Line (SB)	1.0
Baker Hill Boulevard (EB)	3	Baker Hill Boulevard (EB)	0.0
Ninth Line (NB)	4	Ninth Line (NB)	3.0

Capacity Options

Name	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
Bayberry Street (WB)	0.00	99999.00	100.00	100.00	0.479	1308.872
Ninth Line (SB)	0.00	99999.00	100.00	100.00	0.497	1275.623
Baker Hill Boulevard (EB)	0.00	99999.00	100.00	100.00	0.590	1813.585
Ninth Line (NB)	0.00	99999.00	100.00	100.00	0.486	1253.576

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Bayberry Street (WB)	4.02	5.05	8.97	26.91	56.82	61.00	
Ninth Line (SB)	3.31	4.60	10.88	43.48	56.82	40.00	
Baker Hill Boulevard (EB)	5.45	6.35	7.46	26.91	56.82	39.00	
Ninth Line (NB)	3.18	4.80	10.86	43.48	56.82	47.00	

Pedestrian Crossings

Name	Crossing Type	Average Pedestrian Flow (Ped/hr)	Space between crossing and intersection entry (PCE)	Vehicles queueing on exit (PCE)	Central Refuge	Crossing length (m)	Crossing length (entry side) (m)	Crossing length (exit side) (m)
Bayberry Street (WB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		6.57	7.07
Ninth Line (SB)	Unsignalled Pedestrian Crossing	5.00	1.00	2.00	✓		7.75	7.83
Baker Hill Boulevard (EB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		8.97	8.07
Ninth Line (NB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		7.86	8.22

Traffic Demand

Turning Counts / Proportions (PCE/hr) - 6th Line and Webster Boulevard (for whole period)

		To			
		Bayberry Street (WB)	Ninth Line (SB)	Baker Hill Boulevard (EB)	Ninth Line (NB)
From	Bayberry Street (WB)	0.000	56.000	25.000	23.000
	Ninth Line (SB)	33.000	3.000	38.000	391.000
	Baker Hill Boulevard (EB)	26.000	37.000	0.000	71.000
	Ninth Line (NB)	53.000	441.000	48.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
104.00	0.98	SecondQuarter
465.00	0.98	SecondQuarter
134.00	0.98	SecondQuarter
542.00	0.98	SecondQuarter

Results

Results Summary for whole modelled period

Name	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
Bayberry Street (WB)	0.11	4.24	0.12	~1	A
Ninth Line (SB)	0.39	4.83	0.63	~1	A
Baker Hill Boulevard (EB)	0.09	2.56	0.10	~1	A
Ninth Line (NB)	0.46	5.69	0.87	~1	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	6th Line and Webster Boulevard	4.91	A	79	Ninth Line (NB)

Main Results for each time segment

Main results: (16:15-16:30)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	102.59	102.11	518.76	0.00	988.10	0.104	0.12	4.143	A
Ninth Line (SB)	458.67	456.29	94.19	5.00	1228.68	0.373	0.60	4.693	A
Baker Hill Boulevard (EB)	132.18	131.81	441.58	0.00	1553.11	0.085	0.09	2.533	A
Ninth Line (NB)	534.63	531.38	97.29	0.00	1206.29	0.443	0.81	5.468	A

Main results: (16:30-16:45)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	106.12	106.10	539.59	0.00	972.76	0.109	0.12	4.236	A
Ninth Line (SB)	474.49	474.35	97.93	5.00	1226.82	0.387	0.63	4.830	A
Baker Hill Boulevard (EB)	136.73	136.72	459.05	0.00	1542.81	0.089	0.10	2.559	A
Ninth Line (NB)	553.06	552.84	101.00	0.00	1204.49	0.459	0.87	5.689	A

Main results: (16:45-17:00)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	104.71	104.71	532.63	0.00	977.91	0.107	0.12	4.206	A
Ninth Line (SB)	468.16	468.19	96.66	5.00	1227.45	0.381	0.63	4.790	A
Baker Hill Boulevard (EB)	134.91	134.92	453.08	0.00	1546.32	0.087	0.10	2.552	A
Ninth Line (NB)	545.69	545.72	99.68	0.00	1205.13	0.453	0.86	5.623	A

Main results: (17:00-17:15)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	102.59	102.60	521.92	0.00	985.80	0.104	0.12	4.157	A
Ninth Line (SB)	458.67	458.75	94.71	5.00	1228.42	0.373	0.61	4.726	A
Baker Hill Boulevard (EB)	132.18	132.19	443.95	0.00	1551.71	0.085	0.09	2.535	A
Ninth Line (NB)	534.63	534.75	97.66	0.00	1206.11	0.443	0.83	5.526	A

Network - FT 2036, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	Bayberry Street (WB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Baker Hill Boulevard (EB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Ninth Line (NB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Network	ARCADY	27022 - 12717 Ninth Line, Whitchurch-Stouffville	100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
FT 2036	AM	PHF	08:30	09:30	60	15	

Roundabout details

Legs

Name	Leg	Name	Truck Proportion
Bayberry Street (WB)	1	Bayberry Street (WB)	1.0
Ninth Line (SB)	2	Ninth Line (SB)	7.0
Baker Hill Boulevard (EB)	3	Baker Hill Boulevard (EB)	4.0
Ninth Line (NB)	4	Ninth Line (NB)	4.0

Capacity Options

Name	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
Bayberry Street (WB)	0.00	99999.00	100.00	100.00	0.479	1308.872
Ninth Line (SB)	0.00	99999.00	100.00	100.00	0.497	1275.623
Baker Hill Boulevard (EB)	0.00	99999.00	100.00	100.00	0.590	1813.585
Ninth Line (NB)	0.00	99999.00	100.00	100.00	0.486	1253.576

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Bayberry Street (WB)	4.02	5.05	8.97	26.91	56.82	61.00	
Ninth Line (SB)	3.31	4.60	10.88	43.48	56.82	40.00	
Baker Hill Boulevard (EB)	5.45	6.35	7.46	26.91	56.82	39.00	
Ninth Line (NB)	3.18	4.80	10.86	43.48	56.82	47.00	

Pedestrian Crossings

Name	Crossing Type	Average Pedestrian Flow (Ped/hr)	Space between crossing and intersection entry (PCE)	Vehicles queueing on exit (PCE)	Central Refuge	Crossing length (m)	Crossing length (entry side) (m)	Crossing length (exit side) (m)
Bayberry Street (WB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		6.57	7.07
Ninth Line (SB)	Unsignalled Pedestrian Crossing	14.00	1.00	2.00	✓		7.75	7.83
Baker Hill Boulevard (EB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		8.97	8.07
Ninth Line (NB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		7.86	8.22

Traffic Demand

Turning Counts / Proportions (PCE/hr) - 6th Line and Webster Boulevard (for whole period)

		To			
		Bayberry Street (WB)	**Ninth Line (SB)**	**Baker Hill Boulevard (EB)**	**Ninth Line (NB)**
From	**Bayberry Street (WB)**	0.000	31.000	42.000	92.000
	Ninth Line (SB)	10.000	0.000	43.000	550.000
	Baker Hill Boulevard (EB)	42.000	66.000	0.000	32.000
	Ninth Line (NB)	47.000	442.000	17.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
165.00	0.78	SecondQuarter
603.00	0.78	SecondQuarter
140.00	0.78	SecondQuarter
506.00	0.78	SecondQuarter

Results

Results Summary for whole modelled period

Name	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
Bayberry Street (WB)	0.24	5.54	0.32	~1	A
Ninth Line (SB)	0.66	9.28	1.98	2.14	A
Baker Hill Boulevard (EB)	0.14	3.27	0.16	~1	A
Ninth Line (NB)	0.55	6.97	1.25	?	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	6th Line and Webster Boulevard	7.42	A	26	Ninth Line (SB)

Main Results for each time segment

Main results: (08:30-08:45)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	133.97	133.39	424.19	0.00	1052.04	0.127	0.15	3.955	A
Ninth Line (SB)	489.62	486.75	122.06	14.00	1213.42	0.404	0.72	5.281	A
Baker Hill Boulevard (EB)	113.68	113.34	526.41	0.00	1503.07	0.076	0.08	2.694	A
Ninth Line (NB)	410.85	408.73	95.50	0.00	1207.16	0.340	0.53	4.677	A

Main results: (08:45-09:00)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	211.54	210.83	670.33	0.00	866.01	0.244	0.32	5.544	A
Ninth Line (SB)	773.08	768.02	192.92	14.00	1178.36	0.656	1.98	9.275	A
Baker Hill Boulevard (EB)	179.49	179.18	830.80	0.00	1323.52	0.136	0.16	3.271	A
Ninth Line (NB)	648.72	645.86	150.96	0.00	1180.21	0.550	1.25	6.969	A

Main results: (09:00-09:15)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	180.51	180.84	575.63	0.00	940.14	0.192	0.24	4.790	A
Ninth Line (SB)	659.69	662.22	165.51	14.00	1191.92	0.553	1.35	7.306	A
Baker Hill Boulevard (EB)	153.16	153.30	715.83	0.00	1391.34	0.110	0.13	3.023	A
Ninth Line (NB)	553.57	554.91	129.24	0.00	1190.77	0.465	0.91	5.900	A

Main results: (09:15-09:30)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	133.97	134.35	427.72	0.00	1049.55	0.128	0.15	3.974	A
Ninth Line (SB)	489.62	492.09	122.96	14.00	1212.97	0.404	0.73	5.360	A
Baker Hill Boulevard (EB)	113.68	113.85	531.90	0.00	1499.83	0.076	0.09	2.703	A
Ninth Line (NB)	410.85	412.35	95.99	0.00	1206.93	0.340	0.54	4.720	A

Network - FT 2036, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	Bayberry Street (WB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Baker Hill Boulevard (EB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Ninth Line (NB) - Unsignalled Pedestrian Crossing Details	Pedestrian crossing uses default flow of 0. Is this correct?

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Network	ARCADY	27022 - 12717 Ninth Line, Whitchurch-Stouffville	100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
FT 2036	PM	PHF	16:15	17:15	60	15	

Roundabout details

Legs

Name	Leg	Name	Truck Proportion
Bayberry Street (WB)	1	Bayberry Street (WB)	2.0
Ninth Line (SB)	2	Ninth Line (SB)	1.0
Baker Hill Boulevard (EB)	3	Baker Hill Boulevard (EB)	0.0
Ninth Line (NB)	4	Ninth Line (NB)	3.0

Capacity Options

Name	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
Bayberry Street (WB)	0.00	99999.00	100.00	100.00	0.479	1308.872
Ninth Line (SB)	0.00	99999.00	100.00	100.00	0.497	1275.623
Baker Hill Boulevard (EB)	0.00	99999.00	100.00	100.00	0.590	1813.585
Ninth Line (NB)	0.00	99999.00	100.00	100.00	0.486	1253.576

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Bayberry Street (WB)	4.02	5.05	8.97	26.91	56.82	61.00	
Ninth Line (SB)	3.31	4.60	10.88	43.48	56.82	40.00	
Baker Hill Boulevard (EB)	5.45	6.35	7.46	26.91	56.82	39.00	
Ninth Line (NB)	3.18	4.80	10.86	43.48	56.82	47.00	

Pedestrian Crossings

Name	Crossing Type	Average Pedestrian Flow (Ped/hr)	Space between crossing and intersection entry (PCE)	Vehicles queueing on exit (PCE)	Central Refuge	Crossing length (m)	Crossing length (entry side) (m)	Crossing length (exit side) (m)
Bayberry Street (WB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		6.57	7.07
Ninth Line (SB)	Unsignalled Pedestrian Crossing	5.00	1.00	2.00	✓		7.75	7.83
Baker Hill Boulevard (EB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		8.97	8.07
Ninth Line (NB)	Unsignalled Pedestrian Crossing	0.00	1.00	1.00	✓		7.86	8.22

Traffic Demand

Turning Counts / Proportions (PCE/hr) - 6th Line and Webster Boulevard (for whole period)

		To			
		Bayberry Street (WB)	**Ninth Line (SB)**	**Baker Hill Boulevard (EB)**	**Ninth Line (NB)**
From	**Bayberry Street (WB)**	0.000	56.000	25.000	23.000
	Ninth Line (SB)	33.000	3.000	38.000	461.000
	Baker Hill Boulevard (EB)	26.000	37.000	0.000	71.000
	Ninth Line (NB)	53.000	517.000	48.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
104.00	0.98	SecondQuarter
535.00	0.98	SecondQuarter
134.00	0.98	SecondQuarter
618.00	0.98	SecondQuarter

Results

Results Summary for whole modelled period

Name	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
Bayberry Street (WB)	0.12	4.54	0.13	~1	A
Ninth Line (SB)	0.44	5.34	0.80	~1	A
Baker Hill Boulevard (EB)	0.09	2.64	0.10	~1	A
Ninth Line (NB)	0.52	6.45	1.12	?	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	6th Line and Webster Boulevard	5.51	A	58	Ninth Line (NB)

Main Results for each time segment

Main results: (16:15-16:30)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	102.59	102.08	592.85	0.00	933.10	0.110	0.13	4.415	A
Ninth Line (SB)	527.72	524.71	94.14	5.00	1228.70	0.430	0.75	5.143	A
Baker Hill Boulevard (EB)	132.18	131.80	510.02	0.00	1512.74	0.087	0.10	2.607	A
Ninth Line (NB)	609.59	605.44	97.27	0.00	1206.30	0.505	1.04	6.130	A

Main results: (16:30-16:45)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	106.12	106.09	617.05	0.00	914.71	0.116	0.13	4.540	A
Ninth Line (SB)	545.92	545.72	97.92	5.00	1226.82	0.445	0.80	5.337	A
Baker Hill Boulevard (EB)	136.73	136.72	530.42	0.00	1500.71	0.091	0.10	2.638	A
Ninth Line (NB)	630.61	630.29	101.00	0.00	1204.49	0.524	1.12	6.452	A

Main results: (16:45-17:00)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	104.71	104.71	609.15	0.00	920.75	0.114	0.13	4.501	A
Ninth Line (SB)	538.64	538.67	96.66	5.00	1227.45	0.439	0.79	5.280	A
Baker Hill Boulevard (EB)	134.91	134.92	523.57	0.00	1504.75	0.090	0.10	2.629	A
Ninth Line (NB)	622.20	622.24	99.68	0.00	1205.13	0.516	1.11	6.361	A

Main results: (17:00-17:15)

Name	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
Bayberry Street (WB)	102.59	102.60	596.93	0.00	930.04	0.110	0.13	4.439	A
Ninth Line (SB)	527.72	527.83	94.72	5.00	1228.42	0.430	0.77	5.192	A
Baker Hill Boulevard (EB)	132.18	132.19	513.03	0.00	1510.96	0.087	0.10	2.612	A
Ninth Line (NB)	609.59	609.77	97.67	0.00	1206.11	0.505	1.06	6.222	A

APPENDIX K

Multi-Modal Level of Service (MMLOS)

Intersection	Direction	Existing Conditions		
		Segment		Intersection
		Description	LOS	LOS
Ninth Line and Bethesda Side Rd.	EB	Bethesda Side Rd.	F	F
	WB	Bethesda Side Rd.	F	F
	NB	Ninth Line	E	E
	SB	Ninth Line	E	E
Ninth Line and Meridian Dr.	EB	Meridian Dr.	B	B
	WB	Meridian Dr.	B	B
	NB	Ninth Line	E	E
	SB	Ninth Line	E	E
Ninth Line and Site Access	EB	Site Access	F	F
	WB	Site Access	F	F
	NB	Nine Line	B	B
	SB	Ninth Line	E	E
Ninth Line & Bakerhill Blvd & Bayberry St.	EB	Bayberry St. /Bakerhill Blvd.	B	B
	WB	Bayberry St. /Bakerhill Blvd.	B	B
	NB	Ninth Line	B	B
	SB	Ninth Line	B	B

Pedestrian LOS Target: C or better for these LOS Categories

Table 6 - Pedestrian Level of Service Criteria

Level of Service	Segment	Intersection
A	≥2.0 m sidewalk with minimum 3.5 m buffer including planting and edge zone; or ≥3.0 m multi-use path	▪ ≥2.0 m sidewalk with minimum 3.5 m buffer including planting and edge zone; or ≥3.0 m multi-use path ▪ Pedestrian signal head with sufficient pedestrian clearance time ▪ Clearly delineated cross-walk
B	≥1.5 m sidewalk with minimum 1.0 m buffer including edge zone; or <3.0 m multi-use path	▪ ≥1.5 m sidewalk with minimum 1.0 m buffer including edge zone; or <3.0 m multi-use path ▪ Pedestrian signal head with sufficient pedestrian clearance time ▪ Clearly delineated cross-walk
C	≥1.5 m curb-faced sidewalk (no buffer)	▪ ≥1.5 m curb-faced sidewalk (no buffer) ▪ Pedestrian signal head with sufficient pedestrian clearance time ▪ Clearly delineated cross-walk
D	<1.5 m sidewalk	▪ <1.5 m sidewalk ▪ Pedestrian signal head sufficient pedestrian clearance time ▪ No clearly delineated cross-walk
E	Paved shoulder or no sidewalk provision	▪ Paved shoulder or no sidewalk provision ▪ No pedestrian signal head ▪ No clearly delineated cross-walk
F	No sidewalk provision	▪ No sidewalk provision ▪ No pedestrian signal head ▪ Not clearly delineated cross-walk

Definitions

Buffer: green or landscaped space separating the sidewalk and pavement street curb.

Curb-faced: the sidewalk is located adjacent to the pavement and street curb.

Delineated cross-walk: painted or special pavement to facilitate pedestrians.

Intersection	Direction	Existing Conditions		
		Segment		Intersection
		Description	LOS	LOS
Ninth Line and Bethesda Side Rd.	EB	Bethesda Side Rd.	F	F
	WB	Bethesda Side Rd.	F	F
	NB	Ninth Line	F	F
	SB	Ninth Line	F	F
Ninth Line and Meridian Dr.	EB	Meridian Dr.	F	F
	WB	Meridian Dr.	F	F
	NB	Ninth Line	F	F
	SB	Ninth Line	F	F
Ninth Line and Site Access	EB	Site Access	F	F
	WB	Site Access	F	F
	NB	Nine Line	F	F
	SB	Ninth Line	F	F
Ninth Line & Bakerhill Blvd & Bayberry St.	EB	Bayberry St. /Bakerhill Blvd.	F	F
	WB	Bayberry St. /Bakerhill Blvd.	F	F
	NB	Ninth Line	F	F
	SB	Ninth Line	F	F

Table 8 - Bicycle Level of Service Criteria

Level of Service	Segment	Intersection
A	Separated cycling facilities (e.g. cycle tracks, multi-use path)	Separated cycling facilities Bicycle box or clearly delineated bicycle treatment or bicycle signal head
B	≥1.8 m dedicated cycling facilities (e.g. bicycle lanes with and without buffer)	>1.8 m dedicated cycling facilities (e.g. bicycle lanes with and without buffer), Bicycle box, clearly delineated bicycle treatment or bicycle signal head
C	<1.8 m dedicated cycling facilities with no buffer	<1.8 m dedicated cycling facilities with no buffer, Bicycle box, clearly delineated bicycle treatment or bicycle signal head
D	≤1.5 m bicycle lane with no buffer	≤1.5 m bicycle lane and no buffer Bicycle treatment
E	Shared facilities (e.g. signed routes, sharrows or paved shoulder with minimum 1.2 m in constrained area)	Shared facilities (e.g. signed routes, sharrows or paved shoulder with minimum 1.2 m in constrained area) No clearly delineated bicycle treatment
F	No bicycle provision	No bicycle provision

Definitions

Shared: Shared facilities include roadways or streets where cyclists and motorists use the same road space. Types of shared facilities include signed routes, bicycle boulevards or shared lanes ("sharrows"). Since cyclists and motorists share the same space, these facilities are appropriate on streets with low traffic volumes and/or low speeds.

Dedicated: Designated or dedicated facilities are those that provide space on the road intended for use by cyclists only. They are generally adjacent to motor vehicle lanes and defined by pavement markings. In urban areas, dedicated facilities typically include bike lanes and buffered bike lanes while paved shoulders provide dedicated space on rural roads.

Separated: Separated bikeways are separated from traffic by more than just a painted line. Separation may consist of bollards or delineators, mountable or barrier curbs, planters, concrete medians, etc. Types of separated facilities can include cycle tracks, raised bike lanes, or multi-use trails. These facilities improve safety and comfort for cyclists along higher-speed, busy roadways.

Buffer: a painted area or physical barrier that separates the bicycle lane from the adjacent traffic lane.

Bicycle box: A bike box is used at intersections with dedicated bike lanes or a cycle track to designate a space for cyclists to wait at a red light or to assist cyclists in making left turns. Cyclists stop in front of motorists and can proceed through the intersection first when the light turns green.

Paved shoulder: Paved shoulders are located next to the travelled portion of the roadway and used to accommodate cyclists on rural roads.

APPENDIX L

Functional Design Review

APPROXIMATE LOCATION OF CURBS BASED ON TOWN OF WHITCHCHURCH–STOUFFVILLE AERIAL

R8.50m

R8.50m

NINTH LINE

PROPOSED SIDE WALK

PROPOSED SIDE WALK

6 BIKE PARKINGS

DRIVEWAY

LANDSCAPE

LANDSCAPE

LANDSCAPE

LANDSCAPE

WALKWAY

WALKWAY

WALKWAY

2.5M VERTICAL CLEARANCE

GARAGE DOOR TO BE FULL VIEW OR CLEAR
MIN. VERTICAL CLEARANCE 4.25m

LOBBY
72 m²
770 ft²

VEST.
8 m²
91 ft²

ELEV.
8 m²
84 ft²

PARKING SPACES
46 m²

VEST.
9 m²
84 ft²

MAIL
5 m²
49 ft²

INDOOR AMENITY
82 m²
886 ft²

(19 BIKE PARKINGS)

BICYCLE STORAGE
55 m²
590 ft²

OUTDOOR AMENITY
(128 SQM)

PARKING SPACES
185 m²

PARKINGS

3000
SETBACK

TRAFFIC SIGNS SCHEDULE

SIGN	NUMBER	QUANTITY REQUIRED	COLOURS
	1	2	RB–12 (600X600) RED REFL. INTERDICTORY SYMBOL, BLACK ARROW & BORDER, WHITE REFL. BACKGROUND.
	2	1	RB–19 (600X600) RED REFL. INTERDICTORY SYMBOL, BLACK BORDER, WHITE REFL. BACKGROUND.
	3	1	RB–21 (900X300) WHITE REFL. SYMBOL & BORDER, BLACK BACKGROUND.
	4	1	RA–1 (600X600) WHITE REFL. LEGEND & BORDER, RED REFL. BACKGROUND.

PAVEMENT MARKING & SIGNAGE LEGEND

(X) SIGN NUMBER

POST MOUNTED SIGN

(1) SOLID WHITE, 50cm

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Date AUG. 19, 2026

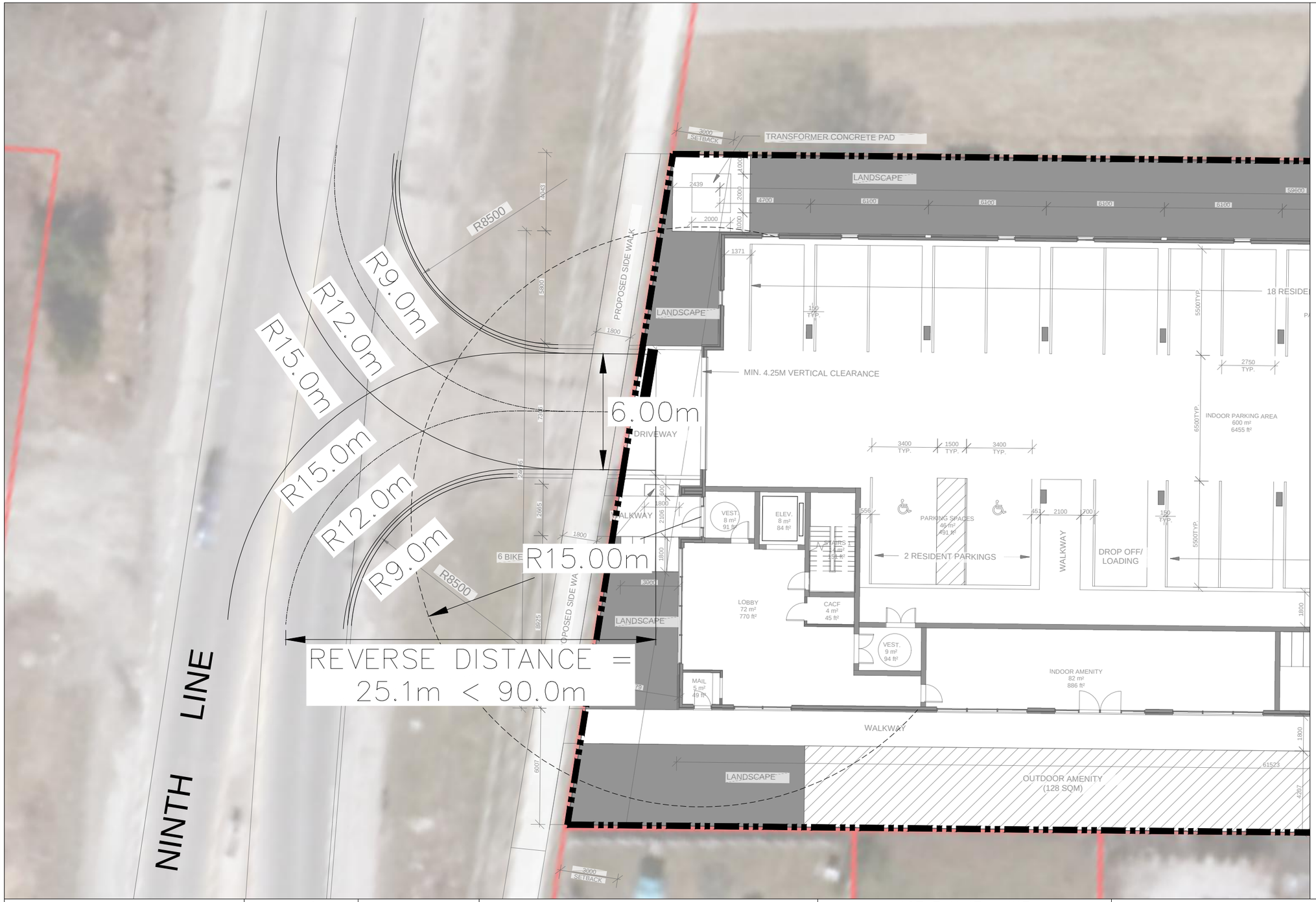
12717 NINTH LINE
WHITCHCHURCH–STOUFFVILLE, ONTARIO

2 0 2 4 6m

1:200

ACCESS REVIEW AND PAVEMENT MARKING & SIGNAGE PLAN

Drawing No. 001



NOTES:

AS PER THE ONTARIO BUILDING CODE 3.2.5

1. 5.1 LOCATION OF ACCESS ROUTES – ACCESS ROUTES SHALL BE LOCATED SO THAT THE PRINCIPAL ENTRANCE AND EVERY ACCESS OPENING ARE LOCATED NOT LESS THAN 3m AND NOT MORE THAN 15m FROM THE CLOSEST PORTION OF THE ACCESS ROUTE
2. 6.1 ACCESS ROUTE DESIGN – A PORTION OF A ROADWAY PROVIDED AS A REQUIRED ACCESS ROUTE FOR FIRE DEPARTMENT USE SHALL:
   - (i) 6.1.a HAVE A CLEAR WIDTH NOT LESS THAN 6m,
   - (ii) 6.1.b HAVE A CENTRELINE RADIUS NOT LESS THAN 12m
   - (iii) 6.1.c HAVE AN OH CLEARANCE OF NOT LESS THAN 5m
   - (iv) 6.1.g BE CONNECTED WITH A PUBLIC THOROUGHFARE
3. IF A PORTION OF A BUILDING IS COMPLETELY CUT OFF FROM THE REMAINDER OF THE BUILDING SO THAT THERE IS NO ACCESS TO THE REMAINDER OF THE BUILDING, THE ACCESS ROUTE REQUIRED SHALL BE LOCATED SO THAT THE UNOBSTRUCTED PATH OF TRAVEL FROM THE VEHICLE TO ONE ENTRANCE OF EACH PORTION OF THE BUILDING IS NOT MORE THAN 45m

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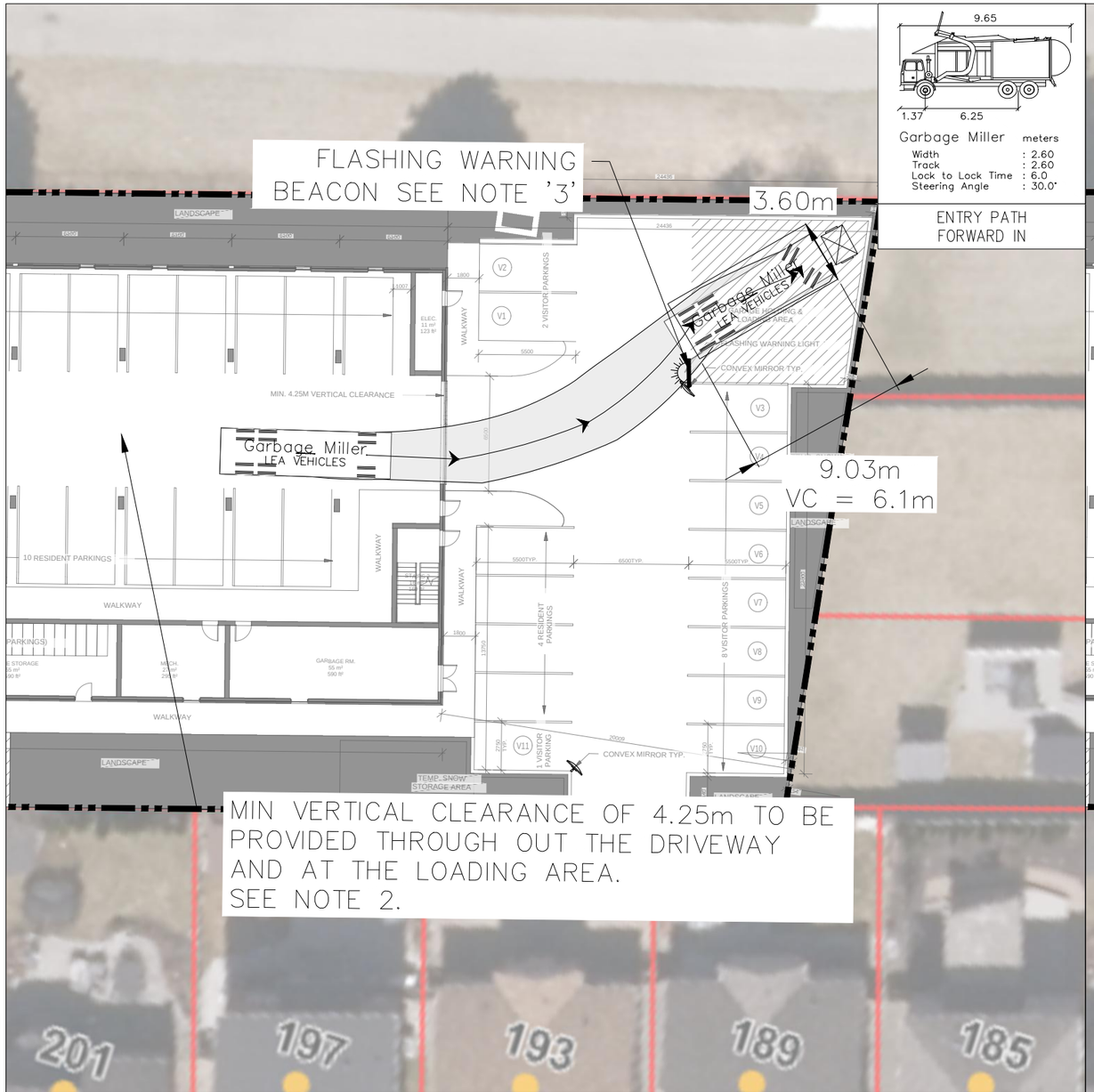
12717 NINTH LINE
WHITCHCHURCH–STOUFFVILLE, ONTARIO

2 0 2 4 6m

1:200

FIRE ROUTE REVIEW

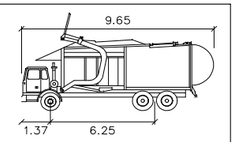
Drawing No. 002



Garbage Miller meters

Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 30.0°

ENTRY PATH
FORWARD IN



Garbage Miller meters

Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 30.0°

EXIT PATH
REVERSE OUT

NOTES: TOWN OF WHITCHURCH–STOUFFVILLE COMPREHENSIVE ZBL 2010–001–ZO

1. 3.25 LOADING SPACE REQUIREMENTS: LOCATION OF LOADING SPACES
   - 1.1. 3.25.1 i) MUST BE LOACTED EITHER WITHIN OF ABUTTING THE BUILDING CONTAINING THE USE TO WHICH SUCH LOADING SPACES IS APPURTENANT. LOADING SPACES MAY ONLY BE LOCATED IN INTERIOR SIDE YARDS AND REAR YARDS.
   - 1.2. 3.25.1 ii) LOADING SPACES SHALL BE LOCATED AT LEAST 10m FROM A STREET AND 10m FROM THE BOUNDARY OF ANY RESIDENTIAL OR NEW RESIDENTIAL ZONE.
2. 3.25.2 – MINIMUM LOADING SPACES DIMENSIONS; SMALL LOADING SPACE, 9m LENGTH, 3.6m WIDTH, 4.25 VERTICAL CLEARANCE

ADDITIONAL NOTE

3. FLASHING WARNING LIGHT TO BE ACTIVATED WHEN TRUCKS ENTER AND EXIT THE SITE. THE SYSTEM TO REMAIN ACTIVATED DURING THE GARBAGE COLLECTION ACTIVITY AND UNTIL THE TRUCK EXITS THE SITE.

WATCH FOR TURNING TRUCKS WHEN FLASHING

(600x300)
BLACK LEGEND & BORDER,
WHITE REFL. BACKGROUND.

DRAWN BY: cesurso

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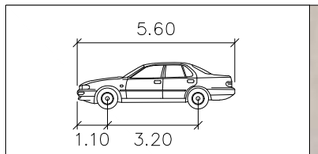
Date AUG. 19, 2026

12717 NINTH LINE
WHITCHCHURCH–STOUFFVILLE,
ONTARIO

3 0 3 6 9m
1:300

PRIVATE GARBAGE MILLER TRUCK
ENTRY & EXIT PATHS

Drawing No. 003



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

NOTES:

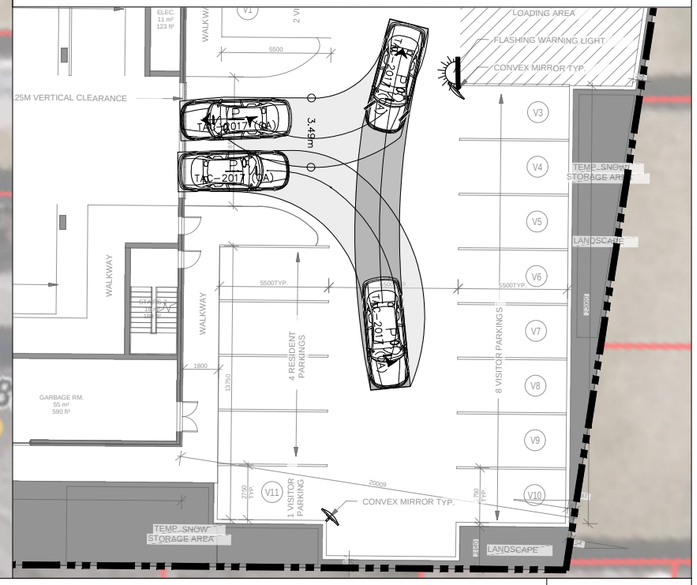
A. AS PER THE TOWN OF STOUFFVILLE ZONING BY-LAW 2010-001-ZO SECTION 3:

A.1. 3.23.2 BARRIER FREE PARKING REQUIREMENTS
- A.1.1. TYPE A: MINIMUM WIDTH OF 3.4m AND MINIMUM LENGTH OF 5.5m
- A.1.2. TYPE B: MINIMUM WIDTH OF 2.4m AND MINIMUM LENGTH OF 5.5m
- A.1.3. THE ENTIRE LENGTH OF THE PARKING SPACE MUST BE ADJACENT TO A 1.5m WIDE BARRIER FREE AISLE THAT MAY BE SHARED BY TWO BARRIER FREE PARKING SPACES AND MARKED WITH CONTRASTING DIAGONAL LINES

A.2. 3.24 GENERAL PARKING AREA REGULATIONS
- A.2.1. EACH PARKING SPACE SHALL BE CLEARLY DEMARCATED AND SHALL HAVE A MINIMUM WIDTH, LENGTH AND ADJOINING AISLE WIDTH
- A.2.2. FOR PARKING SPACES WHERE THE PARKING ANGLE IS BETWEEN 70-90°, EACH PARKING SPACE SHALL HAVE A MINIMUM WIDTH OF 2.75m AND MINIMUM LENGTH OF 5.5m, WITH AN AISLE WIDTH OF 6.5m
- A.2.3. THE MINIMUM WIDTH OF A DRIVEWAY LEADING TO ANY PARKING AREA SHALL BE 3m FOR A ONE-WAY DRIVEWAY AND 6.5m FOR A TWO-WAY DRIVEWAY

B. MINIMUM CLEAR THROAT LENGTH OF 15m AS PER YORK REGION ACCESS GUIDELINES

DETAIL 'A'



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12717 NINTH LINE
WHITCHURCH-STOUFFVILLE, ONTARIO

4 0 4 8 12m
1:400

PARKING REVIEW

Drawing No. 004