

Town of Halton Hills

Vision Georgetown Transportation Analysis

DRAFT

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1. Introduction

AECOM has been retained by the Town of Halton Hills to develop a Transportation Analysis Report as part of the second phase of the Vision Georgetown study. The Transportation Analysis will form part of Stage 2 of the study - the Preferred Land Use stage – which aims to determine the transportation requirements within and adjacent to the Vision Georgetown development area.

Vision Georgetown is guided by the following vision statement, which has been developed through a collaborative effort between stakeholders, residents, and public officials:

‘The Vision Georgetown community is an inspiring new urban community; distinctive in the way it looks and functions, fostering healthy lifestyles, neighbourliness, economic prosperity, and local pride. It is a resilient, sustainable, complete, and compact community, with a thriving natural heritage system. It feels like a small Town and is physically connected to the broader community of Georgetown and the Town of Halton Hills. It honours the rich heritage of the Town, emphasizes people, and provides choices for day-to-day living. Overall, the Vision Georgetown community is an exceptional, forward thinking, and innovative model for new community development.’ (Vision Georgetown, vision statement)

The vision statement sets out the overarching principle of the town to be a modern example of a ‘good, functional community’. Key to this is an effective and efficient transportation system that will support the diverse needs and requirements of a mixed land use development such as the Vision Georgetown.

This document provides a detailed review and analysis of the proposed transportation system and network within and surrounding the Vision Georgetown study area, to assess how it will operate in the future. The study will review traffic operations at the new intersections as well as a number of key existing intersections.

The report examines existing and future base conditions in the Study Area to identify current and projected network issues, constraints, and opportunities.

1.1 Study Area

The Southwest Georgetown lands that are the subject of the Vision Georgetown Study are bounded by 10 Side Road to the south, 15 Side Road to the north, Trafalgar Road to the west, and Eighth Line/ Main Street South to the east. The Study Area for the transportation analysis encompasses a broader area to allow for the identification of surrounding impacts and network needs. **Figure 1** illustrates the Study Area, which is bounded by 5 Side Road to the south, Maple Avenue and Guelph Street (Highway 7) to the north, Trafalgar Road to the west and Ninth Line/ Mountainview Road to the east.

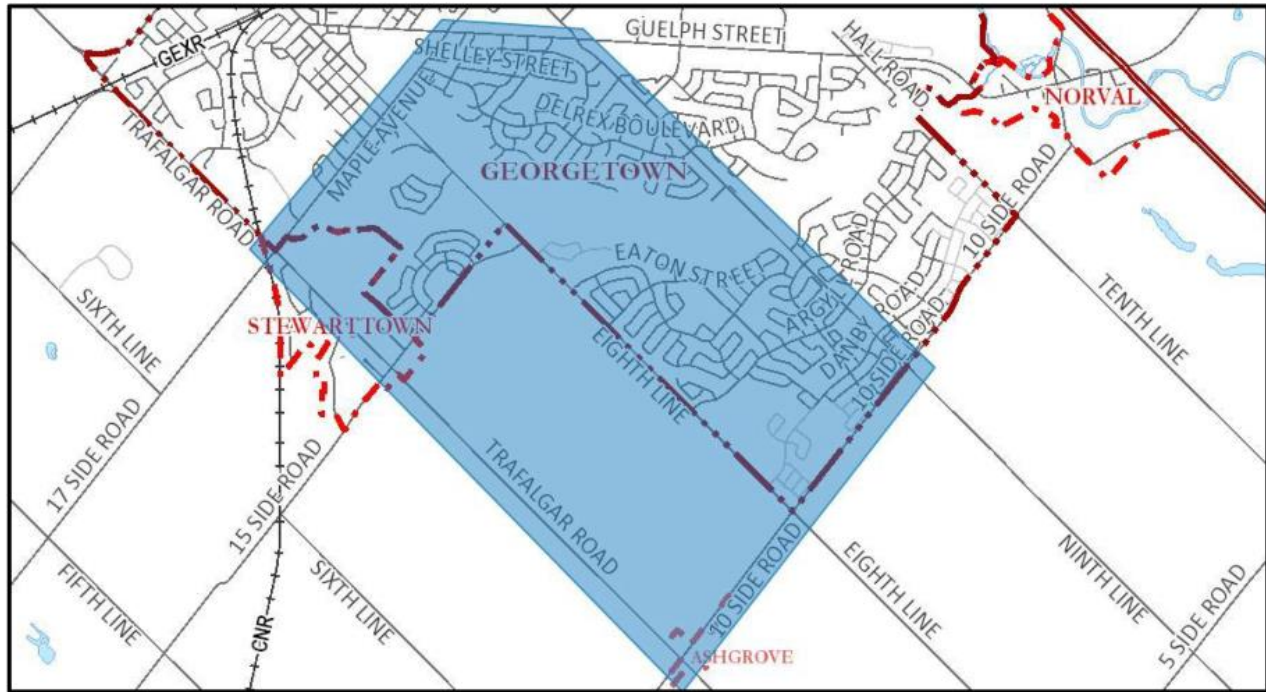


Figure 1: Transportation Study Area

1.2 Context

In developing the Vision Georgetown Transportation Analysis, existing policies and regulations established by the Town of Halton Hills, Halton Region, and MTO have been considered. In order to establish the policy background for the area around the proposed Vision Georgetown development, information from the following policy and guidance documents has been reviewed:

- The Road to Change 2031, Halton Region Transportation Master Plan
- Halton Peel Boundary Area Transportation Study
- Places to Grow 2017 Golden Horseshoe
- Town of Halton Hills Transportation Master Plan
- Town of Halton Hills Pedestrian Charter
- Town of Halton Hills Cycling Master Plan
- Town of Halton Hills Strategic Plan
- Halton Region Strategic Action Plan
- Trafalgar Road Environmental Assessment
- Halton Region Access Management Guideline
- Mobility Management Strategy for Halton

Transportation policy for the Vision Georgetown development area comes from several different levels of government. The Ministry of Transportation of Ontario (MTO) provides provincial guidelines and legislation, having limited involvement in regional or local policy and planning decisions. Most MTO legislation provides guidance on

the specifics of road design standards, highway laws, and highway and transit operation rather than general policy and planning.

MTO is also currently undertaking several projects around the Study Area that were considered in the Vision Georgetown assessment. Projects include widening of Highway 7 to 4 lanes from Trafalgar Road to Main Street (Georgetown), widening of Highway 401 by two lanes in each direction from Highway 407 ETR to James Snow Parkway and one additional lane from James Snow Parkway to Regional Road 25. Although the latter is not directly within the Study Area, such a significant infrastructure upgrade was considered in the Vision Georgetown Transportation Assessment.

The Vision Georgetown development area is located within Halton Region which has several policy documents that need to be considered as part of the transportation assessment. The Halton Region Transportation Master Plan identifies key objectives and policies for the region as a whole, recognising the need to:

- Provide an efficient system for the movement of people and goods through and within the region;
- Manage the number of trips through effective schemes and programs that improve travel management demand and reduce the need to travel;
- Facilitate a transportation network that balances the level of service and modal choice of users with the need to protect land use, air quality, and the environment;
- Support the growth of active modes of transportation such as walking and cycling, by providing safe and convenient infrastructure for these modes.

Halton Region anticipates that the population of the area will increase from approximately 440,000 in 2006 to approximately 750,000 by 2031. This represents an approximately 70% increase in population over this time period, which will require the region and other stakeholders to carefully consider what alternative modes of transportation can be offered to accommodate the increase in transportation demand.

Halton Region is responsible for a number of the major arterial roads within the area. The Vision Georgetown development area is bordered by Trafalgar Road to the west and 10 Side Road to the south, both of these roads are currently under the jurisdiction of Halton Region. As part of the Halton Region Transportation Master plan in combination with the Halton Peel Boundary Area Transportation Study, the following road improvements have been identified:

- 10 Side Road: between Trafalgar Road and Winston Churchill Blvd, widening from 2 lanes to 4 lanes, by 2031.
- Trafalgar Road: between Steeles Avenue and 10 Side Road, widening from 2 lanes to 4 lanes, by 2018.
- Trafalgar Road: between 10 Side Road and Highway 7, widening from 2 lanes to 4 lanes, by 2020.
- Widening of Trafalgar Road (RR 3) to 6 lanes (4 GPL and 2 HOV) from Steeles Avenue southerly
- Ninth Line: between Steeles Avenue and 10 Side Road, widening from 2 lanes to 4 lanes, by 2020.

At the municipal level, the Town of Halton Hills has developed a Transportation Master Plan which was published in November 2011. Similar to the Halton Region plan, the municipal Transportation Master Plan recognizes that the significant population growth forecast to occur across the region will require a change in the way transportation is planned and provided for.

The Halton Hills Transportation Master Plan recognizes that there is existing congestion on several of the roads that neighbour the Vision Georgetown area, including Trafalgar Road and 10 Side Road. The planned Regional and Provincial road improvements described above along with the Town of Halton Hills plan to widen Eighth Line from 2 to 4 lanes from 15 Side Road to Steeles Avenue will provide additional capacity to accommodate existing and future population growth and associated travel demands..

2. Existing Conditions Analysis

As described in **Section 1.1**, the study area is located in Halton Hills and is bounded by 5 Side Road to the south, Maple Avenue and Guelph Street (Highway 7) to the north, Trafalgar Road to the west and Ninth Line / Mountainview Road to the east. The following sections describe characteristics of the transportation network and traffic operations in the study area.

2.1 Road Network

The road network in the study area includes provincial, regional, and local facilities, providing connectivity to other areas of Georgetown as well as neighbouring municipalities.

The Regional arterial roadways form block grids and function as the main thoroughfares connecting to the Provincial highways and intersecting with other Municipal arterial and collector roadways.

Based on the Halton Region Road Network map, many of the existing roads within the study area are either Major or Regional Roads. The Regional Roads include Trafalgar Road, Ninth Line, and 10 Side Road. The remaining major roads within the study area include Eighth Line, 15 Side Road, 17 Side Road, Mountainview Road, and Guelph Street. A summary of key roads in the study area is provided in **Table 1**.

Table 1: Road Characteristics – Existing Conditions

Road Name	Road Type*	Number of Lanes	Speed Limit
Trafalgar Road	Regional Road	2	60
Eighth Line	Major Road	2	70
Main Street	Major Road	2	40,50,60
Mountainview Road	Major Road	4	60
Ninth Line	Regional Road	2	80
Guelph Street (Highway 7)	Major Road	4	50
Maple Avenue	Major Road	2	50
15 Side Road	Major Road	2	50,60
10 Side Road	Regional Road	2	80
5 Side Road	Major Road	2	50,80
Argyll Road	Local Road	4	50
Miller Drive	Local Road	2	50
Belmont Boulevard	Local Road	2	50
Delrex Boulevard	Local Road	2	50

*Regional Road Network Map, Regional Municipality of Halton

2.2 Active Transportation

In general, concrete sidewalks in the developed parts of Georgetown often occupy both sides of local roads. Most of the major roads in the study area do not have sidewalks along the roadways. Outside of the developed areas, gaps in the pedestrian network are noted on the major roadways (i.e. Trafalgar Road) with limited accommodation for pedestrians through sidewalks or paths (i.e. 15 Side Road).

Most of the signalized intersections assessed in the study area have pedestrian crosswalks utilizing standard parallel pavement markings and pedestrian signals. However, the intersection of Ninth Line and 5 Side Road does not have any pedestrian signal heads. Moreover, there is no pedestrian crossing facility at the following unsignalized intersections:

- 15 Side Road and Belmont Boulevard (west intersection)
- 15 Side Road and Belmont Boulevard (east intersection)
- Eighth Line and Miller Drive
- Eighth Line and Argyll Road

Multi-use trails exist within the study area are along the east side of Eighth Line, from 10 Side Road past 17 Side Road, and along the south side of 15 Side Road from Eighth Line continuing past Trafalgar Road. These lanes are part of the Halton Hills cycling network and connect into a total of 8 planned off-road routes in the area.

2.3 Transit

Georgetown does not have a local transit service. However, GO Transit does service the town with Regional Commuter Service. The GO routes that service Georgetown are listed in **Table 2**.

Table 2: GO Transit Service in Georgetown

Bus	
31	Georgetown GO Georgetown Market Guelph Street @ King Street
33	Georgetown GO Main Street South @ Cross Street
GO Train	
Kitchener	Georgetown GO Station

All of the GO bus and train routes that stop in Georgetown stop at the Georgetown GO Station. The Georgetown GO Station is located outside of the study area, off of Mountainview Road North, north of Guelph Street. Additionally, none of the local GO Bus stops are located within the study area.

2.4 Travel Patterns

An analysis was conducted using Transportation Tomorrow Survey (TTS) 2011 data to assess existing travel patterns in the study area. **Figure 2** shows the distribution of PM Peak Period trips destined to Georgetown by origin. Almost half of all trips are internal to Georgetown, with approximately 25% originating in Mississauga or Brampton. The remainder of trips originate in the rest of the GTA.

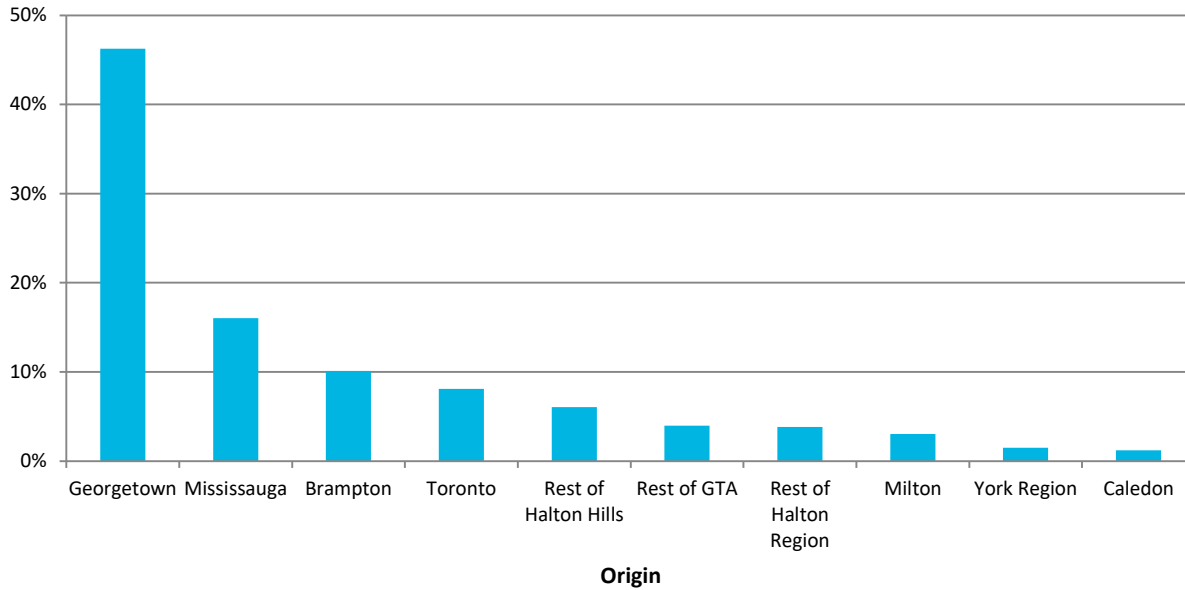


Figure 2: PM Peak Period Trips Destined to Georgetown

Mode shares were also assessed. **Figure 3**, **Figure 4**, and **Figure 5** show mode split percentages for various travel markets. Total trips destined to Georgetown in the PM Peak Period mostly use auto modes, while internal trips have a significant active transportation mode share. Trips destined to Georgetown from the City of Toronto have a significant transit mode share, which is a result of regional GO Train service provided at Georgetown GO Station.

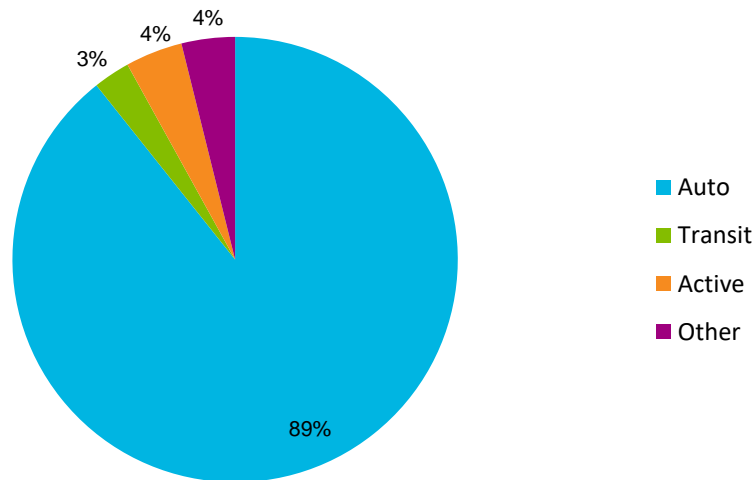


Figure 3: Total Georgetown Mode Share

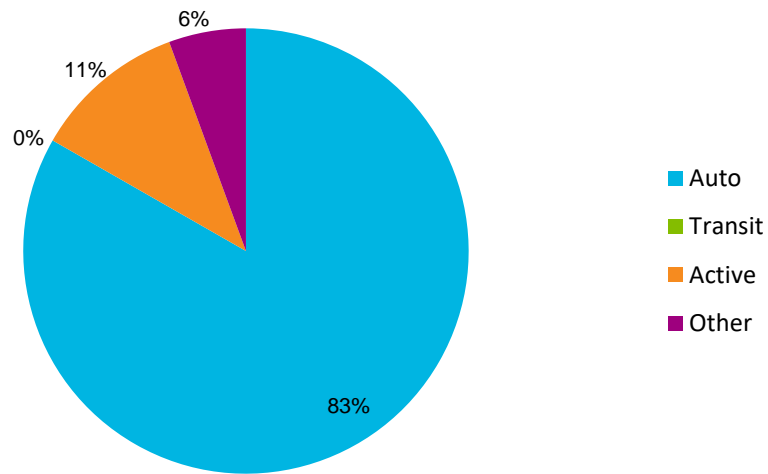


Figure 4: Internal Georgetown Mode Share

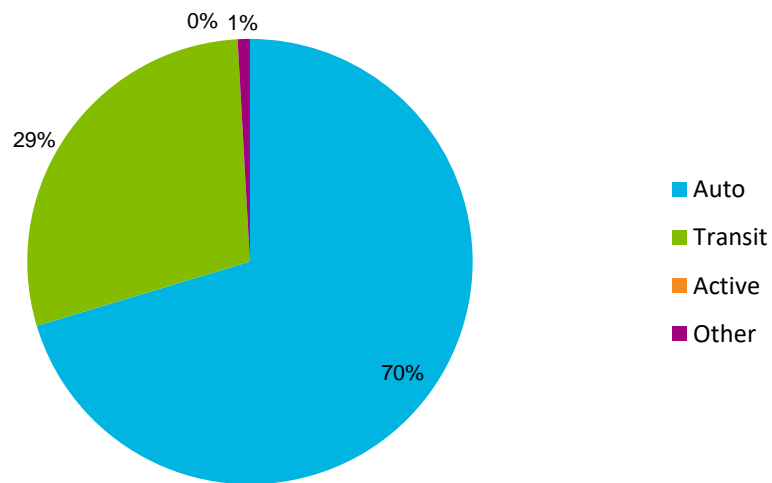


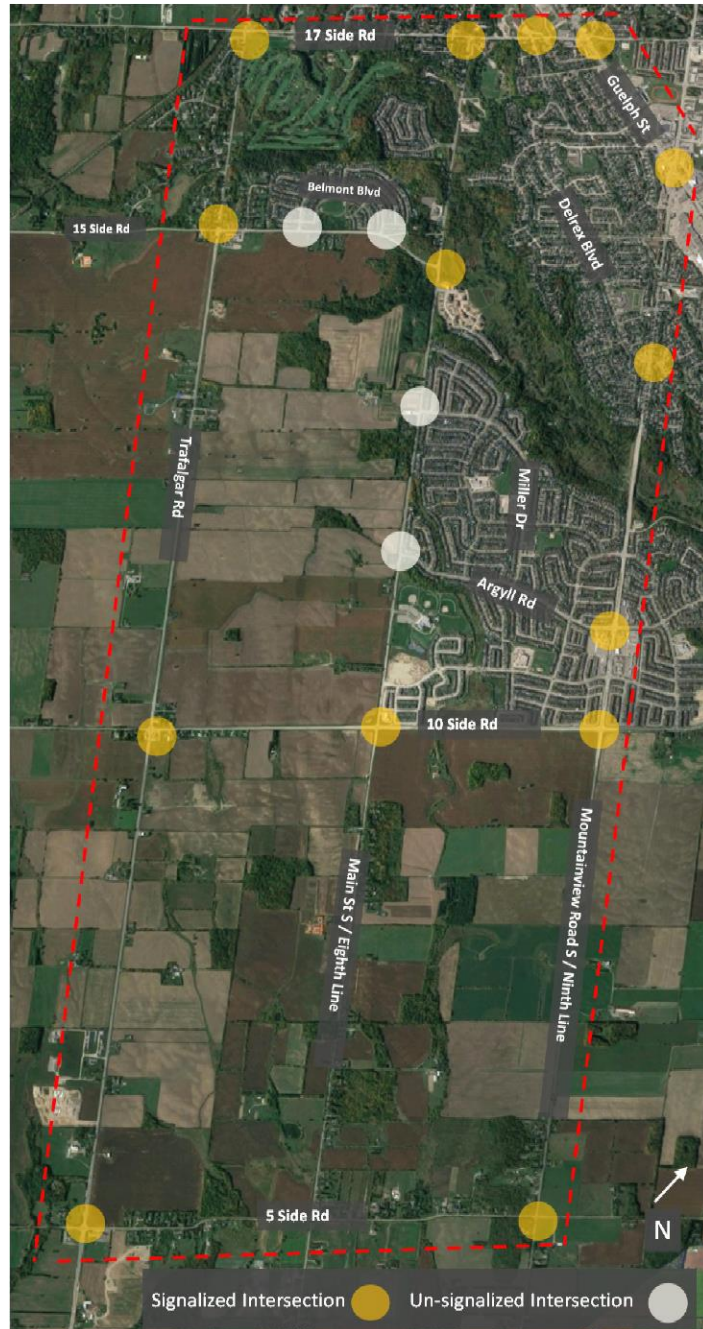
Figure 5: Georgetown – Toronto Mode Share

2.5 Traffic Operations

This section documents existing conditions traffic volumes and operations in 2017, and includes data collection, analysis methodology, and a summary of traffic operations in the study area.

The study area includes fourteen (14) signalized and four (4) unsignalized intersections as shown in **Figure 6**. Details of lane configuration and traffic control are provided in **Figure 7**.

Figure 6: Study Area Intersections – Existing Conditions



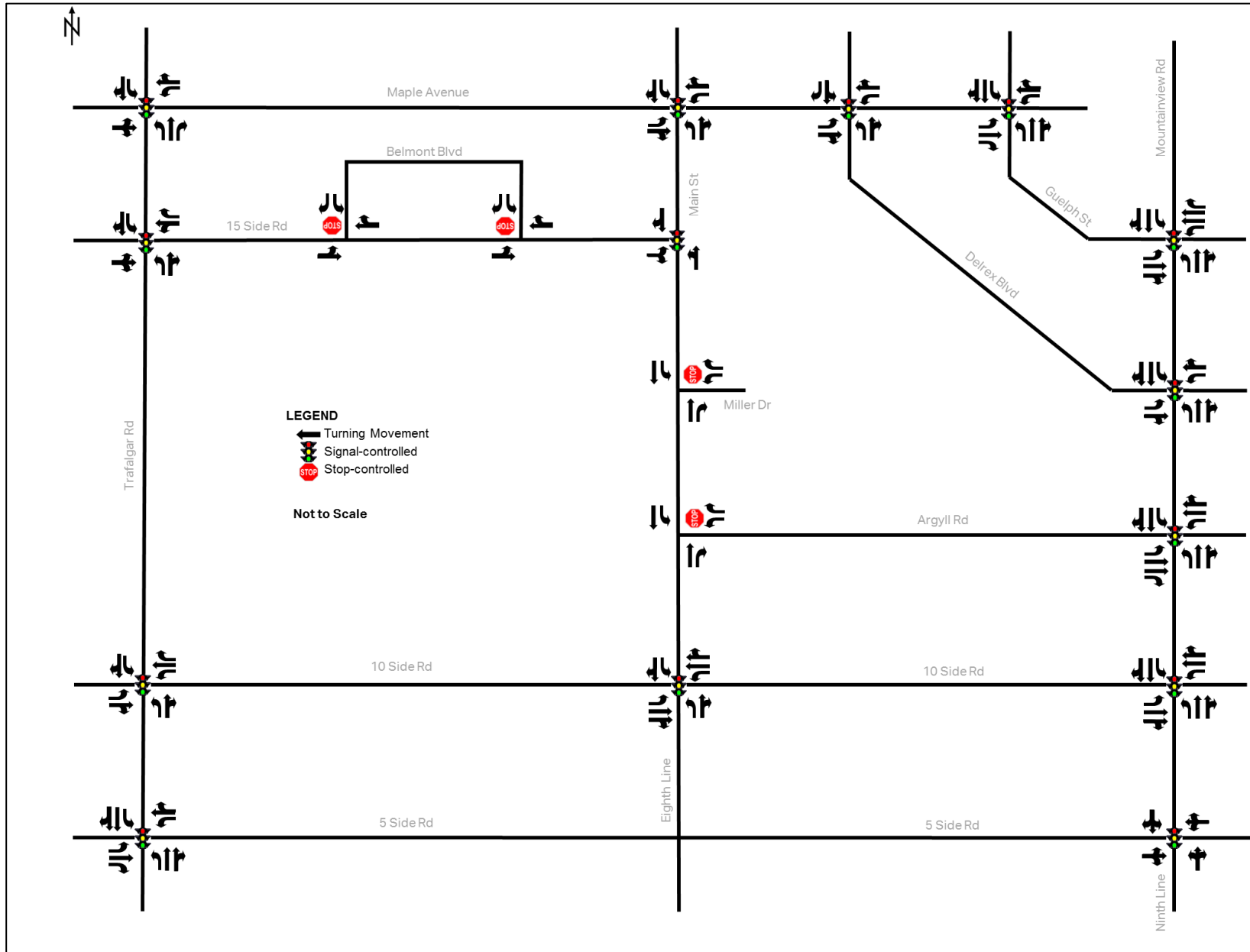


Figure 7: Lane Configuration and Type of Control – Existing Conditions

2.5.1 Data Collection

The intersections turning movement counts (TMC) and signal timing plans (STP) were obtained from the Town of Halton Hills as shown in **Table 3**. Details of the TMC and STP data are provided in **Appendix A** and **Appendix B**, respectively.

Table 3: Details of Traffic Data

No.	Intersection	Type of Control	Signal Timing Date	Volume Count Date	Peak Hours	
					AM Peak Hour	PM Peak Hour
1	Maple Avenue @ Trafalgar Road	Signalized		Jun 29, 2017	7:30 – 8:30	4:30 – 5:30
2	15 Side Road @ Trafalgar Road	Signalized	Jan 26, 2002	Jun 26, 2017	7:30 – 8:30	5:00 – 6:00
3	10 Side Road @ Trafalgar Road	Signalized	May 16, 2001	Nov 23, 2016	7:30 – 8:30	4:30 – 5:30
4	10 Side Road @ Eighth Line	Signalized		Nov 30, 2016	7:30 – 8:30	4:30 – 5:30
5	10 Side Road @ Ninth Line	Signalized	Jun 21, 2012	Nov 28, 2016	7:15 – 8:15	4:45 – 5:45
6	Trafalgar Road and 5 Side Road	Signalized	Oct 22, 2013	May 29, 2017	7:30 – 8:30	4:30 – 5:30
7	Ninth Line and 5 Side Road	Signalized	Mar 21, 2016	May 26, 2015	7:15 – 8:15	4:45 – 5:45
8	Guelph Street @ Mountainview Road	Signalized	Oct 11, 2017	Nov 8, 2016	8:00 – 9:00	4:45 – 5:45
9	Argyll Road @ Mountainview Road	Signalized	Jan 10, 2017	Nov 7, 2017	7:15 – 8:15	4:45 – 5:45
10	15 Side Road @ Eighth Line	Signalized	Jan 9, 2017	Oct 17, 2012	7:45 – 8:45	5:00 – 6:00
11	Maple Avenue @ Main Street	Signalized	Feb 8, 2018	Dec 2, 2014	8:00 – 9:00	3:30 – 4:30
12	Guelph Street (Highway 7) @ Maple Avenue	Signalized	Oct 11, 2017	Nov 9, 2016	7:30 – 8:30	4:45 – 5:45
13	Maple Avenue @ Delrex Boulevard	Signalized	Oct 17, 2017	Nov 26, 2014	7:30 – 8:30	4:45 – 5:45
14	Delrex Boulevard @ Mountainview Road	Signalized	July 31, 2017	Nov 6, 2017	7:30 – 8:30	5:00 – 6:00
15	15 Side Road @ Belmont Boulevard-West	Unsignalized	-	Nov 6, 2014	7:45 – 8:45	4:45 – 5:45
16	15 Side Road @ Belmont Boulevard-East	Unsignalized	-	Nov 19, 2014	7:45 – 8:45	3:45 – 4:45
17	Miller Drive @ Eighth Line	Unsignalized	-	Oct 23, 2012	7:45 – 8:45	5:00 – 6:00
18	Argyll Road @ Eighth Line	Unsignalized	-	Oct 24, 2012	7:30 – 8:30	4:45 – 5:45

2.5.2 Traffic Volumes

The TMC counts received for this study were collected over a span of several years and during different seasons. A common base year of 2017 was selected for the existing conditions to match the most recent traffic counts. For consistency, TMCs collected prior to 2017 were grown by a 1% compound annual growth rate to represent a 2017 estimate. The 1% growth rate was determined based on population growth consistent with other rates applied in studies within the vicinity of the study area.

The 2017 traffic volume differences between adjacent intersections in the study area were reviewed and balanced at locations where appropriate. At locations where the access points between the study area adjacent intersections could be considered as the source of the traffic volume difference, no balancing was applied. The methodology of volume balancing was based on the City of Toronto Traffic Management Center (Guidelines for Using Synchro 9) and involves the following steps:

- Adjacent intersections with a volume imbalance greater than 10% were identified.

- It was determined whether major driveways and local roads exist between adjacent intersections that can be the source of the imbalances greater than 10%
- If the imbalance is not justified, then traffic volumes were generally balanced to the higher observed volume to represent conservative traffic conditions. Through movements were first modified to balance the volumes. Turning movements were adjusted if necessary.

Balanced traffic volumes for year 2017 AM and PM peak hours are presented in **Figure 8**.

The following data was also utilized in developing the existing Synchro model:

- **Pedestrian & heavy vehicle volumes** were obtained from TMC data;
- **Peak Hour Factor (PHF)** calculated for each intersection using TMC data. Fifteen minute traffic volume counts were not available for intersections of Eighth Line at Miller Drive and Eighth Line at Argyll Road, and the PHF values from the intersection of Mountainview Road at Argyll Road were used as a reference.
- **Signal timing plans** received from the Town of Halton Hills were used in the existing conditions Synchro model. Local observations indicated that at several intersections the provided signal timing plans were out of date, and adjustments were applied where required (see **Appendix C** for details); and
- **Storage lengths** for turning lanes were measured from Aerial photos and rounded to the closest 5-metre.

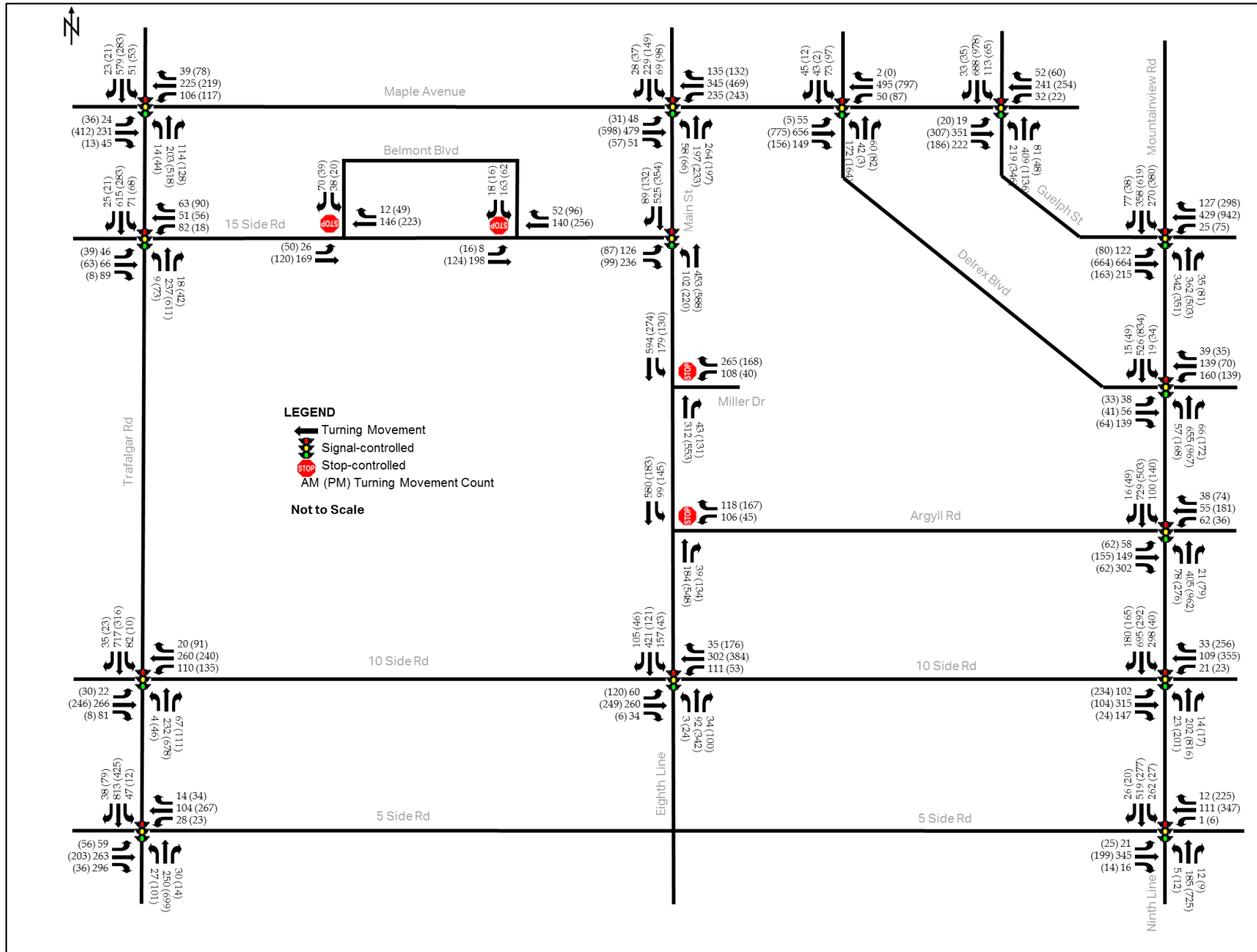


Figure 8: Balanced Traffic Volumes – Existing Conditions (2017)

2.5.3 Analysis Methodology

The traffic operational analyses were conducted using Synchro/SimTraffic version 9 software and the Highway Capacity Manual (HCM) 2000 methodology. The vehicular delays are estimated in seconds, and are represented in terms of “level of service” (LOS). LOS is a letter grade based on the average delay per vehicle, including control delay, incremental delay, and queue delay. Intersection and movement LOS ranges from LOS A to LOS F. The LOS definitions for signalized and unsignalized intersections are listed in **Table 4**:

Table 4: Level of Service Criteria (based on HCM 2000)

Level of Service (LOS)	Average Control Delay (sec/veh)	
	Signalized	Unsignalized
A	<= 10.0	<= 10.0
B	10.1 – 20.0	10.1 – 15.0
C	20.1 – 35.0	15.1 – 25.0
D	35.1 – 55.0	25.1 – 35.0
E	55.1 – 80.0	35.1 – 50.0
F	> 80	> 50

The capacity of a facility reflects its ability to accommodate a moving stream of vehicles and represents the maximum number of vehicles that can reasonably be expected to pass a given point during a specified period. The Volume/Capacity (V/C) ratio represents how close to capacity a road or intersection movement is, based on existing or projected traffic volumes versus the maximum number of vehicles that could be accommodated. As the V/C approaches 1.0, traffic conditions worsen and operations are generally very poor.

As indicated in the Halton Region Transportation Impact Study Guidelines (January 2015), at signalized intersections V/C ratios over 0.85 for overall intersection, through movements and shared through/turning movements and over 0.95 for exclusive movements will be identified as critical intersection or movements. At unsignalized intersections movements with LOS E or above will be considered as critical movements.

2.5.4 Analysis Results

The existing conditions intersection capacity analysis results for the key study area intersections are provided in **Table 5** for the AM and PM peak hours. For each turning movement, average delay, LOS, and V/C ratio are provided. Movements which are identified as critical (based on the Halton Region Traffic Impact Study Guidelines) are highlighted in the table. In addition, visual representation of the existing conditions traffic operations in the AM and PM peak hours are provided in **Figure 9** and **Figure 10**, respectively. Details of Synchro output reports are included in **Appendix D**.

Table 5: Intersection Capacity Analysis – Existing Conditions

Intersection (signalized unless noted)	Approach/Movement		AM Peak Hour			PM Peak Hour		
			Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C
Trafalgar Rd & Maple Ave	EB	EBT	36.2	D	0.64	41.6	D	0.73
	WB	WBL	25.5	C	0.46	24.4	C	0.42
		WBT	22	C	0.25	24.8	C	0.45
	NB	NBL	13.4	B	0.1	10.1	B	0.1
		NBT	9.9	A	0.23	15.5	B	0.56
	SB	NBR	8.7	A	0.08	10	A	0.09
		SBL	11.6	B	0.11	15.5	B	0.17
	SBT	22.3	C	0.74	17.9	B	0.41	
Overall			21.1	C	0.68	20.9	C	0.63
Trafalgar Rd & 15 Side Rd	EB	EBT	18.6	B	0.33	18.3	B	0.2
	WB	WBT	18.2	B	0.28	17.5	B	0.13
		WBR	15.5	B	0.05	16.8	B	0.06
	NB	NBL	10.6	B	0.06	12.8	B	0.17
		NBT	12.4	B	0.33	27.7	C	0.84
	SB	SBL	11.2	B	0.17	28	C	0.53
		SBT	23.1	C	0.79	14.6	B	0.37
	Overall			19	B	0.59	22.1	C
Trafalgar Rd & 10 Side Rd	EB	EBL	20.7	C	0.09	22.1	C	0.11
		EBT	28.8	C	0.61	27	C	0.47
	WB	WBL	42.1	D	0.66	33.9	C	0.57
		WBT	25.3	C	0.46	26	C	0.42
	NB	WBR	19.5	B	0.02	21.6	C	0.09
		NBL	8.9	A	0.03	10.9	B	0.11
	SB	NBT	11.9	B	0.37	27.8	C	0.86
		SBL	10.4	B	0.2	11.2	B	0.07
SBT	22.1	C	0.8	13.9	B	0.41		
Overall			22.8	C	0.75	24.5	C	0.75
10 Side Road & Eighth Line	EB	EBL	16.4	B	0.21	31.3	C	0.62
		EBT	15.7	B	0.25	16.9	B	0.24
	WB	WBL	18.1	B	0.33	16.9	B	0.16
		WBT	16.1	B	0.29	19.4	B	0.47
	NB	NBL	8.6	A	0.02	9.6	A	0.05
		NBT	9.2	A	0.14	15.1	B	0.55
	SB	SBL	10.7	B	0.27	10.9	B	0.15
		SBT	14.6	B	0.59	10.7	B	0.2
Overall			14.6	B	0.48	17.4	B	0.58
10 Side Road & Ninth Line	EB	EBL	33.6	C	0.46	30.7	C	0.75
		EBT	34.2	C	0.53	17.8	B	0.09
	WB	WBL	40.7	D	0.26	31.2	C	0.1
		WBT	39.2	D	0.28	41.8	D	0.77
	NB	NBL	5.8	A	0.08	27.3	C	0.61
		NBT	5.5	A	0.11	20.5	C	0.54
	SB	SBL	8.8	A	0.43	19	B	0.23
		SBT	7.5	A	0.41	17.1	B	0.29
Overall			16.6	B	0.48	26.4	C	0.69
5 Side Rd & Trafalgar Rd	EB	EBL	30	C	0.23	39.2	D	0.5
		EBT	35.8	D	0.61	35	C	0.51
		EBR	31.1	C	0.34	29.3	C	0.03
	WB	WBL	30.2	C	0.2	30.4	C	0.12
		WBT	30.2	C	0.27	43.3	D	0.74
	NB	NBL	9.8	A	0.12	7.7	A	0.22
		NBT	11.1	B	0.19	11.8	B	0.38
	SB	SBL	8	A	0.09	10.9	B	0.04
SBT		13.6	B	0.5	14.3	B	0.33	
Overall			20.2	C	0.51	21	C	0.48

Intersection (signalized unless noted)	Approach/Movement		AM Peak Hour			PM Peak Hour		
			Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C
Ninth Line & 5 Side Rd	EB	EBT	28.7	C	0.73	20.7	C	0.46
	WB	WBT	19.8	B	0.22	46.4	D	0.94
	NB	NBT	8.9	A	0.23	30.3	C	0.89
	SB	SBT	65.7	E	1.06	14.6	B	0.44
	Overall		45.2	D	0.94	31.1	C	0.91
Mountainview Rd S & Guelph St	EB	EBL	14	B	0.33	17.5	B	0.48
		EBT	20.8	C	0.6	23	C	0.59
	WB	WBL	16.1	B	0.16	16	B	0.36
		WBT	17.7	B	0.33	25.4	C	0.69
		WBR	15.6	B	0.1	18.4	B	0.22
	NB	NBL	109.3	F	1.1	93	F	1.05
		NBT	48.8	D	0.77	198.6	F	1.32
	SB	SBL	53	D	0.89	152.8	F	1.22
		SBT	53.2	D	0.82	221.2	F	1.37
Overall		41	D	0.77	95.3	F	0.91	
Mountainview Rd S & Argyll Rd	EB	EBL	26.5	C	0.25	32.9	C	0.41
		EBT	25.8	C	0.21	30.6	C	0.3
		EBR	28.3	C	0.45	29.1	C	0.04
	WB	WBL	26.6	C	0.26	30.6	C	0.21
		WBT	25	C	0.1	31.5	C	0.41
	NB	NBL	7.4	A	0.22	6.6	A	0.53
		NBT	9.5	A	0.25	14.4	B	0.58
	SB	SBL	7.1	A	0.2	8.4	A	0.43
		SBT	10.6	B	0.43	12.6	B	0.36
Overall		15.5	B	0.42	16.6	B	0.56	
15 Side Rd & Main Street S	EB	EBL	29.9	C	0.47	35.2	D	0.55
		EBR	28	C	0.17	31.8	C	0.07
	NB	NBL	7.1	A	0.29	4.6	A	0.38
		NBT	4.6	A	0.37	5	A	0.45
	SB	SBT	14.5	B	0.65	12.8	B	0.51
Overall		14.3	B	0.61	11.2	B	0.52	
Main Street S & Maple Ave	EB	EBL	21.2	C	0.19	22.7	C	0.15
		EBT	31.9	C	0.73	39.1	D	0.81
	WB	WBL	69.2	E	0.95	56	E	0.92
		WBT	19.1	B	0.61	23	C	0.69
	NB	NBL	22.8	C	0.18	24.6	C	0.22
		NBT	45.2	D	0.87	48.2	D	0.88
	SB	SBL	21	C	0.38	21.4	C	0.52
SBT		18.2	B	0.36	18.4	B	0.27	
Overall		33.8	C	0.88	35.5	D	0.91	
Guelph St & Maple Ave	EB	EBL	28.7	C	0.13	30.9	C	0.14
		EBT	42.1	D	0.74	40.9	D	0.67
		EBR	31.3	C	0.36	31.4	C	0.26
	WB	WBL	34.1	C	0.29	31	C	0.15
		WBT	38.8	D	0.65	43.2	D	0.71
	NB	NBL	14.6	B	0.61	50.8	D	0.9
		NBT	14.6	B	0.31	22.6	C	0.73
	SB	SBL	14.8	B	0.3	21.2	C	0.41
		SBT	22.1	C	0.52	42.1	D	0.9
Overall		25.5	C	0.66	35.1	D	0.86	
Maple Ave & Delrex Blvd	EB	EBL	14.3	B	0.19	9.1	A	0.01
		EBT	25.8	C	0.75	16.2	B	0.56
	WB	WBL	13.4	B	0.27	7.5	A	0.11
		WBT	14.8	B	0.55	10.4	B	0.47
	NB	NBL	33.7	C	0.54	37.5	D	0.61
		NBT	30.4	C	0.22	30.7	C	0.04
	SB	SBT	43.7	D	0.64	42.9	D	0.17
SBR		34.5	C	0.03	41.3	D	0.01	

Intersection (signalized unless noted)	Approach/Movement	AM Peak Hour			PM Peak Hour			
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	
	Overall Intersection	24.3	C	0.69	17.4	B	0.55	
Mountainview Rd S & Delrex Blvd	EB	EBL	24.1	C	0.19	27.6	C	0.16
		EBT	24.4	C	0.25	27.8	C	0.19
	WB	WBL	49.7	D	0.82	36.9	D	0.66
		WBT	25.9	C	0.43	28.4	C	0.28
	NB	NBL	5.4	A	0.12	7.3	A	0.47
		NBT	6.8	A	0.36	6.1	A	0.48
	SB	SBL	10.1	B	0.07	10.8	B	0.16
		SBT	11.6	B	0.32	12.9	B	0.52
	Overall	15.8	B	0.52	12.4	B	0.56	
15 Side Rd & Belmont Blvd West (Unsignalized)	EB	EB 1	1.2	A	0.02	2.8	A	0.04
	WB	WB 1	0	A	0.11	0	A	0.18
	SB	SB 1	12	B	0.08	12.6	B	0.05
		SB 2	9.7	A	0.09	10	B	0.06
15 Side Rd & Belmont Blvd East (Unsignalized)	EB	EB 1	0.4	A	0.01	1	A	0.02
	WB	WB 1	0	A	0.13	0	A	0.23
	SB	SB 1	13.9	B	0.3	13.3	B	0.14
		SB 2	9.3	A	0.02	10.6	B	0.03
Eighth Line & Miller Dr (Unsignalized)	WB	WB 1	143.7	F	0.99	32.6	D	0.25
		WB 2	14.3	B	0.44	16	C	0.37
	NB	NB 1	0	A	0.21	0	A	0.34
		NB 2	0	A	0.03	0	A	0.09
	SB	SB 1	8.8	A	0.18	9.9	A	0.17
		SB 2	0	A	0.39	0	A	0.18
Eighth Line & Argyll Rd (Unsignalized)	WB	WB 1	39.3	E	0.54	31	D	0.27
		WB 2	10.2	B	0.16	15.8	C	0.36
	NB	NB 1	0	A	0.12	0	A	0.34
		NB 2	0	A	0.03	0	A	0.09
	SB	SB 1	8.1	A	0.09	10	B	0.19
		SB 2	0	A	0.38	0	A	0.12

The analysis results illustrate that following intersections are operating with V/C ratios less than 0.85 and overall LOS D or better with no critical movements in both AM and PM peak hours. For these intersections, no capacity issues were identified for existing conditions:

- Trafalgar Road and Maple Avenue
- Trafalgar Road and 15 Side Road
- Trafalgar Road and 10 Side Road
- 10 Side Road and Eighth Line
- 10 Side Road and Ninth Line
- 5 Side Road and Trafalgar Road
- Mountainview Road South and Argyll Road
- 15 Side Road and Main Street South
- Maple Avenue and Delrex Boulevard
- Mountainview Road South and Delrex Boulevard
- 15 Side Road and Belmont Boulevard West
- 15 Side Road and Belmont Boulevard East

The intersection of Ninth Line Road and 5 Side Road operates with LOS D and V/C ratio of 0.94 in the AM peak hour with the southbound through movement as the critical movement operating at LOS D with a V/C ratio of 1.06. This intersection operates at LOS C and a V/C ratio of 0.91 in the PM peak hour. There are two critical movements in the PM peak hour:

- The westbound through movement operates at LOS D and is approaching capacity at a V/C of 0.94.
- The northbound through movement operates at LOS C with V/C ratio of 0.89.

The intersection of Mountainview Road South and Guelph Street operates at overall LOS F in the PM peak hour. There are critical movements in both the AM and PM peak hours:

- The northbound left turn movement operates over capacity with LOS F in both peak hours. The V/C ratio is 1.1 in the AM peak hour and 1.05 in the PM peak hour.
- The northbound through movement has demand exceeding capacity with a V/C ratio of 1.32 in the PM peak hour operating at LOS F.
- The southbound through movement has V/C ratio of 1.37 in the PM peak hour operation at LOS F.
- The southbound left turn movement has demand exceeding capacity with a V/C ratio of 1.22 in the PM peak hour operating at LOS F.

The analysis of this intersection and the resulting high V/C ratios were based on utilizing the existing signal timing plans (STP) provided by the Town. Although the traffic volumes for some movements are higher than their estimated capacity, it was observed that optimizing the STP will result in reduced V/C ratios at this intersection.

The intersection of Main Street South and Maple Avenue operates with LOS C and a V/C ratio of 0.88 in the AM peak hour. This intersection operates at LOS D and a V/C ratio of 0.91 in the PM peak hour. The critical movements are as follows:

- The westbound left turn movement operates at LOS E and is approaching capacity at a V/C of 0.95 in the AM peak hour.
- The northbound through movement operates at LOS D in both AM and PM peak hours with V/C ratios of 0.87 and 0.88 respectively.

The intersection of Guelph Street and Maple Avenue operates at overall LOS C in the AM peak hour with no critical movement. In the PM peak hour, this intersection operates near capacity with an overall intersection LOS D and a V/C of 0.86. There is one critical movement in the PM peak hour which is the southbound through movement operating at LOS D during the PM peak hour with a V/C ratio of 0.9.

The unsignalized intersection of Eighth Line and Miller Drive operates with no critical movements in the PM peak hour. In the AM peak hour, the westbound left turn movement is critical with LOS F and a V/C ratio of 0.99.

The unsignalized intersection of Eighth Line and Argyll Road operates with no critical movements in the PM peak hour. In the AM peak hour, the westbound left turn movement is critical with LOS E and a V/C ratio of 0.54.

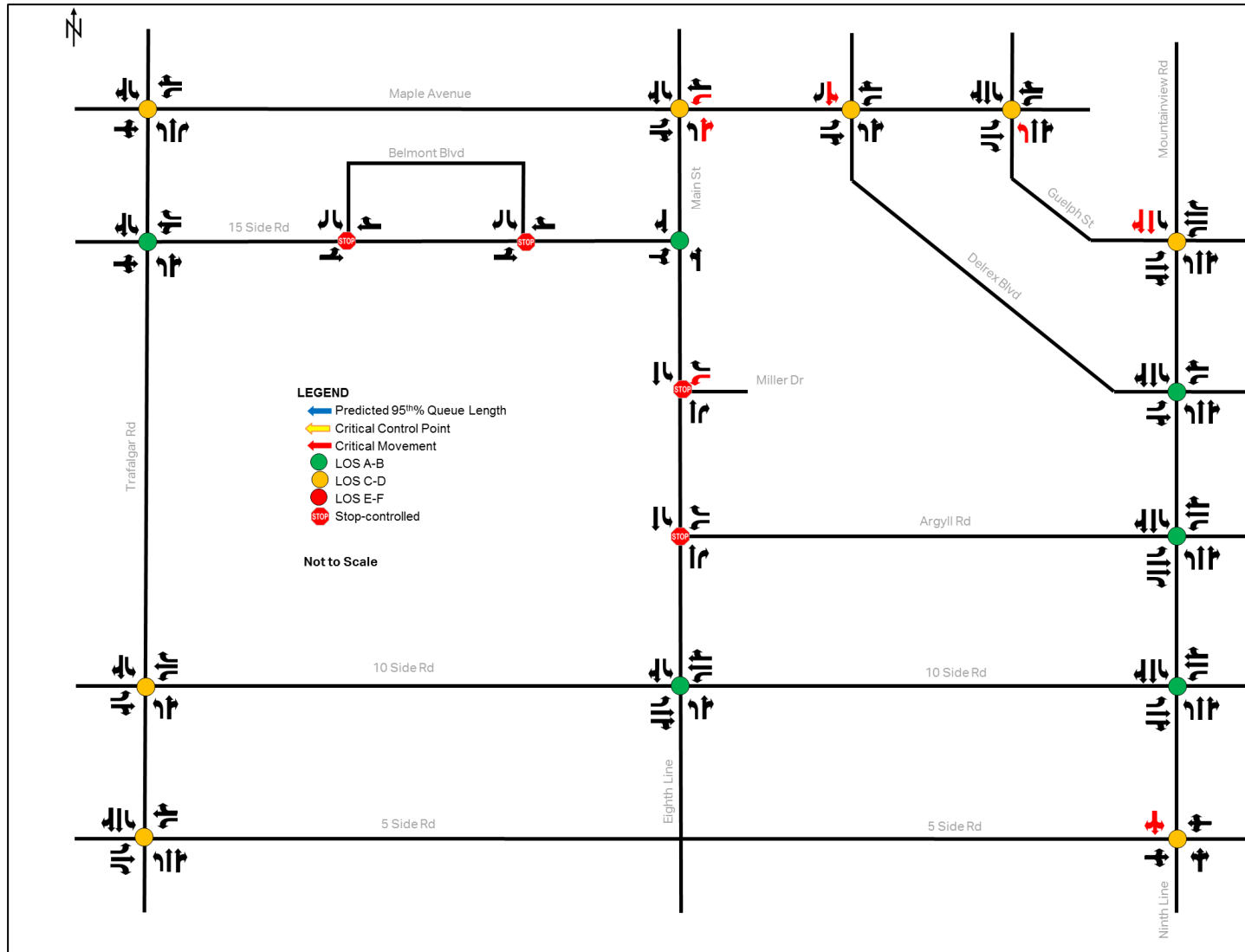


Figure 9: Traffic Operations – Existing Conditions AM Peak Hour

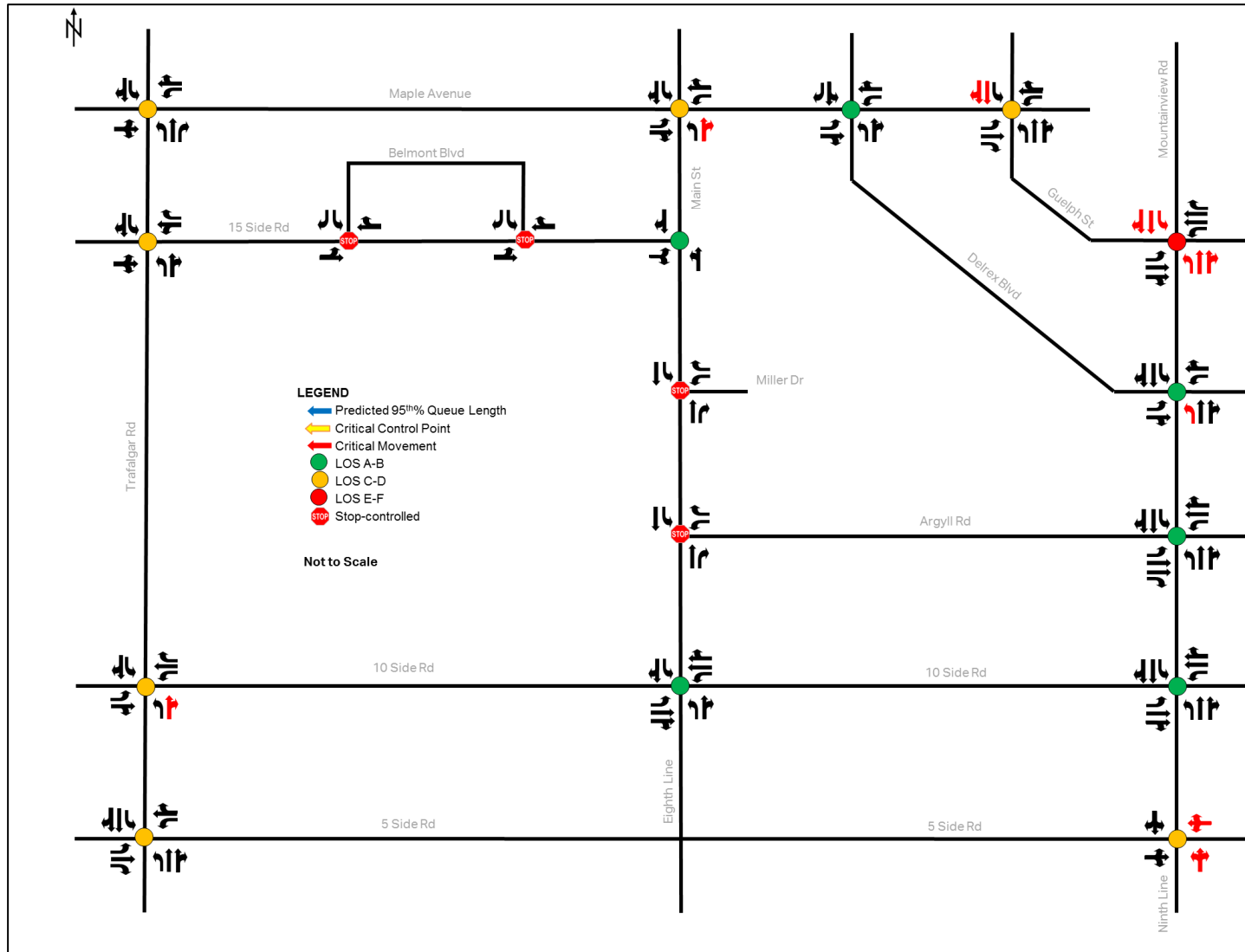


Figure 10: Traffic Operations – Existing Conditions PM Peak Hour

3. Travel Demand Forecast

This section provides details regarding the transportation demand forecasting that has been conducted to assess the future travel demands and capacity deficiencies in the 2031 horizon year for the Southwest Georgetown lands that are the subject of the Vision Georgetown study.

Demand forecasting was undertaken using the Halton Region Travel Demand Model (Halton Model) for the 2031 PM peak hour. The Halton Model is a 4-stage travel demand model implemented using the EMME 3 modelling platform, and has recently been updated using 2011 Transportation Tomorrow Survey (TTS) data. It is intended to be used as a tool to evaluate transportation network and land use scenarios in various horizon years. The model uses population and employment forecasts that are consistent with Halton Region Best Planning Estimates Version 3.032 (approved by Region Council in 2011). The model was used in the development of the 2011 Halton Region Transportation Master Plan (TMP).

Within the Halton Model, modelled network scenarios can be created and modified and land use inputs can be adjusted as required to test transportation network and land use alternatives not originally included in the Halton Model. Scenarios assessed for the Vision Georgetown Transportation Analysis include a 2031 future base scenario without the Vision Georgetown Development and a 2031 future scenario with the Vision Georgetown Development.

3.1 Network Development

Halton Model 2031 Transportation Master Plan (TMP) scenario was used as the starting point, and was further updated to reflect the changes required for this analysis. Details of the road network and zone system of the study area coded in the 2031 TMP scenario are shown **Appendix E**. The following sections detail the updates made to the 2031 TMP scenario resulting from the development and additional planned infrastructure improvements.

3.1.1 Planned Road Network Improvements

The 2031 TMP scenario road network already includes planned improvements in the study area, as defined in the Halton Region TMP. Further improvements to the road network, above what is included in the 2031 TMP scenario, were incorporated in the model as per direction from Town staff. These include the following three (3) road improvement projects:

- Two (2) right turn lanes in place by 2021:
 - Southbound at Guelph Street and Maple Avenue
 - Northbound at Main Street and Maple Avenue
- Widening of Eighth Line from 2 to 4 lanes from 15 Side Road to Steeles Avenue in place by 2026.

The widening of Eighth Line was incorporated into the 2031 scenario; however, the right turning lanes represent a level of network detail that is not pertinent to travel demand modelling, and were considered in future traffic operations analysis as described in **Chapter 4**.

3.1.2 Internal Road Network and Zone System

The internal road network changes that were made in the model were based on the proposed network within the Vision Georgetown Plan, obtained from the Town of Halton Hills. New links were added in the model to reflect these road network changes. See **Appendix F** for the internal road network and land use plan proposed based on information provided by Town of Halton Hills.

Within the 2031 TMP scenario, there were no streets internal to the block that is being assessed as part of this study. A total of four (4) new roads were added to form the internal road network for the development in the future 2031 scenario. Three of the four roads are extensions of roads from surrounding existing neighbourhoods.

Attributes of the new links were determined by assessing surrounding neighbourhoods for similar road and land use characteristics. For all east-west roads a capacity of 400 veh/hr/ln was assumed, while for the north-south road, a capacity of 500 veh/hr/ln was assumed, which was selected based on the capacity of similar roads in surrounding neighbourhoods acting as local collectors, as well as assumptions from previous work that AECOM has completed for the Town of Halton Hills on the assessment of Vision Georgetown¹ which assumed a capacity of 500 veh/hr/ln for similar roads.

In the 2031 TMP scenario, two (2) traffic zones existed in the planned development area (Zones 617 and 619). To better model the internal road network and access to arterial roads, the two existing zones were split into ten (10) zones and the boundaries of these zones were determined based on the land use plan and the preliminary Vision Georgetown Plan road network.

The location of traffic zone centroids were determined based on consideration of density of land uses, with nodes located near the highest concentration of population and employment. Centroid connectors were coded to most realistically load generated traffic to and from the arterial road network by utilizing internal local roads. **Figure 11** shows a network plot of the internal road network and zone system, and shows link attributes for number of lanes, per lane capacity and assumed speed.

¹ *Vision Georgetown: Collector Road Requirements (2016)*

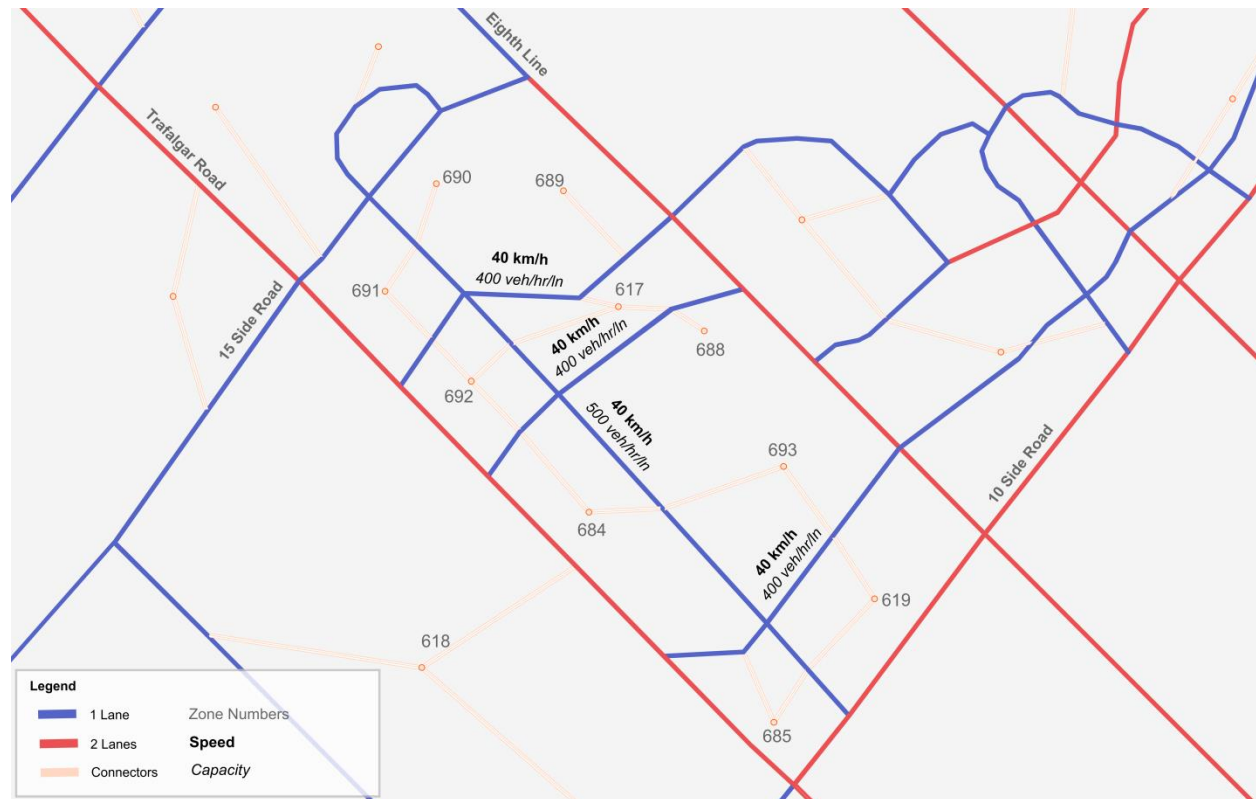


Figure 11: 2031 Georgetown with Development - Internal Road Network, Zones, and Connectors

3.1.3 Additional Network Changes

The traffic zone to the west of the Vision Georgetown development, Zone 618, is coded in the 2031 TMP scenario as having two connectors, one of which was connected directly to Trafalgar Road, just north of the intersection of Trafalgar Road and 10 Side Road. Traffic demand to and from this zone using this connector was observed to be unrealistically loading the Trafalgar Road link to the north of 10 Side Road. This connector was moved further north and an additional connector was added connecting the zone to 10 Side Road to better distribute the traffic demand.

3.2 Demand Development

The Halton Model employs a standard four-stage methodology including trip generation, trip distribution, mode split and trip assignment. To develop the travel demands for the new Vision Georgetown development, model input files have been updated to account for the new traffic zones. For each zone, population and employment, trip rates, distribution patterns and other attributes were updated, as described in the following sections.

3.2.1 Population and Employment

Projected population and employment estimates for each of the ten new traffic zones within the Vision Georgetown plan were provided by the Town (see **Appendix F**). These estimates were determined based on the consideration of the residential and employment type which was associated with a Person per Unit (PPU) factor applied to the total residential land use area or the factor for gross floor area applied to the total employment area. See **Table 5** for the population and employment totals used for each traffic zone.

Table 5: Population and Employment Numbers by Zone for 2031 Vision Georgetown Development

Zone	Population	Employment
691	2,796	0
690	903	50
689	1,260	253
692	1,850	203
617	1,351	161
684	4,176	0
688	481	50
693	1,834	170
685	1,917	50
619	1,181	528
Total	17,749	1,465

In the 2031 TMP scenario, population and employment for the two zones representing the Vision Georgetown area already assumed some level of development. In order to assess the No Development scenario, the population and employment was reduced to 2016 levels for the two zones, to represent no additional development over existing conditions. Population and employment inputs for other zones were not changed relative to the 2031 TMP scenario.

3.2.2 Trip Rates and Distribution Patterns

Zonal characteristics for the new traffic zones were copied from the adjacent Zone 563, which represents the subdivision to the east of the study area, east of Eighth Line and north of Danby Road. The new traffic zones were assigned to the same zone groupings as Zone 563, thereby assuming that trip generation rates will be in line with already-developed areas. Likewise, because trip distribution patterns and mode shares are calculated at the zone group level, the patterns for the new zones were assumed to be similar to comparable zones in the Georgetown area.

3.3 Assignment Results

Network assignments were performed for the 2031 No Development and 2031 With Development scenarios. Full runs of the Halton Model were conducted for each scenario, for which results are presented and discussed in the below sections.

3.3.1 Link-Level Analysis

Future capacity deficiencies were determined using volume-to-capacity ratio analysis (v/c ratio), which presents traffic conditions on road segments based on the available capacity of the roads.

3.3.1.1 Internal Road Network

Generally, the internal road network operates within available capacity. At access points to the development site, some internal collector roads are predicted to operate at levels approaching capacity.

In one instance, the internal north-south collector road has a segment at its southern most end that connects to 10 Side Road which is forecasted to operate above capacity, with a V/C ratio of 1.05.

These instances will be further investigated in this assessment in the intersection-level capacity analysis using Synchro software.

For a link-level volume and V/C plot of study area road network for the 2031 With Development scenario refer to **Appendix E**.

3.3.1.2 External Road Network

Figure 12 and **Figure 13** present network plots showing V/C ratios at the link level for the 2031 No Development and 2031 With Development scenarios, respectively.

The No Development scenario is generally predicted to operate within capacity, with some northbound sections of Fourth Line and Trafalgar Road experiencing congested conditions ($V/C > 0.9$) in the PM peak hour. Similarly, conditions within Georgetown along Guelph Street are expected to be congested. There is no link-level capacity deficiencies identified in the eastbound or westbound directions.

The With Development scenario results show multiple deficiencies on roads within the study area external to the development. As shown in **Figure 13**, the issues are concentrated north of the study area. The congested conditions identified in the No Development scenario on Fourth Line and Trafalgar Road persist in the With Development scenario. Additionally, Fifth Line and Eighth Line also show V/C ratios over 0.90 in the northbound direction. Link-level V/C ratios in Georgetown are expected to increase, with multiple sections of Guelph Street and 17 Side Road experiencing congested conditions.

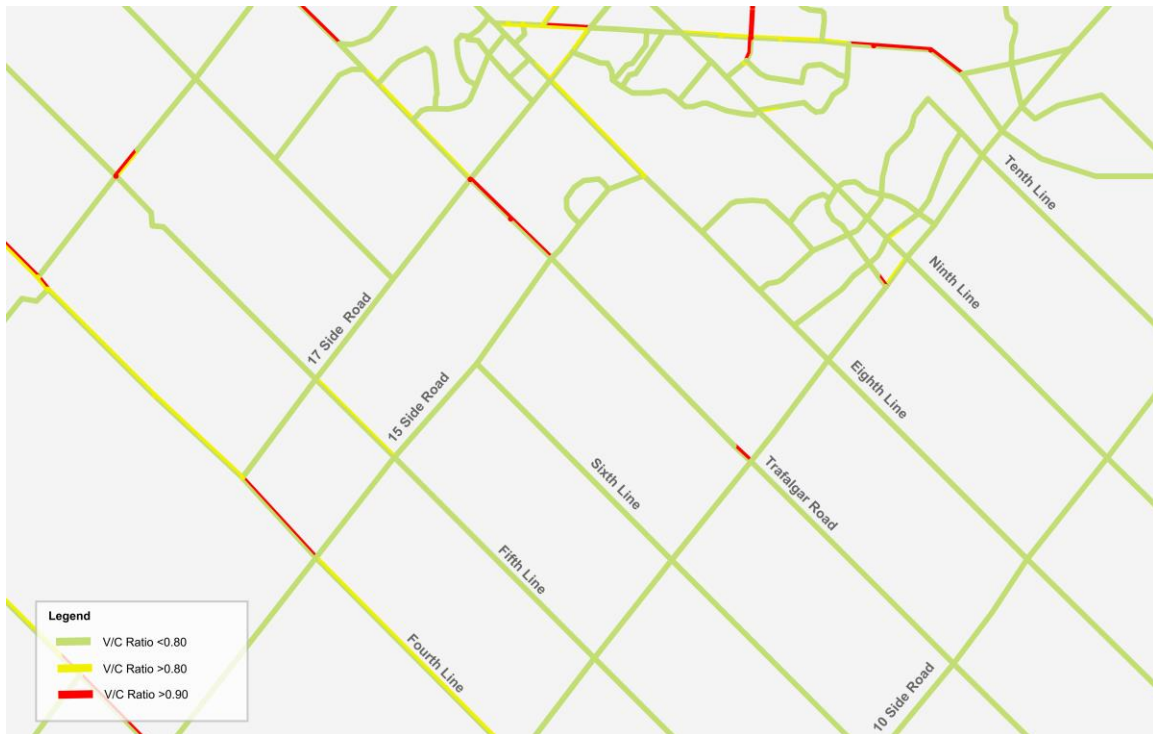


Figure 12: 2031 PM Peak Hour Georgetown “No Development” Study Area v/c Ratios

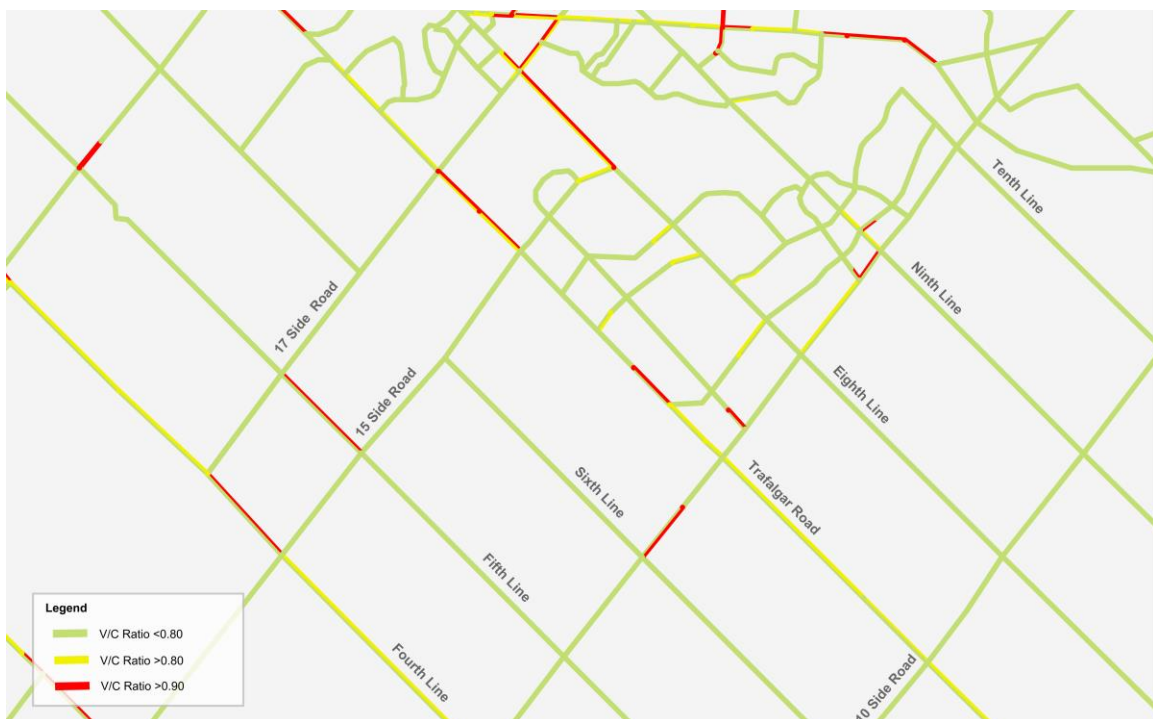


Figure 13: 2031 PM Peak Hour Georgetown “With Development” Study Area V/C Ratios

3.3.2 Screenline Analysis

The network assignments were also evaluated at a screenline level to identify prevalent travel patterns and capacity deficiencies. A screenline is an imaginary boundary that spans over a series of roads where the overall crossing traffic can be analyzed. The screenlines are located to strategically report on traffic flows within, entering, and leaving the study area. Screenlines were developed to capture broader traffic patterns across the study area and traffic that is more locally focussed on the north-south and east-west roads around the development. **Figure 14** shows the locations of the screenlines used in this analysis.

The total traffic crossing each screenline can be compared to the available capacity of the roads on the screenline by calculating a V/C ratio. A V/C ratio of 0.9 or greater is typically used to identify critical capacity deficiencies that may merit the consideration of providing additional capacity across the screenline (i.e., widening existing roads or adding new roads).

Table 6 shows that three of the four screenlines do not show future capacity issues. The only exception is the North of 15 Side Road screenline which has a forecasted V/C of 0.99. This implies that one additional arterial lane of traffic may be required between Fourth Line to Main Street to provide enough capacity to reduce the V/C ratio to below the critical 0.90 threshold, or acceptable conditions. It should be noted that this screenline also shows a capacity deficiency requiring an additional lane of traffic in the No Development scenario.



Figure 14: Screenline Locations

Table 6: Screenline Descriptions and 2031 Future Results

Screenline	No Development		With Development	
	V/C Ratio	Lanes Required*	V/C Ratio	Lanes Required*
Northbound/Southbound Screenlines				
South of 10 Side Road (Fourth Line to Winston Churchill Boulevard)	0.65	0	0.69	0
North of 15 Side Road (Fourth Line to Eighth Line)	0.96	1	0.99	1
Eastbound/Westbound Screenlines				
East of Eighth Line (15 Side Road to Steeles Avenue)	0.51	0	0.58	0
West of Trafalgar Road (15 Side Road to Steeles Avenue)	0.44	0	0.46	0

*Number of lanes to achieve V/C of 0.9. Assuming a typical arterial lane capacity of 800 vehicles per hour per lane.

4. Future Conditions Analysis

This section presents the analysis methodology used to calculate future traffic volumes in the study area, signal warrant analysis results and future traffic operational analysis results for the study area intersections in the 2031 horizon year.

4.1 Traffic Volumes

A total of 27 intersections were studied in the future scenario including 18 existing intersections and 9 new intersections proposed within or at peripheral roads of the Vision Georgetown development.

Similar to the existing conditions analysis, the future analysis was conducted using Synchro software adhering to the HCM 2000 methodology. The future conditions Synchro model was developed by updating the existing conditions Synchro network model and applying the planned future road network improvements as discussed in Section 4.1.2.2 “Improvements in the Study Area”. **Figure 15** illustrates intersection locations along with lane configuration and type of control in year 2031.

To calculate the traffic demand for the studied intersections in the future scenario, it was assumed that the future traffic volumes will be a combination of the projected existing traffic volumes due to regional traffic growth (background traffic) and the additional traffic generated by Vision Georgetown development (site generated traffic). The methodology used to calculate each part is further described below:

- To account for background growth, annual traffic growth rates were calculated by comparing existing and future traffic volumes using the EMME model. For this purpose, 2016 PM peak hour traffic volumes and future do-nothing traffic volumes (2031 PM peak hour – without Vision Georgetown development) were utilized. The growth rates were calculated for north – south and east – west corridors separately, and are summarized in **Table 7**. These growth rates were applied to both existing AM and PM peak hour volumes to calculate the future background traffic volumes. The calculation details can be found in **Appendix G**.
- The site generated traffic for the Vision Georgetown development was calculated utilizing the select link analysis tool in EMME. The select link analysis was conducted for the future scenario (2031 PM peak hour - with development) to forecast traffic volumes originated or destined to the Vision Georgetown development area for the PM peak hour. Since the EMME model is only available for the PM peak hour, it was assumed that site generated traffic in the AM peak hour will be the transpose of site generated traffic in the PM peak hour. The volume plot of the select link analysis for 2031 PM peak hour is provided in **Appendix G**.

Table 7: Annual Growth Rates

Direction	Growth Rate
North & South	2.0%
East & West	0.5%

The future background traffic volumes are summarized in **Figure 16**, by applying the annual traffic growth rate to the existing traffic volumes. The future background scenario (Section 4.3.1) will be analyzed based on these volumes.

The future total traffic volumes were calculated by combining the future background traffic volumes (Figure 16) and the site generated traffic from/to the Vision Georgetown development as shown in **Figure 17**. The future total volume scenarios (Section 4.3.2 and 4.3.4) will be analyzed based on the future total traffic volumes.

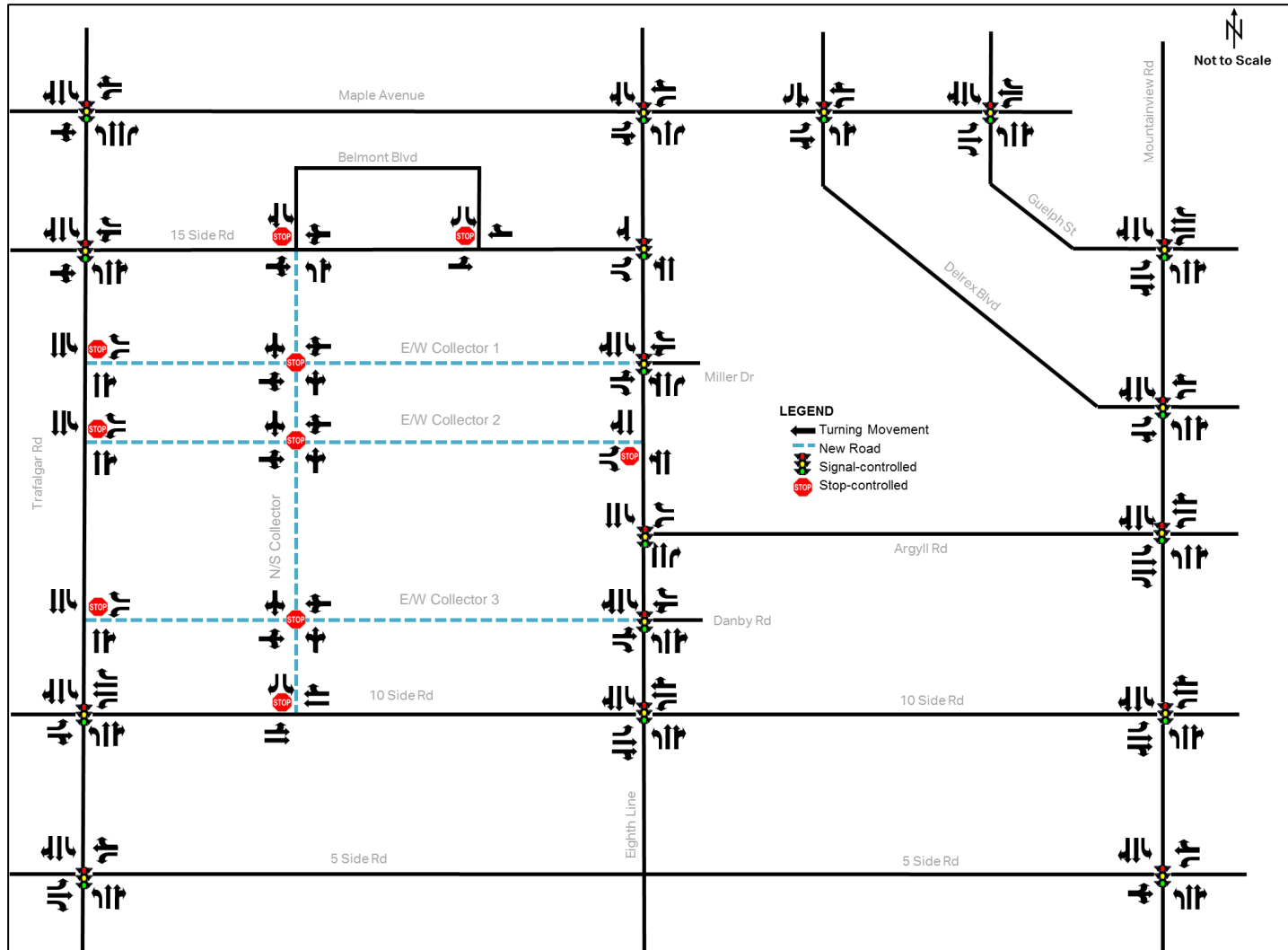


Figure 15: Lane Configuration and Control Type – Year 2031

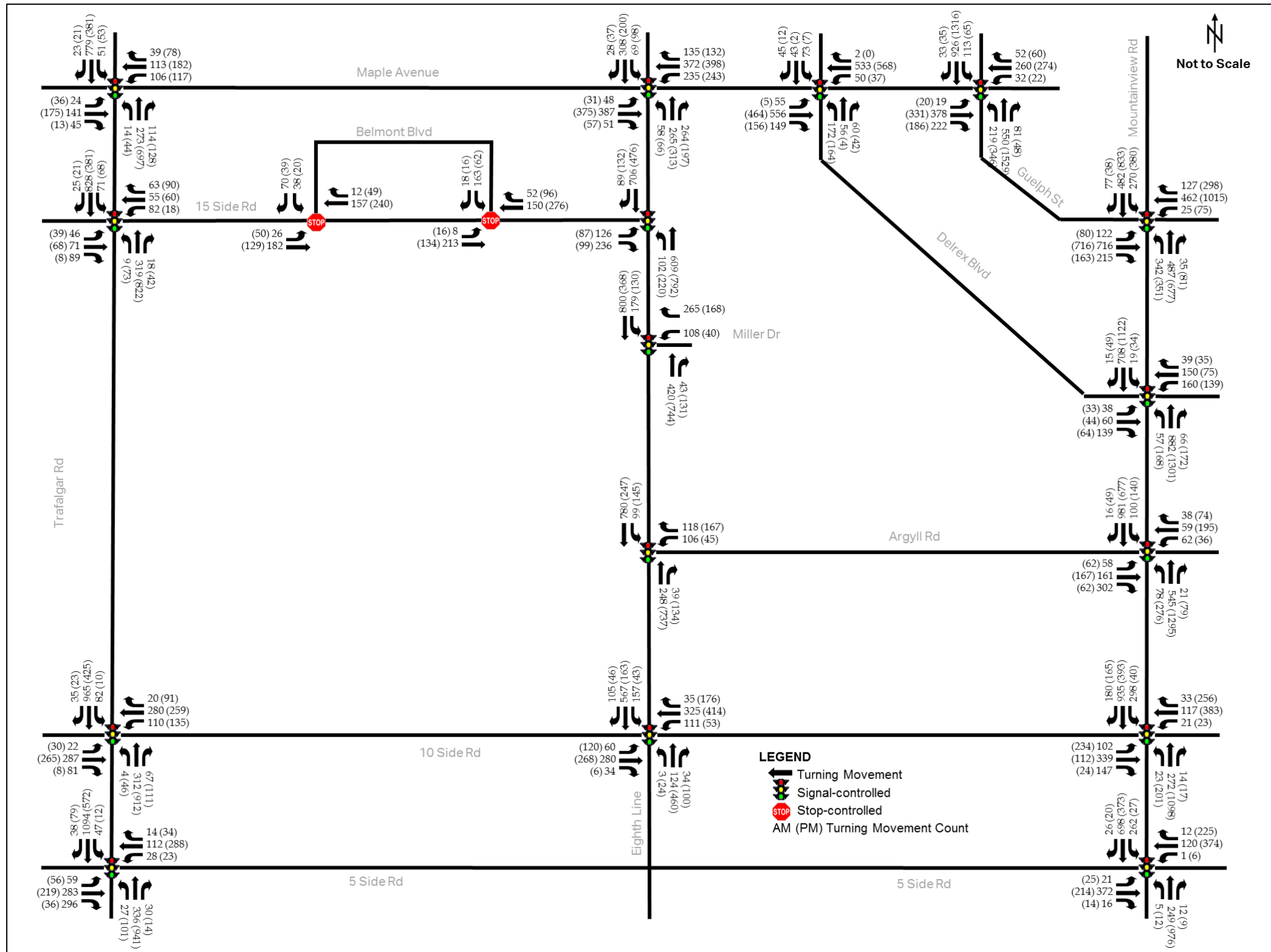


Figure 16: Future Background Traffic Volumes – Year 2031

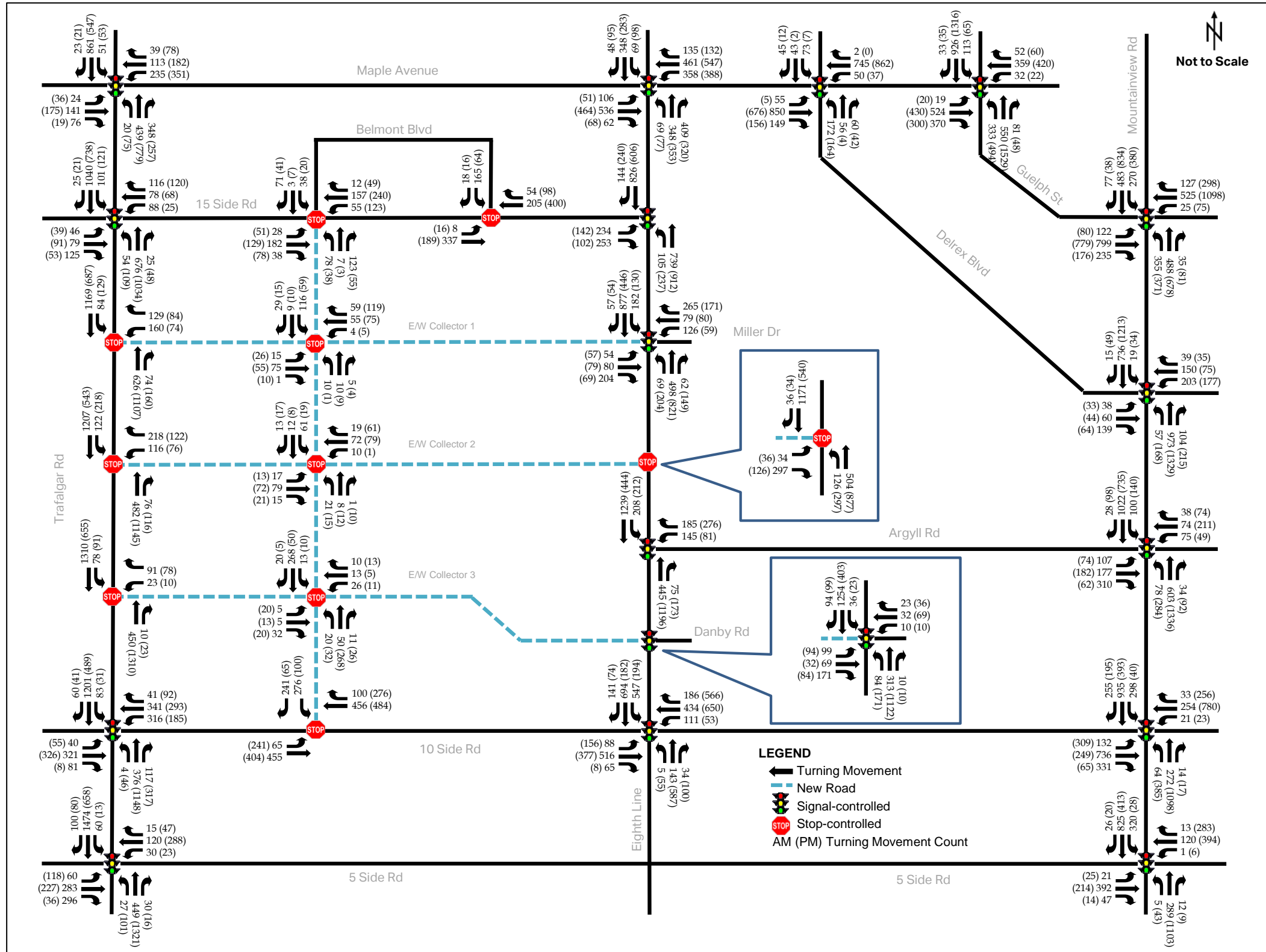


Figure 17: Future Total Traffic Volumes – Year 2031

4.2 Future Traffic Operations

4.2.1 Future Scenario without Vision Georgetown Development

This section summarizes the results of future background traffic operations without the Vision Georgetown Development. The lane configuration and signal phasing in this scenario are the same as existing conditions, and the signal timings were optimized to better fit the future volumes.

The intersection capacity analysis results, including delay, LOS, and V/C ratio are summarized in **Table 8** with critical intersections and movements highlighted. As described in Section 2.5.3, critical movements are identified based on Halton Region Transportation Impact Study Guidelines.

Figure 18 and **Figure 19** summarize future background traffic conditions during the AM and PM peak hours, respectively. The Synchro reports are provided in **Appendix I**.

Table 8: Intersection Capacity Analysis – 2031 Future without Vision Georgetown Development

Intersection (signalized unless noted)	Approach/ Movement		AM Peak Hour			PM Peak Hour		
			Delay (Sec)	LOS	v/c	Delay (Sec)	LOS	v/c
Trafalgar Rd & 17 Side Rd/ Maple Ave	EB	EBT	36.0	D	0.70	35.4	D	0.71
		WB	20.3	C	0.39	18.1	B	0.33
	NB	WBT	19.2	B	0.26	18.4	B	0.39
		NBL	9.5	A	0.10	6.7	A	0.12
		NBT	8.6	A	0.19	10.5	B	0.46
	SB	NBR	7.4	A	0.08	5.3	A	0.09
		SBL	11.0	B	0.13	14.4	B	0.22
		SBT	14.5	B	0.53	13.3	B	0.28
	Overall		16.3	B	0.56	15.2	B	0.53
Trafalgar Rd & 15 Side Rd	EB	EBT	37.0	D	0.69	39.4	D	0.63
		WB	44.9	D	0.75	33.6	C	0.41
	NB	WBR	26.5	C	0.05	31.0	C	0.06
		NBL	5.3	A	0.03	2.9	A	0.12
		NBT	5.9	A	0.18	4.5	A	0.39
	SB	SBL	1.8	A	0.14	2.6	A	0.20
		SBT	3.6	A	0.44	1.4	A	0.17
	Overall		12.4	B	0.51	8.8	A	0.42
Trafalgar Rd & 10 Side Rd	EB	EBL	32.5	C	0.14	23.7	C	0.16
		EBT	47.2	D	0.78	29.7	C	0.65
	WB	WBL	196.5	F	1.23	63.2	E	0.88
		WBT	31.0	C	0.61	26.3	C	0.57
		WBR	5.4	A	0.02	22.3	C	0.11
	NB	NBL	6.6	A	0.02	2.5	A	0.10
		NBT	7.1	A	0.24	3.5	A	0.53
	SB	SBL	11.2	B	0.19	7.2	A	0.04
SBT		14.4	B	0.52	8.5	A	0.26	
	Overall		29.6	C	0.74	14.9	B	0.63
Eighth Line & 10 Side Rd	EB	EBL	28.4	C	0.28	16.3	B	0.42
		EBT	26.3	C	0.33	10.1	B	0.18
	WB	WBL	36.8	D	0.43	12.1	B	0.12
		WBT	32.7	C	0.37	14.0	B	0.37
	NB	NBL	10.5	B	0.01	16.3	B	0.06
NBT		11.0	B	0.09	20.1	C	0.47	

Intersection (signalized unless noted)	Approach/ Movement		AM Peak Hour			PM Peak Hour		
			Delay (Sec)	LOS	v/c	Delay (Sec)	LOS	v/c
	SB	SBL	9.9	A	0.25	16.8	B	0.21
		SBT	10.8	B	0.35	14.8	B	0.16
	Overall		20.0	C	0.38	15.6	B	0.44
Mountainview Rd S/ Ninth Line & 10 Side Rd	EB	EBL	27.9	C	0.43	89.7	F	0.99
		EBT	29.0	C	0.59	27.1	C	0.11
	WB	WBL	27.0	C	0.24	39.7	D	0.09
		WBT	25.1	C	0.18	55.0	E	0.83
	NB	NBL	4.2	A	0.13	27.5	C	0.60
		NBT	2.9	A	0.17	22.2	C	0.62
	SB	SBL	6.4	A	0.51	22.2	C	0.31
		SBT	5.2	A	0.58	17.3	B	0.33
	Overall		11.8	B	0.58	34.3	C	0.79
Trafalgar Rd & 5 Side Rd	EB	EBL	40.1	D	0.28	25.7	C	0.36
		EBT	54.9	D	0.78	25.3	C	0.48
		EBR	43.8	D	0.52	20.9	C	0.03
	WB	WBL	42.4	D	0.30	7.2	A	0.09
		WBT	40.6	D	0.35	13.8	B	0.68
	NB	NBL	21.6	C	0.18	12.2	B	0.25
		NBT	12.2	B	0.25	15.9	B	0.59
	SB	SBL	4.4	A	0.10	31.6	C	0.08
		SBT	13.2	B	0.64	23.5	C	0.54
Overall		24.0	C	0.65	18.8	B	0.63	
Ninth Line & 5 Side Rd	EB	EBL	17.5	B	0.06	7.3	A	0.16
		EBT	27.8	C	0.68	5.6	A	0.29
	WB	WBL	0.0	A	0.00	11.7	B	0.01
		WBT	19.1	B	0.22	24.3	C	0.76
	NB	NBL	10.6	B	0.04	15.5	B	0.04
		NBT	11.2	B	0.18	26.0	C	0.78
	SB	SBL	10.3	B	0.54	25.8	C	0.32
		SBT	7.8	A	0.48	17.8	B	0.33
	Overall		14.0	B	0.60	21.7	C	0.77
Mountainview Rd S & Guelph St	EB	EBL	10.8	B	0.37	38.4	D	0.72
		EBT	23.6	C	0.85	22.4	C	0.79
	WB	WBL	51.5	D	0.34	45.3	D	0.69
		WBT	36.6	D	0.53	55.2	E	0.94
		WBR	30.4	C	0.11	32.6	C	0.38
	NB	NBL	45.7	D	0.90	78.5	E	0.98
		NBT	39.8	D	0.61	76.7	E	0.99
	SB	SBL	36.8	D	0.77	95.3	F	1.04
		SBT	48.5	D	0.75	70.7	E	0.97
Overall		35.2	D	0.90	58.5	E	1.01	
Mountainview Rd S & Argyll Rd	EB	EBL	28.4	C	0.29	38.4	D	0.46
		EBT	27.6	C	0.26	35.0	C	0.34
		EBR	31.7	C	0.56	32.7	C	0.04
	WB	WBL	28.6	C	0.30	34.4	C	0.23
		WBT	26.6	C	0.12	35.8	D	0.48
	NB	NBL	11.3	B	0.37	16.5	B	0.57
		NBT	11.2	B	0.36	18.0	B	0.74
	SB	SBL	8.2	A	0.24	13.2	B	0.59
		SBT	12.1	B	0.62	12.9	B	0.47
Overall		16.6	B	0.60	19.9	B	0.67	
Main Street S &	EB	EBL	58.3	E	0.69	38.4	D	0.50

Intersection (signalized unless noted)	Approach/ Movement		AM Peak Hour			PM Peak Hour		
			Delay (Sec)	LOS	v/c	Delay (Sec)	LOS	v/c
15 Side Road	EBR	EBL	48.0	D	0.17	35.9	D	0.07
		NBL	8.6	A	0.34	10.4	B	0.41
	NB	NBT	2.5	A	0.25	4.0	A	0.31
		SBT	11.6	B	0.73	14.4	B	0.60
	Overall		16.0	B	0.69	11.8	B	0.57
Main Street S & Maple Ave	EB	EBL	18.7	B	0.14	19.7	B	0.09
		EBT	26.3	C	0.59	29.0	C	0.60
	WB	WBL	13.1	B	0.53	16.2	B	0.57
		WBT	14.7	B	0.52	16.8	B	0.54
	NB	NBL	50.1	D	0.49	44.9	D	0.33
		NBT	62.1	E	0.80	72.6	E	0.90
		NBR	97.8	F	0.20	42.5	D	0.15
	SB	SBL	35.8	D	0.44	51.4	D	0.71
		SBT	44.7	D	0.73	39.1	D	0.50
	Overall		38.8	D	0.66	34.6	C	0.68
Guelph St & Maple Ave	EB	EBL	22.2	C	0.11	42.5	D	0.21
		EBT	37.3	D	0.81	67.2	E	0.87
		EBR	23.9	C	0.41	43.9	D	0.37
	WB	WBL	36.1	D	0.34	45.4	D	0.31
		WBT	37.6	D	0.56	54.2	D	0.74
		WBR	30.7	C	0.04	39.8	D	0.04
	NB	NBL	38.8	D	0.75	78.0	E	0.91
		NBT	10.7	B	0.42	14.7	B	0.84
	SB	SBL	17.6	B	0.32	32.5	C	0.62
		SBT	34.8	C	0.78	55.3	E	0.98
Overall		28.7	C	0.79	41.6	D	0.94	
Delrex Blvd/ School Driveway & Maple Ave	EB	EBL	4.7	A	0.16	6.5	A	0.01
		EBT	14.5	B	0.71	12.1	B	0.58
	WB	WBL	12.8	B	0.21	7.5	A	0.12
		WBT	18.0	B	0.53	10.7	B	0.50
	NB	NBL	57.3	E	0.71	38.6	D	0.61
		NBT	49.1	D	0.48	31.6	C	0.05
	SB	SBT	77.3	E	0.80	44.2	D	0.18
		SBR	49.4	D	0.03	42.6	D	0.02
Overall		26.5	C	0.72	15.7	B	0.57	
Mountainview Rd S & Delrex Blvd	EB	EBL	24.5	C	0.20	31.6	C	0.18
		EBT	24.8	C	0.26	31.7	C	0.21
	WB	WBL	51.4	D	0.83	47.3	D	0.74
		WBT	26.6	C	0.47	32.6	C	0.32
	NB	NBL	4.4	A	0.16	19.6	B	0.57
		NBT	5.0	A	0.48	1.6	A	0.60
	SB	SBL	6.1	A	0.09	12.1	B	0.22
		SBT	7.0	A	0.35	14.2	B	0.64
Overall		12.7	B	0.58	11.9	B	0.67	
15 Side Rd & Belmont Blvd West (Unsignalized)	EB	EBT	1.2	A	0.02	2.7	A	0.05
		NBL	0.0	A	0.00	0.0	A	0.00
	NB	NBT	0.0	A	0.00	0.0	A	0.00
		SBL	13.2	B	0.09	13.8	B	0.05
SB	SBT	9.8	A	0.10	10.2	B	0.06	
	15 Side Road & Belmont Blvd East	EB	EBT	0.4	A	0.01	1.0	A
SB		SBL	14.5	B	0.31	13.8	B	0.15

Intersection (signalized unless noted)	Approach/ Movement		AM Peak Hour			PM Peak Hour		
			Delay (Sec)	LOS	v/c	Delay (Sec)	LOS	v/c
(Unsignalized)		SBR	9.4	A	0.02	10.9	B	0.03
Eighth Line/Main Street S & Miller Dr (Unsignalized)	WB	WBLR	243.3	F	1.43	34.2	D	0.68
	SB	SBL	9.4	A	0.20	11.1	B	0.20
Eighth Line & Argyll Rd (Unsignalized)	WB	WBL	22.1	C	0.52	21.2	C	0.39
	SB	SBL	8.3	A	0.09	11.2	B	0.22

The analysis results illustrate that following intersections are operating with V/C ratios less than 0.85 and at overall LOS D or better with no critical movements in both the AM and PM peak hours. For these intersections, no capacity issues were identified for future background conditions:

- Trafalgar Road and 17 Side Road/Maple Avenue
- Trafalgar Road and 15 Side Road
- 10 Side Road and Eighth Line
- 5 Side Road and Trafalgar Road
- 5 Side Road and Ninth Line
- Mountainview Road South and Argyll Road
- 15 Side Road and Main Street South
- Maple Avenue and Delrex Boulevard
- Mountainview Road South and Delrex Boulevard
- 15 Side Road and Belmont Boulevard West
- 15 Side Road and Belmont Boulevard East
- Eighth Line and Argyll Road

The intersection of Trafalgar Road and 10 Side Road is predicted to operate with acceptable conditions, and the only critical movement is predicted to be the westbound left with LOS F and a V/C of 1.23 during the AM peak hour.

The intersection of Mountainview Road South and 10 Side Road is predicted to operate with acceptable conditions, and the only critical movement is predicted to be the eastbound left with LOS F and a V/C of 0.99 during the PM peak hour.

The intersection of Mountainview Road South and Guelph Street is predicted to operate with LOS D and a V/C of 0.90 in the AM peak hour and LOS E and a V/C of 1.01 in the PM peak hour. The critical movements are as follows:

- Eastbound through movement (LOS C and V/C of 0.85) during the AM peak hour
- Westbound through movement (LOS E and V/C of 0.94), northbound left turn movement (LOS E and V/C of 0.98), northbound through movement (LOS E and V/C of 0.99), southbound left turn movement (LOS F and V/C of 1.04), and southbound through movement (LOS E and V/C of 0.97) during the PM peak hour

The intersection of Main Street South and Maple Avenue is predicted to operate with acceptable conditions, and the only critical movement is predicted to be the northbound through with LOS E and a V/C of 0.90 during the PM peak hour.

The intersection of Guelph Street and Maple Avenue is predicted to operate with LOS D and a V/C ratio of 0.94 in the PM peak hour. The critical movements are as follows:

- Eastbound through movement (LOS E and V/C of 0.87) and southbound through movement (LOS E and V/C of 0.98) during the PM peak hour

At the intersection of Eighth Line and Miller Drive, the westbound left turn is predicted to operate at LOS F and a V/C of 1.43.

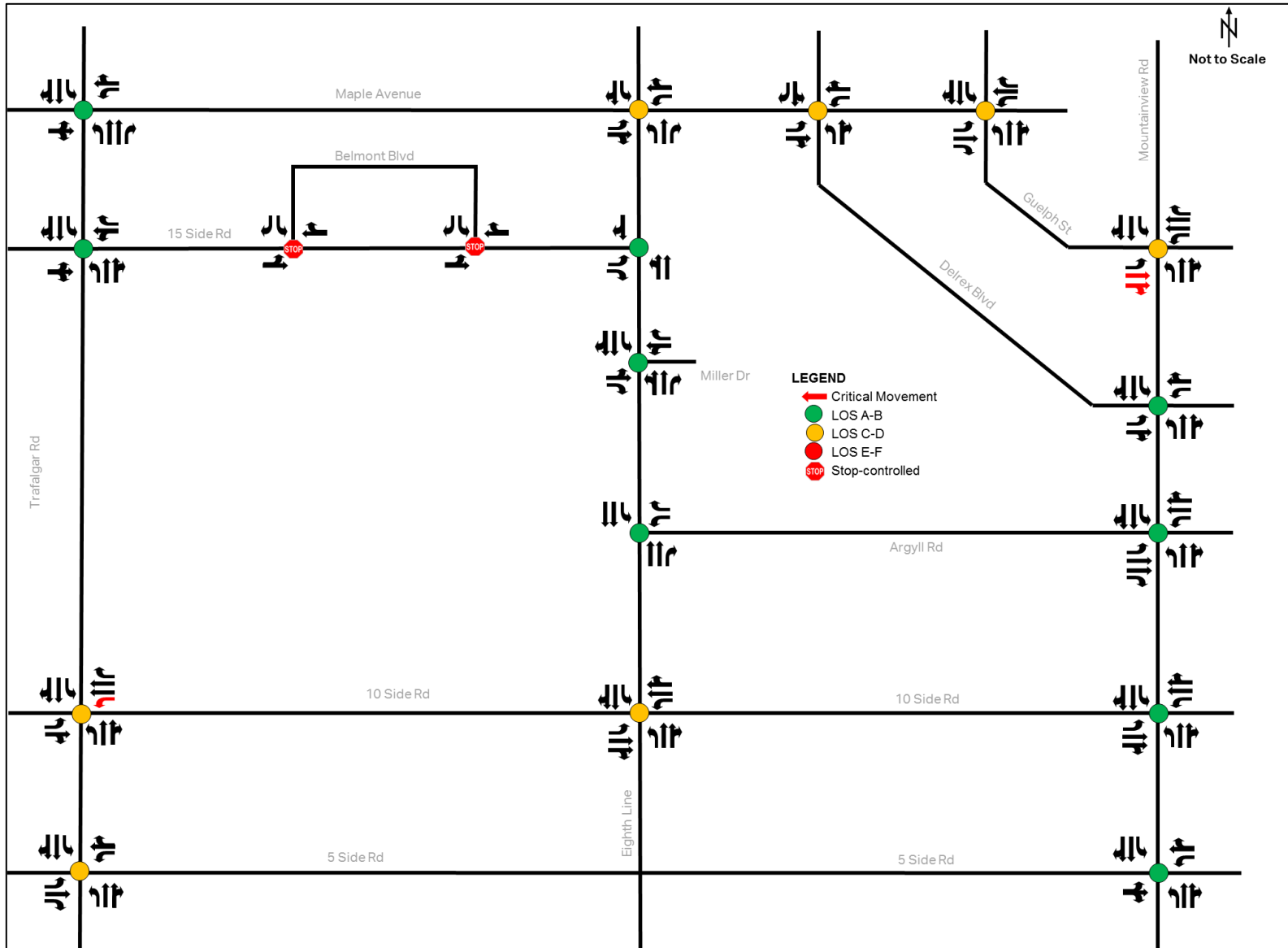


Figure 18: Traffic Operations – Future Background Conditions – 2031 AM Peak Hour

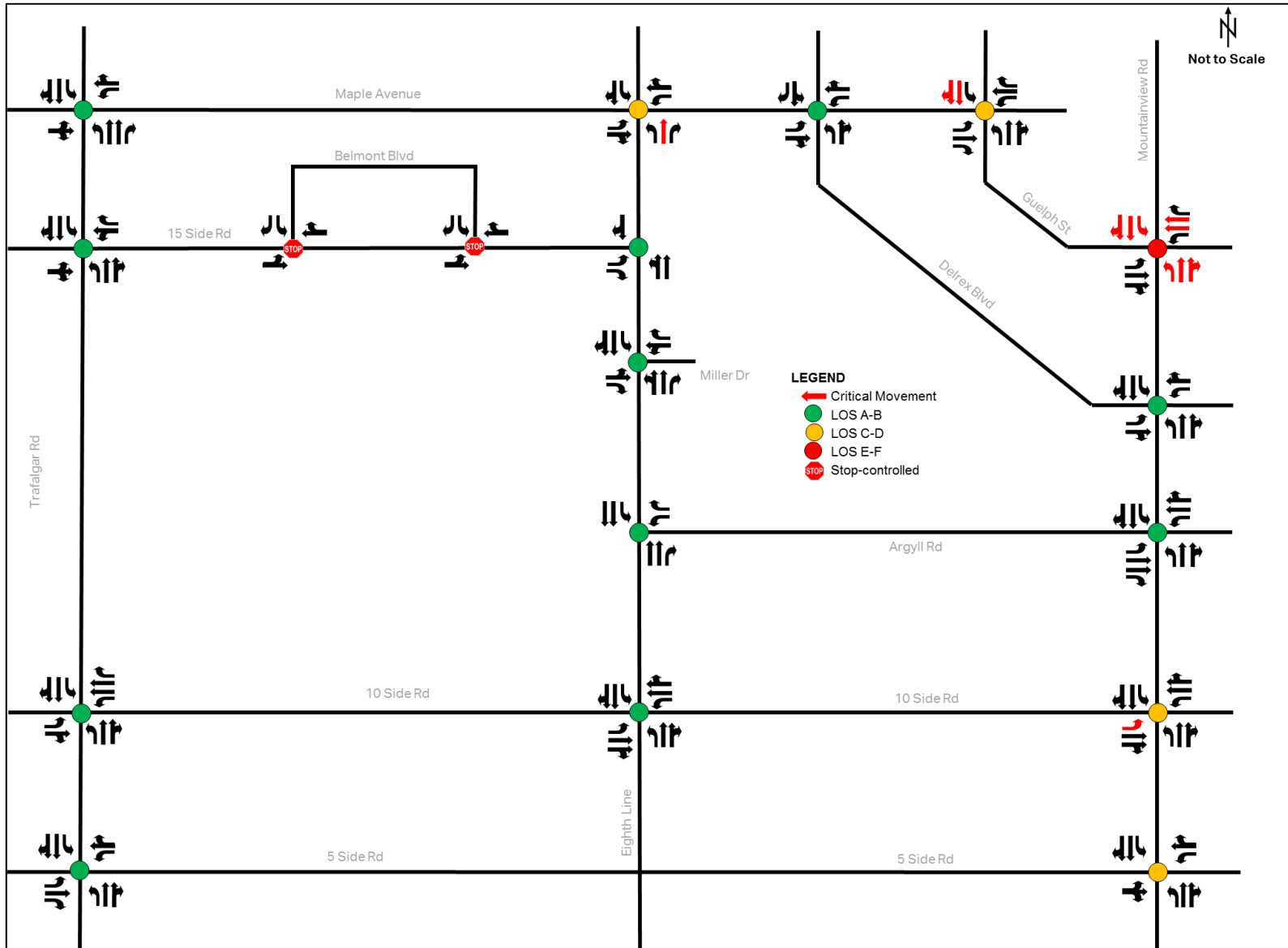


Figure 19: Traffic Operations – Future Background Conditions – 2031 PM Peak Hour

4.2.2 Traffic Signal Warrant Analysis

Traffic signal assessment analysis was conducted to determine if a signal control is required in year 2031 at the existing unsignalized intersections and also new intersections connecting to the Vision Georgetown development area. The list of unsignalized intersections where traffic signal warrant analysis was conducted is as follows:

- 15 Side Rd and Belmont Blvd W
- 15 Side Rd and Belmont Blvd E
- Eighth Line and Miller Dr
- Eighth Line and Argyll Rd
- Eighth Line and New Access
- Eighth Line and Danby Rd / New Access
- 10 Side Rd and New Access
- Trafalgar Rd and development new access (located at north west of development)
- Trafalgar Rd and development new access (located at west of development)
- Trafalgar Rd and development new access (located at south west of development)

Given the availability of future peak hour volumes, the methodology proposed in “Justification 7 - Projected Volumes” from Ontario Traffic Manual (OTM) Book 12 along with professional traffic operational judgement were utilized in this assessment. There are two basic scenarios being studied as part of Justification 7:

- An existing intersection with future traffic demand due to new developments; and
- A development which will require, or be associated with, the construction of one or more new approaches at an existing intersection or a completely new intersection or roadway.

As defined in the OTM Book 12, ‘Main Street’ is the road that carries the greater hourly vehicular traffic volume over the period of study, and ‘Average Hourly Volume’ (AHV) for a typical day is calculated by dividing the PM peak hour traffic volume by 2. Also, the volume expansion adjustments for future development were applied as described in OTM Book 12.

As a result, none of the studied intersections were proved to satisfy the traffic signal justification. The details of signal warrant assessment results can be found in **Appendix H**.

In addition to the OTM methodology, a preliminary traffic operational analysis was conducted for unsignalized intersections along 15 Side Road, 10 Side Road, Eighth Line, and Trafalgar Road that provide access to the subject site. Other new intersections on Trafalgar Road, 10 Side Line and Eighth Line are assumed to be two-way unsignalized intersections in the future. While level of service and capacity issues are predicted for most of the site access intersections under unsignalized operations, the V/C ratio for access intersections along Eighth Line are predicted to be significantly high such that Synchro was unable to estimate a delay or LOS for some critical movements as shown in **Table 9**.

Table 9: 2031 Capacity Analysis – Eighth Line Access Intersections – Unsignalized Operations

Intersection	Approach/ Movement		AM Peak Hour			PM Peak Hour		
			Delay	LOS	V/C	Delay	LOS	V/C
Eighth Line/ Main Street S & Miller Dr (Unsignalized)	EB	EBL	Err*	F	Err*	Err*	F	Err*
		EBT	Err*	F	4.43	Err*	F	4.86
	WB	WBT	Err*	F	Err*	Err*	F	Err*
		WBR	Err*	F	4.05	Err*	F	4.16
	NB	NBT	4.0	A	0.11	5.9	A	0.23
SB	SBL	10.8	B	0.29	12.1	B	0.25	
Eighth Line & Argyll Rd (Unsignalized)	WB	WBL	Err*	F	4.28	Err*	F	7.71
	SB	SBL	11.0	B	0.32	23.3	C	0.59
Eighth Line & Danby Rd (Unsignalized)	EB	EBL	Err*	F	10.45	Err*	F	Err*
		EBT	629.6	F	2.21	169.9	F	1.06
	WB	WBL	Err*	F	Err*	1926.5	F	2.25
		WBT	175.9	F	0.88	741.2	F	2.24
	NB	NBT	7.3	A	0.20	4.2	A	0.18
	SB	SBT	0.9	A	0.03	1.7	A	0.04

*Due to low capacity for side street under unsignalized operations, Synchro is unable to calculate the V/C or delay for this movement.

Based on the results of traffic analysis shown in **Table 9**, traffic delays under unsignalized operation for stop-controlled approaches (side streets) along Eighth Line would be very high, and therefore, a signalized operation is recommended for the following intersections under future conditions:

- Eighth Line and Miller Drive
- Eighth Line and Argyll Road
- Eighth Line and Danby Road

4.2.3 Future Scenario with Vision Georgetown Development

This section summarizes the results of future traffic operations for a base scenario (planned road improvements) with the Vision Georgetown development in the study area. The scenario includes future planned improvements as well as new traffic signals at the site access intersections along Eighth Line. The intersection capacity analysis results for this scenario, including delay, LOS, and V/C ratio are summarized in **Table 10** with critical intersections and movements highlighted. As described in Section 2.5.3, critical movements are identified based on Halton Region Transportation Impact Study Guidelines.

Figure 20 and **Figure 21** summarize future traffic conditions during the AM and PM peak hours, respectively. The Synchro reports are provided in **Appendix I**.

The analysis results illustrate that the following intersections will operate with V/C ratios less than 0.85 and at overall LOS D or better with no critical movements in both AM and PM peak hours. For these intersections, no capacity issues were identified in the future base scenario:

- Trafalgar Road and Maple Avenue
- Trafalgar Road and 15 Side Road
- Mountainview Road South and Argyll Road
- Mountainview Road South and Delrex Boulevard
- 15 Side Road and Belmont Boulevard West
- 15 Side Road and Belmont Boulevard East
- Eighth Line and Argyll Road

- Eighth Line/Main Street and Miller Drive
- Eighth Line and Danby Road
- The three Vision Georgetown internal unsignalized intersections

At other intersections, capacity issues have been identified as presented in **Table 10** below and described in more detail following the table.

Table 10: Intersection Capacity Analysis – 2031 Future with Vision Georgetown Development

Intersection (signalized unless noted)	Approach/ Movement		AM Peak Hour			PM Peak Hour		
			Delay (Sec)	LOS	v/c	Delay (Sec)	LOS	v/c
Trafalgar Rd & 17 Side Rd/ Maple Ave	EB	EBT	37.7	D	0.74	36.1	D	0.72
	WB	WBL	30.7	C	0.77	27.5	C	0.81
		WBT	17.0	B	0.24	15.6	B	0.35
	NB	NBL	10.8	B	0.20	9.9	A	0.30
		NBT	8.3	A	0.33	11.2	B	0.57
		NBR	11.1	B	0.26	7.0	A	0.19
	SB	SBL	13.5	B	0.17	19.6	B	0.31
		SBT	18.0	B	0.63	17.4	B	0.44
Overall		18.2	B	0.73	17.2	B	0.72	
Trafalgar Rd & 15 Side Rd	EB	EBT	37.8	D	0.74	35.6	D	0.64
	WB	WBT	48.8	D	0.81	30.0	C	0.38
		WBR	24.8	C	0.09	29.5	C	0.32
	NB	NBL	11.4	B	0.31	4.9	A	0.29
		NBT	8.5	A	0.40	5.9	A	0.52
	SB	SBL	5.8	A	0.32	12.8	B	0.56
		SBT	7.0	A	0.58	3.4	A	0.35
Overall		14.3	B	0.64	9.8	A	0.58	
Trafalgar Rd & 10 Side Rd	EB	EBL	15.0	B	0.11	19.9	B	0.23
		EBT	19.0	B	0.48	24.2	C	0.61
	WB	WBL	85.7	F	1.05	82.5	F	0.98
		WBT	11.5	B	0.41	22.2	C	0.50
		WBR	3.1	A	0.04	18.9	B	0.13
	NB	NBL	17.4	B	0.08	3.6	A	0.14
		NBT	21.3	C	0.50	12.9	B	0.89
	SB	SBL	33.6	C	0.42	21.6	C	0.36
SBT		83.9	F	1.07	11.8	B	0.36	
Overall		52.8	D	1.06	19.6	B	0.92	
Eighth Line & 10 Side Rd	EB	EBL	67.6	E	0.78	344.3	F	1.64
		EBT	31.8	C	0.61	12.2	B	0.27
	WB	WBL	72.3	E	0.81	11.6	B	0.14
		WBT	38.0	D	0.63	23.8	C	0.86
	NB	NBL	10.7	B	0.02	15.6	B	0.16
NBT		11.1	B	0.10	19.5	B	0.58	

Intersection (signalized unless noted)	Approach/ Movement		AM Peak Hour			PM Peak Hour		
			Delay (Sec)	LOS	v/c	Delay (Sec)	LOS	v/c
	SB	SBL	29.6	C	0.90	158.7	F	1.22
		SBT	11.5	B	0.44	15.2	B	0.19
	Overall		28.5	C	0.86	45.7	D	1.44
Mountainview Rd S/ Ninth Line & 10 Side Rd	EB	EBL	21.9	C	0.43	203.2	F	1.31
		EBT	41.0	D	0.94	27.6	C	0.26
	WB	WBL	25.5	C	0.38	38.4	D	0.11
		WBT	19.6	B	0.27	178.0	F	1.27
	NB	NBL	44.1	D	0.71	173.3	F	1.27
		NBT	4.0	A	0.20	23.8	C	0.64
	SB	SBL	11.6	B	0.62	24.6	C	0.34
		SBT	10.7	B	0.75	18.7	B	0.35
Overall		21.4	C	0.82	94.1	F	1.32	
Trafalgar Rd & 5 Side Rd	EB	EBL	40.4	D	0.29	48.2	D	0.77
		EBT	54.9	D	0.78	25.0	C	0.48
		EBR	46.1	D	0.60	20.6	C	0.03
	WB	WBL	42.8	D	0.32	9.5	A	0.09
		WBT	41.0	D	0.37	15.9	B	0.69
	NB	NBL	41.7	D	0.33	15.0	B	0.29
		NBT	13.1	B	0.33	22.8	C	0.84
	SB	SBL	4.5	A	0.14	42.5	D	0.12
		SBT	9.4	A	0.89	24.5	C	0.65
	Overall		20.4	C	0.84	23.3	C	0.81
Ninth Line & 5 Side Rd	EB	EBL	17.5	B	0.06	10.5	B	0.24
		EBT	31.8	C	0.77	5.5	A	0.29
	WB	WBL	17.0	B	0.01	11.7	B	0.01
		WBT	19.1	B	0.22	32.2	C	0.88
	NB	NBL	10.9	B	0.05	16.9	B	0.15
		NBT	11.4	B	0.20	31.3	C	0.88
	SB	SBL	13.4	B	0.69	26.3	C	0.33
		SBT	8.6	A	0.56	18.2	B	0.36
Overall		15.5	B	0.72	26.3	C	0.88	
Mountainview Rd S & Guelph St	EB	EBL	13.5	B	0.44	47.0	D	0.72
		EBT	24.3	C	0.91	26.4	C	0.86
	WB	WBL	29.5	C	0.33	42.1	D	0.69
		WBT	35.4	D	0.56	72.8	E	1.02
		WBR	28.5	C	0.11	32.9	C	0.40
	NB	NBL	61.7	E	0.95	94.8	F	1.03
		NBT	42.6	D	0.66	77.0	E	0.99
	SB	SBL	41.3	D	0.80	95.3	F	1.04
SBT		55.6	E	0.83	71.0	E	0.97	
Overall		38.3	D	0.95	64.1	E	1.04	

Intersection (signalized unless noted)	Approach/ Movement		AM Peak Hour			PM Peak Hour		
			Delay (Sec)	LOS	v/c	Delay (Sec)	LOS	v/c
Mountainview Rd S & Argyll Rd	EB	EBL	30.4	C	0.51	38.9	D	0.54
		EBT	26.9	C	0.27	33.8	C	0.34
		EBR	31.1	C	0.57	31.8	C	0.04
	WB	WBL	28.3	C	0.35	34.3	C	0.29
		WBT	26.0	C	0.13	35.2	D	0.49
	NB	NBL	12.5	B	0.43	17.9	B	0.61
		NBT	12.4	B	0.42	18.8	B	0.77
	SB	SBL	9.1	A	0.26	15.6	B	0.64
		SBT	13.9	B	0.67	14.3	B	0.56
Overall		17.8	B	0.63	20.7	C	0.71	
Main Street S & 15 Side Road	EB	EBL	75.2	E	0.89	40.8	D	0.64
		EBR	43.5	D	0.21	33.7	C	0.07
	NB	NBL	39.0	D	0.64	34.3	C	0.75
		NBT	4.2	A	0.32	5.2	A	0.38
	SB	SBT	28.0	C	0.97	29.7	C	0.90
Overall		27.3	C	0.93	21.2	C	0.83	
Main Street S & Maple Ave	EB	EBL	32.6	C	0.42	31.1	C	0.23
		EBT	78.9	E	1.02	67.0	E	0.96
	WB	WBL	63.6	E	1.00	79.7	E	0.99
		WBT	16.0	B	0.63	21.9	C	0.71
	NB	NBL	67.2	E	0.72	68.0	E	0.73
		NBT	81.3	F	0.96	87.1	F	0.97
		NBR	93.7	F	0.37	42.9	D	0.27
	SB	SBL	36.9	D	0.52	51.6	D	0.72
		SBT	47.5	D	0.81	51.5	D	0.81
Overall		59.8	E	1.02	54.7	D	1.01	
Guelph St & Maple Ave	EB	EBL	16.5	B	0.14	49.8	D	0.42
		EBT	44.2	D	0.99	125.2	F	1.10
		EBR	20.4	C	0.72	53.4	D	0.72
	WB	WBL	57.0	E	0.63	49.5	D	0.42
		WBT	38.1	D	0.68	125.8	F	1.11
		WBR	27.4	C	0.04	39.3	D	0.04
	NB	NBL	85.8	F	1.00	140.6	F	1.15
		NBT	19.6	B	0.46	15.4	B	0.85
	SB	SBL	24.2	C	0.37	34.6	C	0.63
SBT		66.2	E	0.99	83.0	F	1.07	
Overall		45.7	D	1.02	70.5	E	1.17	
Delrex Blvd/ School Driveway & Maple Ave	EB	EBL	5.6	A	0.28	6.7	A	0.03
		EBT	32.5	C	1.00	17.4	B	0.77
	WB	WBL	98.3	F	0.93	9.8	A	0.21
		WBT	20.6	C	0.74	16.6	B	0.76

Intersection (signalized unless noted)	Approach/ Movement		AM Peak Hour			PM Peak Hour		
			Delay (Sec)	LOS	v/c	Delay (Sec)	LOS	v/c
	NB	NBL	57.3	E	0.71	38.6	D	0.61
		NBT	49.1	D	0.48	31.6	C	0.05
	SB	SBT	77.3	E	0.80	44.2	D	0.18
		SBR	49.4	D	0.03	42.6	D	0.02
	Overall		34.7	C	0.93	19.4	B	0.72
Mountainview Rd S & Delrex Blvd	EB	EBL	21.8	C	0.17	29.6	C	0.15
		EBT	22.4	C	0.26	29.8	C	0.19
	WB	WBL	49.0	D	0.85	51.9	D	0.81
		WBT	23.7	C	0.40	30.5	C	0.28
	NB	NBL	5.4	A	0.18	29.6	C	0.65
		NBT	6.5	A	0.59	2.6	A	0.65
	SB	SBL	8.3	A	0.13	15.4	B	0.28
		SBT	8.7	A	0.38	17.2	B	0.72
Overall		13.4	B	0.67	14.4	B	0.75	
15 Side Rd & Belmont Blvd West (Unsignalized)	EB	EBT	1.1	A	0.02	2.0	A	0.05
	WB	WBT	2.2	A	0.05	3.0	A	0.10
	NB	NBL	21.1	C	0.28	26.6	D	0.20
		NBT	10.8	B	0.19	10.1	B	0.08
	SB	SBL	22.6	C	0.17	24.6	C	0.11
SBT		10.0	B	0.11	12.1	B	0.10	
15 Side Road & Belmont Blvd East (Unsignalized)	EB	EBT	0.3	A	0.01	0.8	A	0.02
	SB	SBL	19.6	C	0.42	17.4	C	0.20
		SBR	9.7	A	0.03	12.1	B	0.03
Eighth Line/ Main Street S & Miller Dr	EB	EBL	22.3	C	0.47	47.2	D	0.66
		EBT	22.1	C	0.58	31.5	C	0.43
	WB	WBL	48.0	D	0.83	32.0	C	0.41
		WBT	20.2	C	0.44	36.4	D	0.63
	NB	NBT	8.9	A	0.40	6.3	A	0.57
		NBR	10.2	B	0.04	3.4	A	0.12
	SB	SBL	8.5	A	0.46	8.4	A	0.44
		SBT	7.2	A	0.47	3.6	A	0.21
Overall		13.5	B	0.57	12.3	B	0.59	
Eighth Line & Argyll Rd	WB	WBL	23.7	C	0.52	42.4	D	0.34
		WBR	20.9	C	0.13	68.9	E	0.85
	NB	NBT	3.8	A	0.21	5.1	A	0.45
		NBR	4.8	A	0.07	3.6	A	0.14
	SB	SBL	7.2	A	0.42	32.5	C	0.84
		SBT	7.3	A	0.57	3.7	A	0.18
Overall		8.7	A	0.56	16.3	B	0.84	

Intersection (signalized unless noted)	Approach/ Movement		AM Peak Hour			PM Peak Hour		
			Delay (Sec)	LOS	v/c	Delay (Sec)	LOS	v/c
Eighth Line & Danby Rd	EB	EBL	20.6	C	0.36	35.1	D	0.55
		EBT	24.8	C	0.64	30.5	C	0.20
	WB	WBL	17.4	B	0.05	29.6	C	0.06
		WBT	17.6	B	0.10	31.6	C	0.34
	NB	NBT	6.8	A	0.34	9.9	A	0.74
	SB	SBT	6.9	A	0.75	4.6	A	0.26
	Overall		9.8	A	0.72	11.9	B	0.71
Trafalgar Rd & E/W Collector 1 (Unsignalized)	WB	WBL	259.9	F	1.26	662.8	F	1.96
		WBR	12.5	B	0.23	17.1	C	0.23
	SB	SBL	9.8	A	0.11	15.1	C	0.28
Trafalgar Rd & E/W Collector 2 (Unsignalized)	WB	WBL	258.7	F	1.27	Err	F	3.44
		WBR	12.9	B	0.34	18.9	C	0.34
	SB	SBL	9.3	A	0.14	18.7	C	0.48
Trafalgar Rd & E/W Collector 3 (Unsignalized)	WB	WBL	40.8	E	0.20	120.2	F	0.26
		WBR	10.5	B	0.13	17.7	C	0.23
	SB	SBL	8.7	A	0.08	14.9	B	0.21
10 Side Rd & N/S Collector (Unsignalized)	EB	EBT	3.2	A	0.07	9.0	A	0.33
	SB	SBL	177.7	F	1.23	274.4	F	1.27
		SBR	13.3	B	0.38	12.0	B	0.12
Eighth Line & E/W Collector 2 (Unsignalized)	EB	EBL	139.9	F	0.63	177.5	F	0.74
		EBR	16.9	C	0.52	11.6	B	0.20
	NB	NBL	13.3	B	0.24	10.7	B	0.34
E/W Collector 1 & N/S Collector (Unsignalized)	EB	EBT	8.2	A	-	8.0	A	-
	WB	WBT	8.0	A	-	8.2	A	-
	NB	NBT	7.8	A	-	7.7	A	-
	SB	SBT	8.7	A	-	8.3	A	-
E/W Collector 2 & N/S Collector (Unsignalized)	EB	EBT	8.0	A	-	7.8	A	-
	WB	WBT	7.9	A	-	7.8	A	-
	NB	NBT	7.9	A	-	7.7	A	-
	SB	SBT	8.1	A	-	7.7	A	-
E/W Collector 3 & N/S Collector (Unsignalized)	EB	EBT	7.8	A	-	8.2	A	-
	WB	WBT	8.3	A	-	8.0	A	-
	NB	NBT	8.0	A	-	10.1	B	-
	SB	SBT	9.9	A	-	7.9	A	-

The intersection of Trafalgar Road and 10 Side Road is predicted to operate with LOS D and a V/C ratio of 1.06 in the AM peak hour and LOS of B and a V/C ratio of 0.92 in the PM peak hour. The critical movements are as follows:

- Westbound left turn movement (LOS F and V/C of 1.05) and southbound through movement (LOS F and V/C of 1.07) during the AM peak hour
- Westbound left turn movement (LOS F and V/C of 0.98) and northbound through movement (LOS B and V/C of 0.89) during the PM peak hour

The intersection of Eighth Line Road and 10 Side Road will operate with LOS C and a V/C ratio of 0.86 in the AM peak hour and LOS D and a V/C ratio of 1.44 in the PM peak hour. The critical movements are as follows:

- Eastbound left turn movement (LOS F and V/C of 1.64), westbound through movement (LOS C and V/C of 0.86), and southbound left turn movement (LOS F and V/C of 1.22) during the PM peak hour

The intersection of Mountainview Road and 10 Side Road is predicted to operate with LOS F and a V/C ratio of 1.32 in the PM peak hour. The following movements are predicted to be critical:

- Eastbound through movement (LOS D and V/C of 0.94) during the AM peak hour
- Eastbound left turn movement (LOS F and V/C of 1.31), westbound through movement (LOS F and V/C of 1.27), and northbound left turn movement (LOS F and V/C of 1.27) during the PM peak hour

The intersection of Trafalgar Road and 5 Side Road will operate with LOS C and a V/C ratio of 0.84 in the AM peak hour and LOS C and a V/C ratio of 0.81 in the PM peak hour. The only critical movement will be the southbound through movement with LOS A and a V/C of 0.89 during the AM peak hour.

The intersection of Ninth Line Road and 5 Side Road is predicted to operate with LOS B and a V/C ratio of 0.72 in the AM peak hour and LOS of C and a V/C ratio of 0.88 in the PM peak hour. The following movements are predicted to be critical:

- Westbound through movement (LOS D and V/C of 0.88) and northbound through movement (LOS C and V/C of 0.88) during the PM peak hour

The intersection of Mountainview Road and Guelph Street will operate with an overall LOS D and a V/C ratio of 0.95 in the AM peak hour and LOS E and a V/C ratio of 1.04 in the PM peak hour. The following movements are predicted to be critical:

- Eastbound through movement (LOS C and V/C of 0.91) and northbound left turn movement (LOS E and V/C of 0.95) during the AM peak hour
- Eastbound through movement (LOS C and V/C of 0.86), westbound through movement (LOS E and V/C of 1.02), northbound left turn movement (LOS F and V/C of 1.03), northbound through movement (LOS E and V/C of 0.99), southbound left turn movement (LOS F and V/C of 1.04), and southbound through movement (LOS E and V/C of 0.97) during the PM peak hour

The intersection of Main Street and 15 Side Road is predicted to operate with LOS C and a V/C ratio of 0.93 in the AM peak hour and LOS C and a V/C ratio of 0.83 in the PM peak hour. The southbound through movement will be critical in both the AM and PM peak hours with LOS C in both peaks and V/C ratios of 0.97 and 0.90, respectively.

The intersection of Main Street and Maple Avenue will operate with LOS E and a V/C ratio of 1.02 in the AM peak hour and LOS D and a V/C ratio of 1.01 in the PM peak hour. The following movements are predicted to be critical:

- Eastbound through movement (LOS E and V/C of 1.02), westbound left turn movement (LOS E and V/C of 1.00) and northbound through movement (LOS F and V/C of 0.96) during the AM peak hour
- Eastbound through movement (LOS E and V/C of 0.96), westbound left turn movement (LOS E and V/C of 0.99) and northbound through movement (LOS F and V/C of 0.97) during the PM peak hour

The intersection of Guelph Street and Maple Avenue is predicted to operate with LOS D and a V/C ratio of 1.02 in the AM peak hour and LOS E and a V/C ratio of 1.17 in the PM peak hour. The following movements are predicted to be critical:

- Eastbound through movement (LOS D and V/C of 0.99), northbound left turn movement (LOS F and V/C of 1.00), and southbound through movement (LOS E and V/C of 0.99) during the AM peak hour
- Eastbound through movement (LOS F and V/C of 1.10), westbound through movement (LOS F and V/C of 1.11), northbound left turn movement (LOS F and V/C of 1.15), northbound through movement (LOS B and V/C of 0.85) and southbound through movement (LOS F and V/C of 1.07) during the PM peak hour

The intersection of Delrex Boulevard and Maple Avenue will operate with LOS C and a V/C ratio of 0.93 in the AM peak hour. The eastbound through movement is predicted to be the only critical movement with LOS C and a V/C of 1.00 during the AM peak hour.

The westbound left turn movements for all the Vision Georgetown new unsignalized access roads to Trafalgar Road will be critical with LOS E or worse.

The unsignalized intersection of 10 Side Road and the N/S Collector will have a critical southbound left turn movement with LOS F and a V/C of 1.23 in the AM peak hour and LOS F and a V/C of 1.27 in the PM peak hour.

The unsignalized intersection of Eighth Line and E/W Collector 2 is predicted to have an eastbound left turn movement with LOS F and V/C of 0.63 in the AM peak and LOS F and V/C of 0.74 in the PM peak hour.

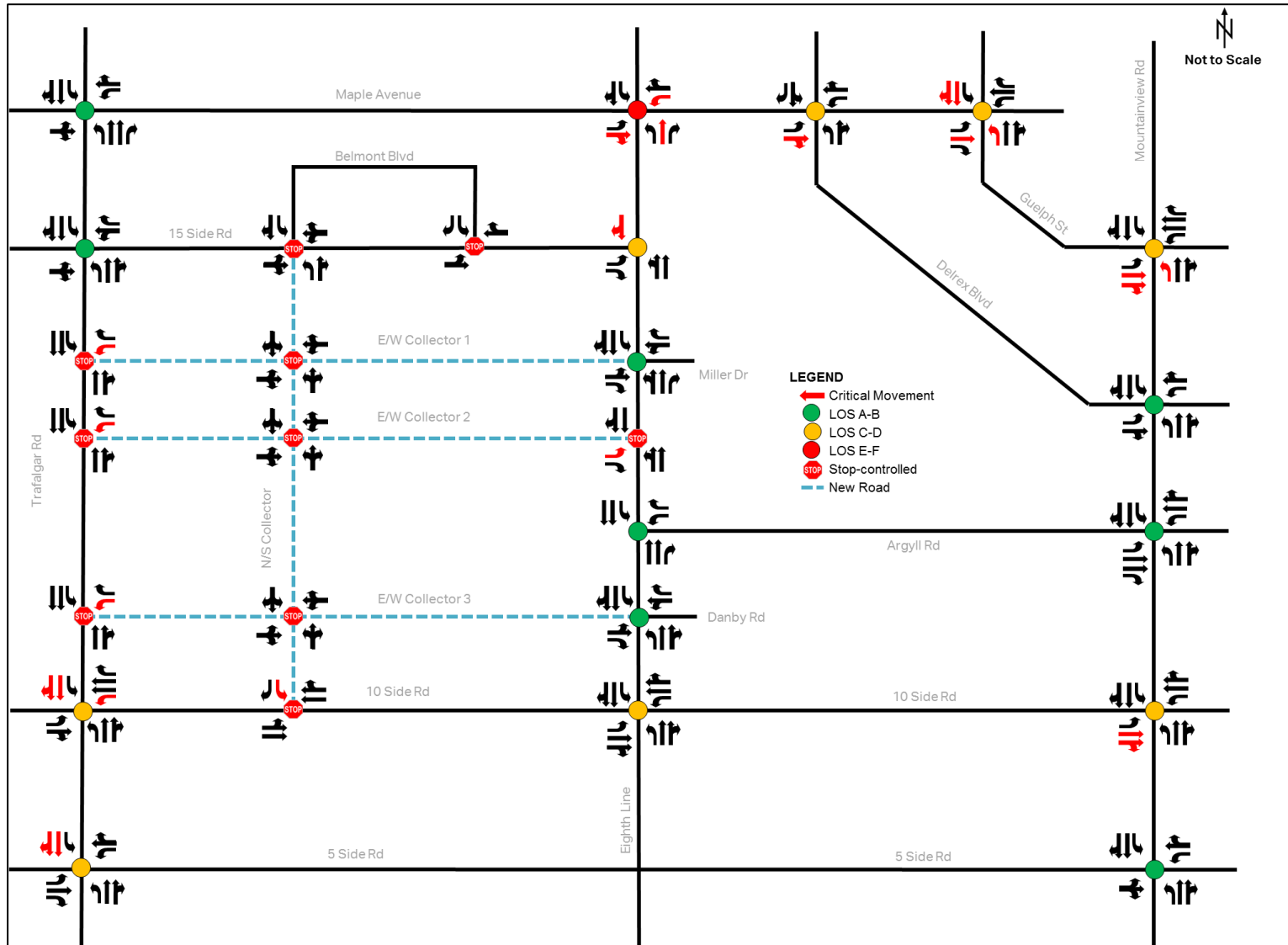


Figure 20: Traffic Operations – Future Conditions with Vision Georgetown Development – 2031 AM Peak Hour

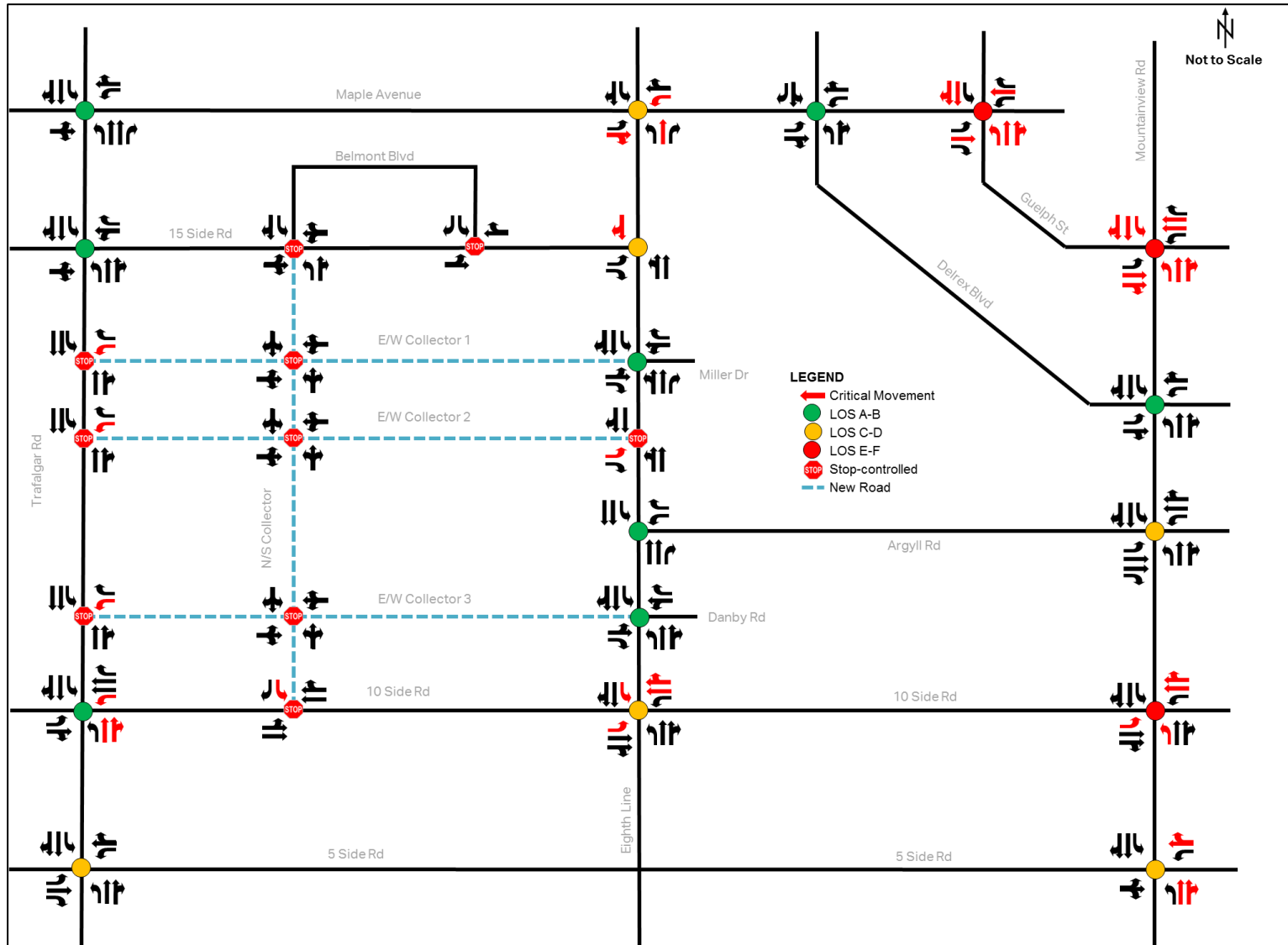


Figure 21: Traffic Operations – Future Conditions with Vision Georgetown Development – 2031 PM Peak Hour

4.2.4 Proposed Mitigation Measures

The results of the traffic operational assessment for the future 2031 base scenario with the Vision Georgetown development (Table 10) show that the following intersections are predicted to perform at, near, or over capacity, i.e. overall intersection LOS or V/C is identified to be critical based on Halton Region Traffic Impact Studies Guidelines:

- Trafalgar Road and 10 Side Road
- Eighth Line and 10 Side Road
- Mountainview Road/Ninth Line and 10 Side Road
- Ninth Line and 5 Side Road
- Mountainview Road and Guelph Street
- Main Street and 15 Side Road
- Main Street and Maple Avenue
- Guelph Street and Maple Avenue
- Maple Avenue and Delrex Boulevard
- Trafalgar Road and all E/W Collectors (left turn from Vision Georgetown onto Trafalgar Road)
- 10 Side Road and N/S Collector

Additional improvements were identified and studied for the critical movements with V/C ratio of 1.05 or worse at these intersections to improve intersection traffic operations. These improvements include provision of protected left turn phases and turn lanes as well as provision of required signal controls for the proposed protected turns. As future planned road widenings were accounted for as part of the base case condition, no additional road widenings are warranted to accommodate the Vision Georgetown development.

The proposed improvements are illustrated in **Figure 22**. Two alternatives were assessed for new access intersections along Trafalgar Road and 10 Side Road, as follows:

- Alternative 1:
 - Trafalgar Road and E/W Collector access roads: signal control at E/W Collector 2 intersection and stop control at E/W Collectors 1 and 3 intersections
 - 10 Side Road and N/S Collector: stop control at N/S Collector intersection
- Alternative 2:
 - Trafalgar Road and E/W Collector access roads: signal control at all three E/W Collectors
 - 10 Side Road and N/S Collector: signal control at N/S Collector intersection

Other proposed intersection improvements are identical for both alternatives and are as follows:

- Trafalgar Road and 10 Side Road:
 - Provision of a protected plus permitted left turn phase for westbound approach during the AM and PM peak hours
- Eighth Line and 10 Side Road:
 - Provision of right turn lane for the westbound approach
 - Provision of protected plus permitted left turn phases for eastbound and southbound approaches during the PM peak hour
- Mountainview Road/Ninth Line and 10 Side Road:
 - Provision of a right turn lane at westbound approach
 - Provision of a protected plus permitted left turn phase for northbound approach during the PM peak hour

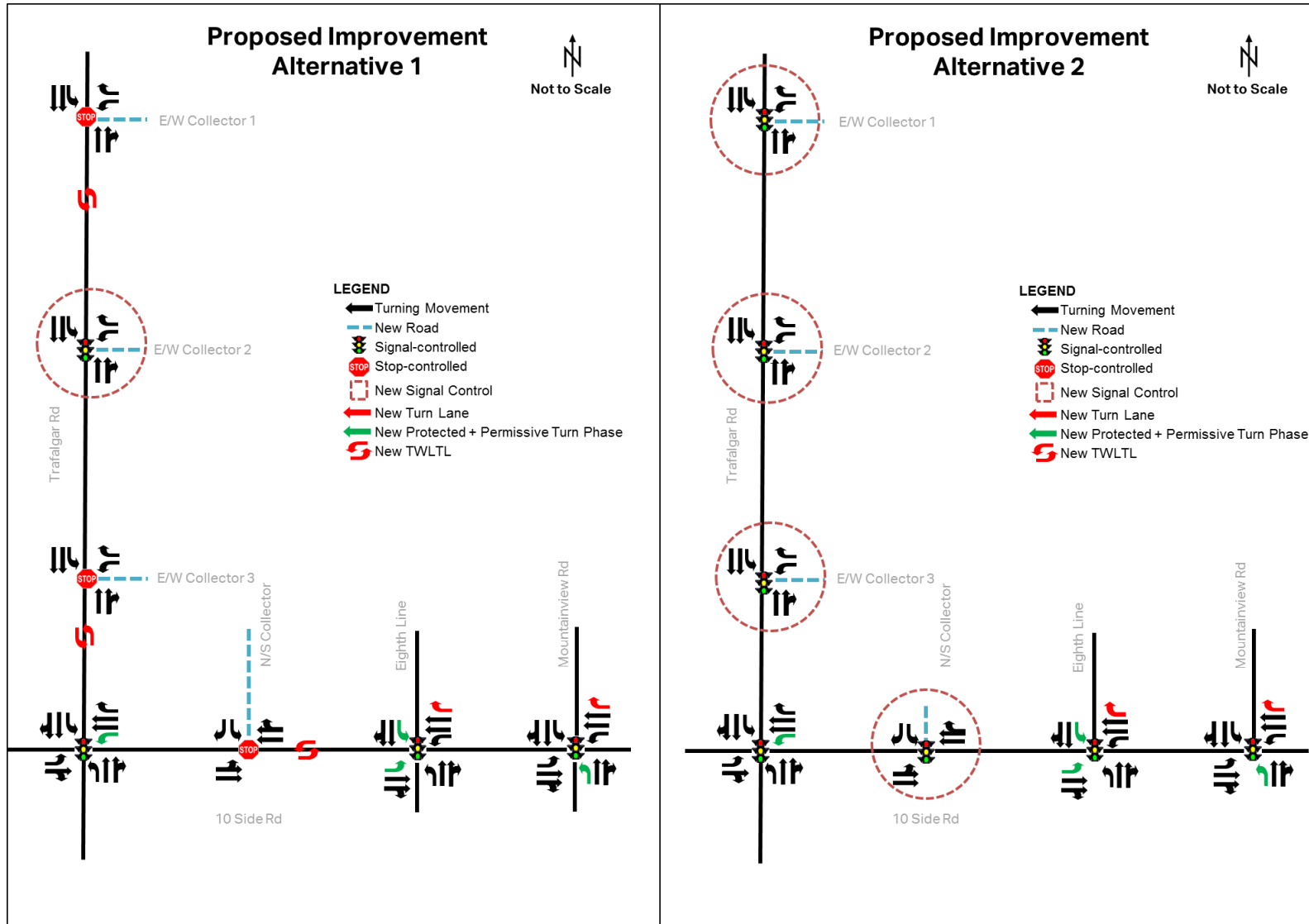


Figure 22: Proposed Improvement Alternatives – Future Conditions with Vision Georgetown Development

4.2.5 Future Scenario with Improvements

This section summarizes the results of future traffic operations for both proposed improvement scenarios described in Section 4.2.4. The intersection capacity analysis results for Alternatives 1 and 2, including delay, LOS, and V/C ratio, are summarized in **Table 11** and **Table 12**, respectively. The critical intersections and movements are highlighted according to Halton Region Transportation Impact Study Guidelines. **Table 11** summarizes the results for all proposed intersection improvements presented in **Figure 22**, while **Table 12** presents the results for the four intersections where traffic signals are proposed relative to Alternative 1 as illustrated in **Figure 22**.

Figure 23 and **Figure 24** summarize future traffic conditions with proposed mitigation measures during the AM and PM peak hours, respectively. The Synchro reports are provided in **Appendix I**.

For the existing intersections, all critical movements will operate below the capacity (V/C ratios less than 1.0) as compared to the future base scenario.

The intersection of Trafalgar Road and 10 Side Road is predicted to operate with LOS D and a V/C ratio of 1.00 in the AM peak hour and LOS C and a V/C ratio of 0.96 in the PM peak hour. The critical movements are as follows:

- Eastbound through movement (LOS F and V/C of 0.98), westbound left turn movement (LOS E and V/C of 0.98) and southbound through movement (LOS D and V/C of 0.96) during the AM peak hour
- Northbound through movement (LOS C and V/C of 0.92) during the PM peak hour

The intersection of Eighth Line and 10 Side Road is predicted to operate with LOS C and a V/C ratio of 0.86 in the AM peak hour with no critical movements identified.

The intersection of Mountainview Road / Ninth Line and 10 Side Road is predicted to operate with LOS D and a V/C ratio of 1.02 in the PM peak hour, and the only critical movement will be the northbound left movement with LOS E and a V/C of 0.99 during the PM peak hour.

In both alternatives, the intersection of Trafalgar Road and E/W Collector 2 is predicted to operate with LOS B and a V/C ratio of 0.85 in the PM peak hour.

In Alternative 1, the only critical movement is predicted to be the westbound left turn at E/W Collector 1, with LOS E and a V/C of 0.43. The intersections of Trafalgar Road & E/W Collector 3 and 10 Side Road & N/S Collector are predicted to operate with no critical movements.

In Alternative 2, no capacity issues were identified at E/W Collectors 1 and 3 on Trafalgar Road as well as the N/S Collector on 10 Side Road.

Table 11: Intersection Capacity Analysis – 2031 Future with Improvements – Alternative 1

Intersection (signalized unless noted)	Approach/ Movement		AM Peak Hour			PM Peak Hour		
			Delay (Sec)	LOS	v/c	Delay (Sec)	LOS	v/c
Trafalgar Rd & 10 Side Rd	EB	EBL	37.3	D	0.19	27.1	C	0.23
		EBT	83.0	F	0.98	39.7	D	0.79
	WB	WBL	73.8	E	0.98	71.6	E	0.93
		WBT	29.6	C	0.44	26.3	C	0.45
		WBR	29.5	C	0.05	28.5	C	0.13
	NB	NBL	25.6	C	0.08	13.4	B	0.14
		NBT	29.3	C	0.45	31.3	C	0.92
	SB	SBL	28.0	C	0.36	28.7	C	0.41
		SBT	50.7	D	0.96	14.9	B	0.37
	Overall		50.4	D	1.00	30.9	C	0.96
Eighth Line & 10 Side Rd	EB	EBL	38.6	D	0.48	18.9	B	0.62
		EBT	36.1	D	0.61	14.6	B	0.28
	WB	WBL	72.3	E	0.81	22.6	C	0.20
		WBT	34.0	C	0.45	27.6	C	0.65
		WBR	29.9	C	0.14	40.3	D	0.84
	NB	NBL	10.7	B	0.02	26.6	C	0.21
		NBT	11.1	B	0.10	36.2	D	0.78
	SB	SBL	29.6	C	0.90	35.4	D	0.81
		SBT	11.5	B	0.44	16.3	B	0.17
	Overall		27.3	C	0.86	29.3	C	0.84
Mountainview Rd S/ Ninth Line & 10 Side Rd	EB	EBL	22.1	C	0.39	75.2	E	0.95
		EBT	33.5	C	0.88	23.9	C	0.23
	WB	WBL	35.0	C	0.38	39.8	D	0.11
		WBT	18.4	B	0.23	69.5	E	0.95
		WBR	16.7	B	0.02	49.8	D	0.57
	NB	NBL	54.7	D	0.76	75.0	E	0.99
		NBT	4.7	A	0.21	29.0	C	0.70
	SB	SBL	13.2	B	0.65	53.6	D	0.44
		SBT	12.3	B	0.78	49.6	D	0.72
	Overall		20.0	C	0.82	50.0	D	1.02
Trafalgar Rd & E/W Collector 2	WB	WBL	34.0	C	0.52	49.5	D	0.49
		WBR	30.8	C	0.15	46.6	D	0.20
	NB	NBT	4.2	A	0.24	4.3	A	0.49
	SB	SBL	6.4	A	0.23	41.6	D	0.89
		SBT	6.7	A	0.51	2.9	A	0.21
Overall		9.8	A	0.51	11.5	B	0.85	
Trafalgar Rd & E/W Collector 1 (Unsignalized)	WB	WBL	15.2	D	0.42	38.7	E	0.43
		WBR	6.6	B	0.23	17.1	C	0.23
	SB	SBL	2.7	A	0.11	15.1	C	0.28
Trafalgar Rd & E/W Collector 3 (Unsignalized)	WB	WBL	2.0	C	0.08	28.0	D	0.07
		WBR	3.4	B	0.13	17.7	C	0.23
	SB	SBL	2.0	A	0.08	14.9	B	0.21
10 Side Rd & N/S Collector (Unsignalized)	EB	EBT	1.8	A	0.07	9.0	A	0.33
		SBL	36.4	D	0.67	29.8	D	0.43
	SB	SBR	13.4	B	0.38	12.0	B	0.12

Table 12: Intersection Capacity Analysis – 2031 Future with Improvements – Alternative 2

Intersection (signalized unless noted)	Approach/ Movement		AM Peak Hour			PM Peak Hour		
			Delay (Sec)	LOS	v/c	Delay (Sec)	LOS	v/c
Trafalgar Rd & E/W Collector 1	WB	WBL	34.4	C	0.53	36.0	D	0.46
		WBR	30.2	C	0.10	33.2	C	0.10
	NB	NBT	4.3	A	0.33	4.7	A	0.52
	SB	SBL	5.1	A	0.21	13.8	B	0.57
		SBT	6.5	A	0.56	3.4	A	0.28
	Overall		8.5	A	0.55	6.9	A	0.56
Trafalgar Rd & E/W Collector 2	WB	WBL	34.0	C	0.52	49.5	D	0.49
		WBR	30.8	C	0.15	46.6	D	0.20
	NB	NBT	3.3	A	0.24	4.3	A	0.49
	SB	SBL	4.6	A	0.23	41.6	D	0.89
		SBT	5.1	A	0.51	2.9	A	0.21
	Overall		8.7	A	0.51	11.5	B	0.85
Trafalgar Rd & E/W Collector 3	WB	WBL	35.5	D	0.19	34.2	C	0.08
		WBR	34.7	C	0.06	35.8	D	0.29
	NB	NBT	2.5	A	0.18	4.3	A	0.53
	SB	SBL	2.8	A	0.12	8.9	A	0.43
		SBT	3.5	A	0.51	2.9	A	0.26
	Overall		5.1	A	0.48	5.4	A	0.51
10 Side Rd & N/S Collector	EB	EBT	17.0	B	0.45	11.1	B	0.57
	WB	WBT	15.9	B	0.38	8.1	A	0.35
	SB	SBL	18.3	B	0.41	26.2	C	0.26
		SBR	15.5	B	0.18	23.7	C	0.04
	Overall		16.6	B	0.43	11.1	B	0.48

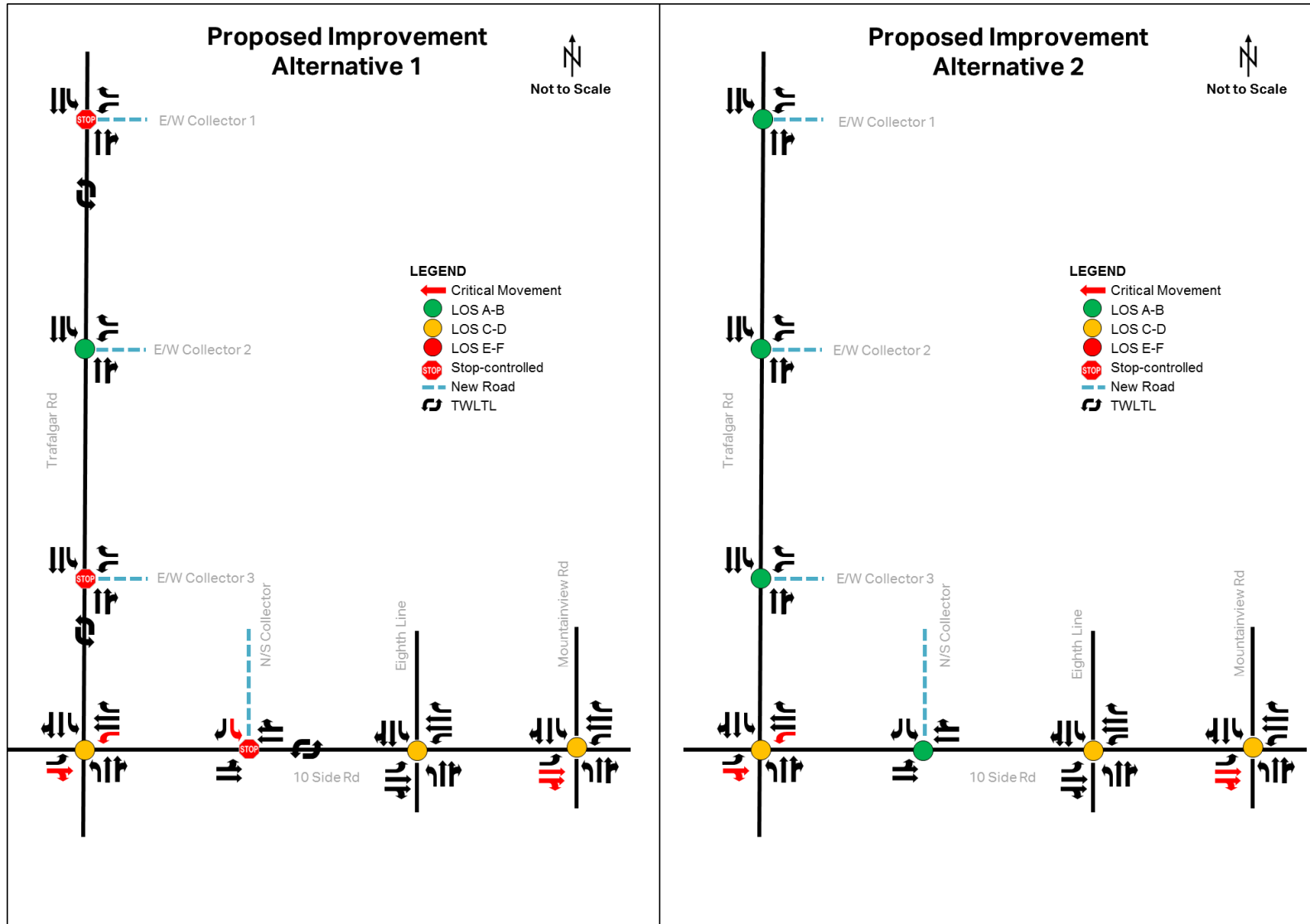
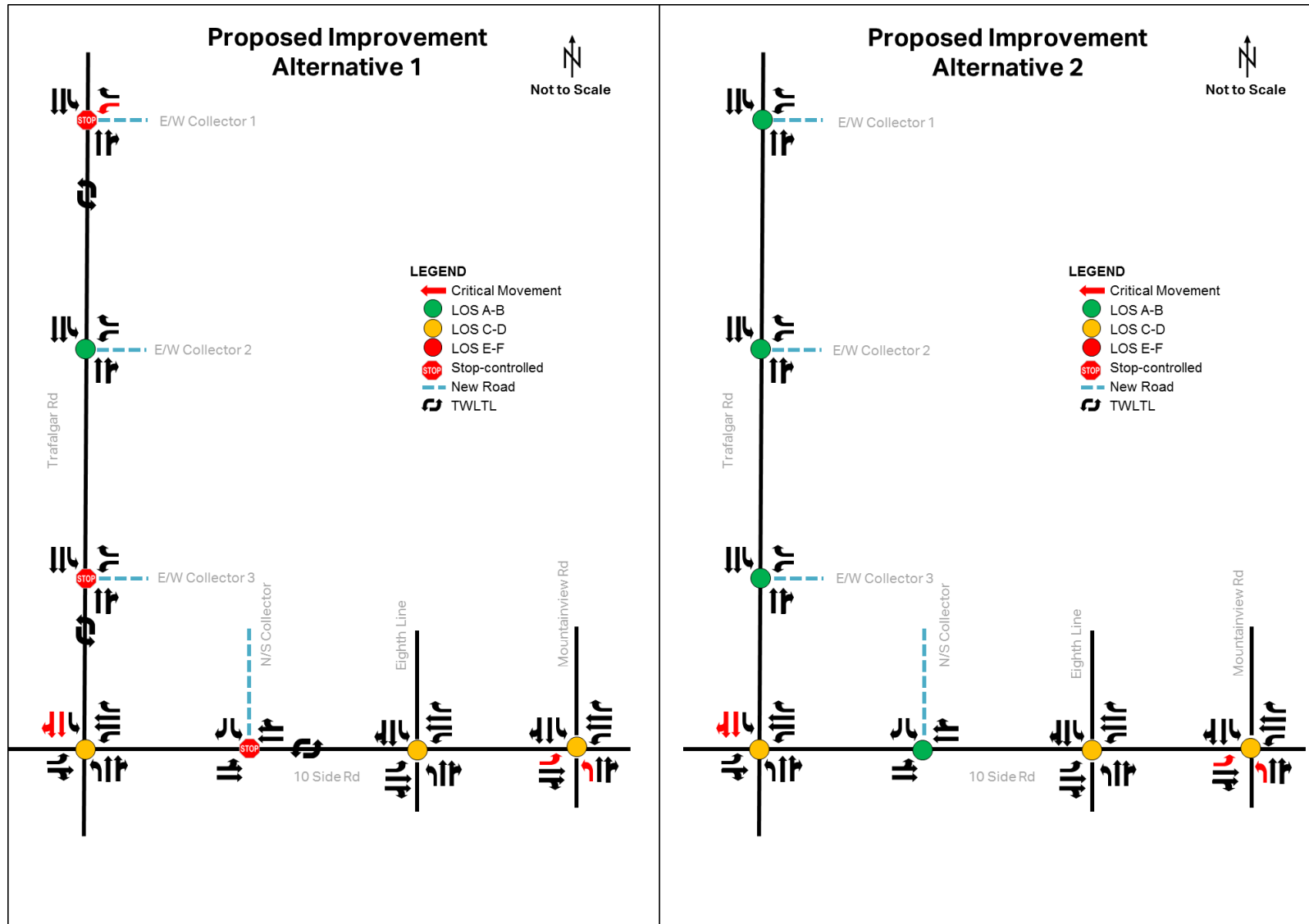


Figure 23: Traffic Operations – Future Conditions with Improvements – 2031 AM Peak Hour



5. Transportation-Related Policies

The Town of Halton Hills Transportation Master Plan (TMP), November 2011, identified a broad range of policies designed to effectively and efficiently manage transportation supply and demand to establish a more sustainable transportation system in keeping with the Town's overarching strategy documents. The policies addressed:

- Transportation Demand Management;
- Active Transportation, including guidance regarding a Complete Streets Policy;
- Public Transportation;
- Goods Movement;
- Traffic Calming;
- Roundabouts; and
- Road Safety.

Vision Georgetown specific policies have been developed from the TMP policies to provide guidance for future development and design activities. The policies are consistent and compatible with overarching Town, Regional and Provincial policies and plans, and the policy framework for Transportation Demand Management, Active Transportation (includes directions on Complete Streets), Public Transportation, Goods Movement, and Traffic Calming set out in Town's Transportation Master Plan.

Vision Georgetown specific policies are as follows:

- *Transportation Demand Management:*

Vision Georgetown shall implement Transportation Demand Management initiatives, such as preferential carpool parking and other supportive measures, to reduce single-occupant vehicle travel, lessen congestion during peak periods, and facilitate more sustainable travel behaviour.

- *Active Transportation:*

Vision Georgetown shall implement an interconnected system of active transportation routes, including sidewalks / multi-use trails, crosswalks, designated on road lanes and off-road trails, providing access to major activity and employment areas, natural heritage features and to future public transit.

Vision Georgetown shall comply with the Complete Streets guidelines set out in the TMP in order to balance the competing needs of pedestrians, cyclists, transit users and motorists.

- *Public Transportation:*

Vision Georgetown shall preserve future opportunities for efficient and effective public transit within the Collector Road corridors, including appropriate roadway geometry to accommodate transit vehicles and boulevard area for transit stops.

- *Goods Movement:*

Vision Georgetown shall promote efficient and reliable goods movement along the Collector Roads and encourage measures to reduce the impact of transient truck traffic on local residential streets.

- *Traffic Calming:*
Vision Georgetown shall investigate the need for traffic calming measures to promote pedestrian safety and mitigate the adverse effects of automobile traffic such as speeding and traffic infiltration associated with shortcutting traffic.
- *Roundabouts:*
Vision Georgetown shall consider the use of roundabouts for intersection traffic control internal to the development where a new intersection is planned on: a collector road that warrants or may warrant a future traffic signal or all-way stop; and a local road where traffic calming is required.

To supplement existing Town road design standards and guidelines, the following design principles are provided with regards to Residential Laneways:

- Provide access to rear of residential properties, reducing motor vehicle / pedestrian conflicts on parallel residential streets;
- Minimize cut-through motor vehicle traffic and promote slow motor vehicle speeds through design to improve safety and encourage use for play / social interaction:
 - Typical Right-of-Way Width: 8.5 m
 - Typical Pavement Width: 5.5 to 6.0 m
 - Typical Boulevard Width: 1.0 to 1.5 m
 - Maximum Length of Tangent Section (without speed management features): 60 m
- Preclude parking within the pavement width;
- Accommodate through-access by pedestrians and cyclists;
- Provide adequate lighting for personal security; and
- Preclude parking on either side of the intersecting road within 30.0 m of either side of the laneway.

6. Conclusions

This report documents the findings of a traffic impact assessment conducted to evaluate traffic operations in the 2031 AM and PM peak hours for the Vision Georgetown development area and adjacent road network.

The existing conditions assessment was based on the turning movement counts and traffic signal plans provided by the Town of Halton Hills. The findings of the existing conditions assessment show that the following intersections have one or more critical movements which are operating at or near capacity:

- Ninth Line and 5 Side Road (AM and PM peak hours)
- Mountainview Road and Guelph Street (AM and PM peak hours)
- Mountainview Road and Delrex Boulevard (PM peak hour)
- Maple Avenue and Guelph Street (AM and PM peak hours)
- Maple Avenue and Delrex Boulevard (AM peak hour)
- Maple Avenue and Main Street (AM and PM peak hour)
- Eighth Line and Miller Drive (AM peak hour)

The PM peak hour is the critical peak hour in the study area, and intersections on the north-east corner of the study area (Maple Avenue and Guelph Street, Mountainview Road and Guelph Street, and Maple Avenue and Main Street) are observed to perform at or near capacity.

The future travel pattern in the study area was studied using the Halton Transportation Master Plan EMME model (Halton model). The model was updated to reflect the future planned road network, Vision Georgetown internal roads, and Vision Georgetown traffic zones and land use information for the 2031 PM peak hour. Two scenarios were investigated: 2031 without the development and 2031 with the development.

The findings of the screenline analysis show that the traffic volumes on an east-west screenline (northbound/ southbound movements) north of 15 Side Road are predicted to reach capacity in 2031. The predicted screenline V/C ratio in the scenario without the development is 0.96, and it is predicted to increase to 0.99 for the scenario with the development. While the V/C ratio remains under 0.7 for other screenlines, link-level V/C analysis shows capacity constraints for northbound/southbound movements along Guelph Street, Eighth Line and Trafalgar Road. This suggests that road users may switch to alternative routes to avoid congestion if possible.

The updated EMME model was then utilized to forecast future traffic volumes for traffic operational analysis. The background traffic growth was predicted by comparing the EMME 2016 scenario to the 2031 scenario without the development. The site generated traffic was forecasted using a select-link analysis to identify trips originated from / destined to the Vision Georgetown development area.

Traffic operations for a base 2031 scenario were assessed using Synchro. The base scenario, which can be interpreted as Do-Minimum, includes the Vision Georgetown development area as well as the following road improvements compared to the existing conditions:

- Widening of Eighth Line from 2 to 4 lanes from 15 Side Road to Steeles Avenue.
- Widening of Trafalgar Road from 2 to 4 lanes from Steeles Avenue to Highway 7
- Widening of 10 Side Road from 2 to 4 lanes, east of Trafalgar Road
- Widening of Ninth Line from 2 to 4 lanes, south of 10 Side Road

- Intersection improvements at Ninth Line and 5 Side Road Intersection based on Ninth Line (Regional Road 13) Transportation Corridor Improvements Environmental Study Report (May 2016)
- Provision of right turn lanes
 - Southbound at Guelph Street and Maple Avenue
 - Northbound at Main Street and Maple Avenue
- Installation of traffic signals
 - Eighth Line and Miller Drive
 - Eighth Line and Argyll Road
 - Eighth Line and Danby Road

The findings of traffic operational assessment for the base 2031 scenario show that several intersections are predicted to perform at, near, or over capacity, i.e. overall intersection LOS or V/C is identified to be critical based on Halton Region Traffic Impact Studies Guidelines. These include all E/W collector road intersections at Trafalgar Road from Vision Georgetown.

The following mitigation measures were identified and assessed to improve traffic operations at critical intersections:

- Trafalgar Road and 10 Side Road:
 - Provision of a protected plus permitted left turn phase for westbound approach during the AM and PM peak hours
- Eighth Line and 10 Side Road:
 - Provision of right turn storage lane for the westbound approach
 - Provision of protected plus permitted left turn phases for eastbound and southbound approaches during the PM peak hour
- Mountainview Road/Ninth Line and 10 Side Road:
 - Provision of a right turn storage lane at westbound approach
 - Provision of a protected plus permitted left turn phase for northbound approach during the PM peak hour
- Trafalgar Road and E/W Collector roads:
 - Alternative 1: Traffic signal control at E/W Collector 2 intersection and stop control at E/W/ Collectors 1 and 3 intersections
 - Alternative 2: Traffic signal control at all three E/W Collectors
- 10 Side Road and N/S Collector road:
 - Alternative 1: Stop control for N/S Collector at 10 Side Road
 - Alternative 2: Traffic signal control at N/S Collector intersection

The additional proposed road improvements, including the provision of traffic signal control at the Trafalgar Road / E/W Collector Road intersections and the 10 Side Road / N/S Collector Road intersection, result in acceptable traffic operations for all assessed intersections in close proximity to the Vision Georgetown development.

Based on the findings of the future traffic assessment, the following three intersections are predicted to operate at or over capacity with limited options for improvements due to existing constraints. These intersections are also operating at or near capacity under existing conditions. The Town continues to monitor the operation of these intersections and make signal timing adjustments as appropriate to improve operations.

- Mountainview Road / Guelph Street
- Main Street and Maple Avenue
- Guelph Street and Maple Avenue

The phasing of development in the Vision Georgetown Secondary Plan area (yet to be determined) may be dependent on the timing for planned road widenings and/or may influence the timing for implementation of additional proposed transportation infrastructure improvements such as improved

intersection control and/or turning lanes. As such, the implementation phasing strategy for the required transportation infrastructure improvements will be assessed when development phasing / timelines are available and will take into account the current timing for planned road widenings described below.

The current timing for the planned road widenings by Halton Region are as follows (based on Region of Halton Capital Implementation Plan 2018-2031):

- Trafalgar Road Widening from Steeles Avenue to 10 Side Road – start year of construction 2018
- Trafalgar Road Widening from 10 Side Road to 15 Side Road – start year of construction 2020
- 10 Side Road Widening from Trafalgar Road to Winston Churchill Boulevard – start year of construction 2031
- Ninth Line Widening from Steeles Avenue to 10 Side Road – start year of construction 2020

Given the timing for the Trafalgar Road widening, it is recommended that the Region protect for traffic signals at the three E/W Collector Road intersections by installing the underground provisions as part of the widening work. While the timing for traffic signal installation will be dependent on signal warrants being met, consideration should be given to signaling the E/W Collector Road 2 intersection from the outset to support the overall community core and facilitate improved transit access to and from Trafalgar Road.

The timing for implementation of the Eighth Line Widening (subject to EA approval) has not yet been determined. Based on transportation analysis documented in this report, the road widening from 10 Side Road to 15 Side Road is not required under existing (2017) conditions as the through movements on Eighth Line are operating at acceptable levels of services (delays are associated with left turn movements from the sideroads). The widening is required by 2031 with full build out of the Vision Georgetown development. In the absence of definite timing with respect to the planned phased implementation of the development, a tentative start year of construction of 2024 has been identified for the Eighth Line widening from Steeles Avenue to 15 Side Road, with construction expected to commence at Steeles Avenue to progress northerly.

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