TRANSPORTATION CONSULTING

August 26, 2024

Mr. Mark Cancian

Bolton Shore Holdings Ltd.
P.O. Box 174 Station Main
Bolton, ON L7E ST2

Re: Proposed Residential Redevelopment
15, 21 and 27 Shore Street, Town of Caledon (Bolton), Peel Region
Transportation Study
Town File No.: PRE 2023-0116 & PRE 2023-0274

CGE Transportation Consulting is pleased to submit this Transportation Study for the proposed residential redevelopment, located at 15, 21 and 27 Shore Street in the Town of Caledon (Bolton), Peel Region.

The development will consist of a four-storey residential apartment building with 19 units, 27 vehicular parking spaces, and 14 bike parking spaces. The development proposes two full-access connections to Shore Street in a looped configuration.

The study demonstrates that the development will have minimal impact on the surrounding road network, and the access driveways are projected to operate with excellent Levels of Service (LOS). The proposed parking supply is sufficient to meet the parking demand.

Should you have any questions regarding this study, please do not hesitate to contact the undersigned.

Yours truly,

CGE TRANSPORTATION CONSULTING

Casey Ge, P.Eng.
President

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1.0 INTRODUCTION

CGE Transportation Consulting was retained by Bolton Shore Holdings Ltd. to prepare a Transportation Study for a proposed residential redevelopment, located at 15, 21 and 27 Shore Street in the Town of Caledon (Bolton), Peel Region.

Existing Site Description:

The site, currently zoned Residential One (R1), is bounded by mixed-use and residential developments to the north and west, Shore Street to the south, and Queen Street South (Highway 50) to the east. The site currently includes single-detached family dwellings that will be demolished for the proposed development.

The location of the proposed development is illustrated in **Figure 1.**

Development Proposal Description:

The redevelopment will consist of a four-storey residential apartment building with 19 units, 27 vehicular parking spaces, and 14 bike parking spaces. The development will include two full-access connections to Shore Street in a looped configuration. Full Build for the project is targeted for 2029.

The most recent site plan is provided in **Figure 2.**

Scope of Work:

A Terms of Reference (ToR) was formally submitted to the Town and Region before initiating the study. For comprehensive details, the ToR and feedback from the Town and Region have been included in **Appendix A**.

The study area consists of the following intersections:

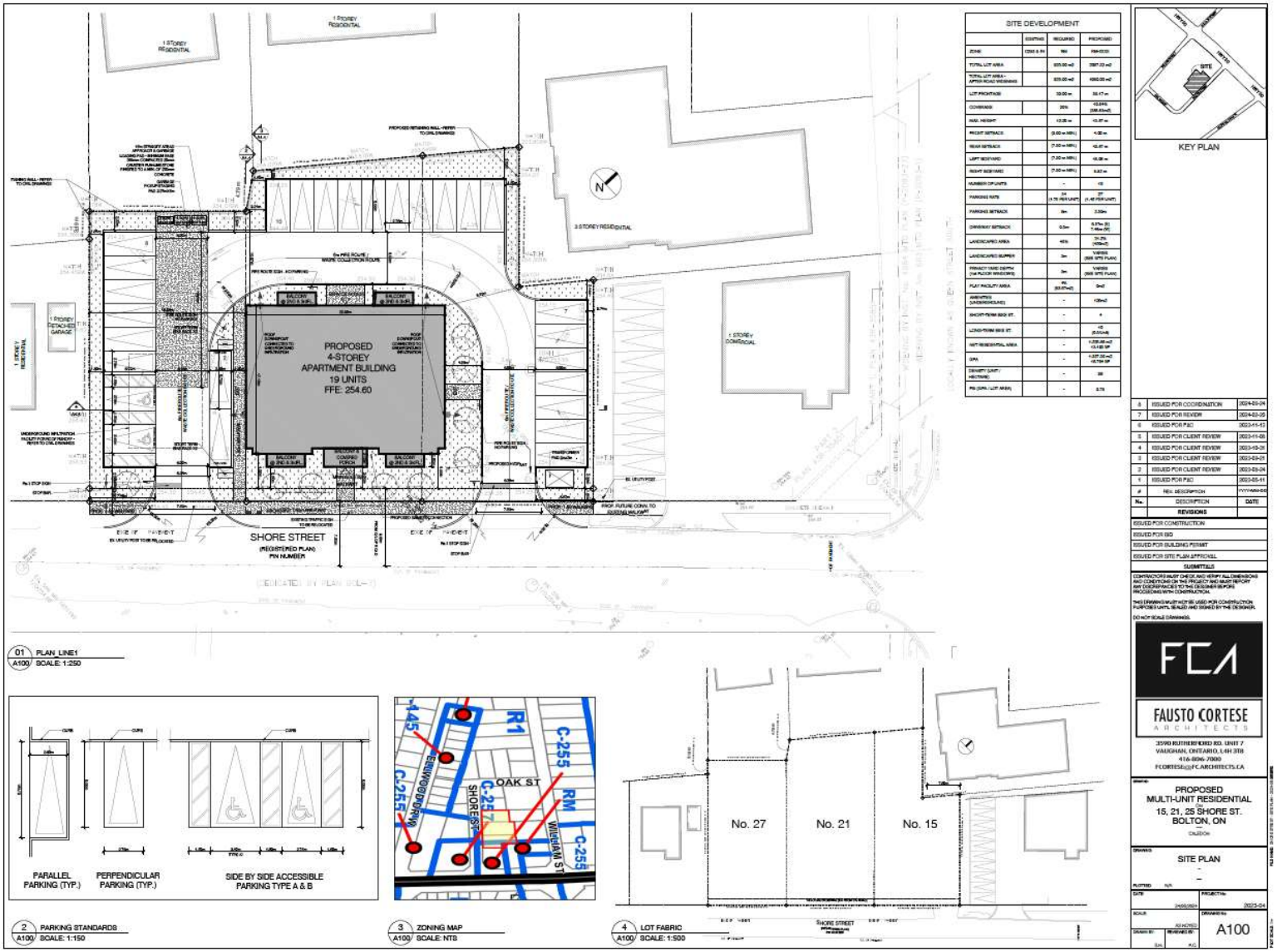
- Queen Street South (Highway 50) & Ellwood Drive West/ Ellwood Drive East
- Queen Street South (Highway 50) & Shore Street
- Shore Street & Proposed West Site Access
- Shore Street & Proposed East Site Access

- The study analyzed the following scenarios
  - Existing 2024 Conditions
  - Future Background 2029 Conditions
  - Full Build 2029 Conditions
  - Future Year 2034 Conditions

- The analysis has been conducted for both weekday AM and PM peak hours.

Figure 1 Site Location

Figure 2 Proposed Site Plan



2.0 EXISTING AREA

2.1 Existing Roadway Conditions

The existing road network, lane configuration and existing traffic control for the study area are described below and shown in **Figure 3**:

Queen Street S (Highway 50)	in the vicinity of the site, is a five-lane arterial road with two-way left-turn lane (TWTL) and a 50 km/h speed limit under the Region's control. It has sidewalks along both sides of the street. On-street parking is prohibited.
Ellwood Drive	is a two-lane, east-west local road under the Town's control, with a speed limit of 40 km/h. It has sidewalks on both sides along Ellwood Drive West, but only along the north side along Ellwood Drive East.
Shore Street	is a two-lane, east-west local road under the Town's control, with a 40 km/h speed limit. It currently has a discontinuous sidewalk, and on-street parking is prohibited.

A review of the Town and Region's capital projects website indicates no planned roadway improvements within the study area at this time.

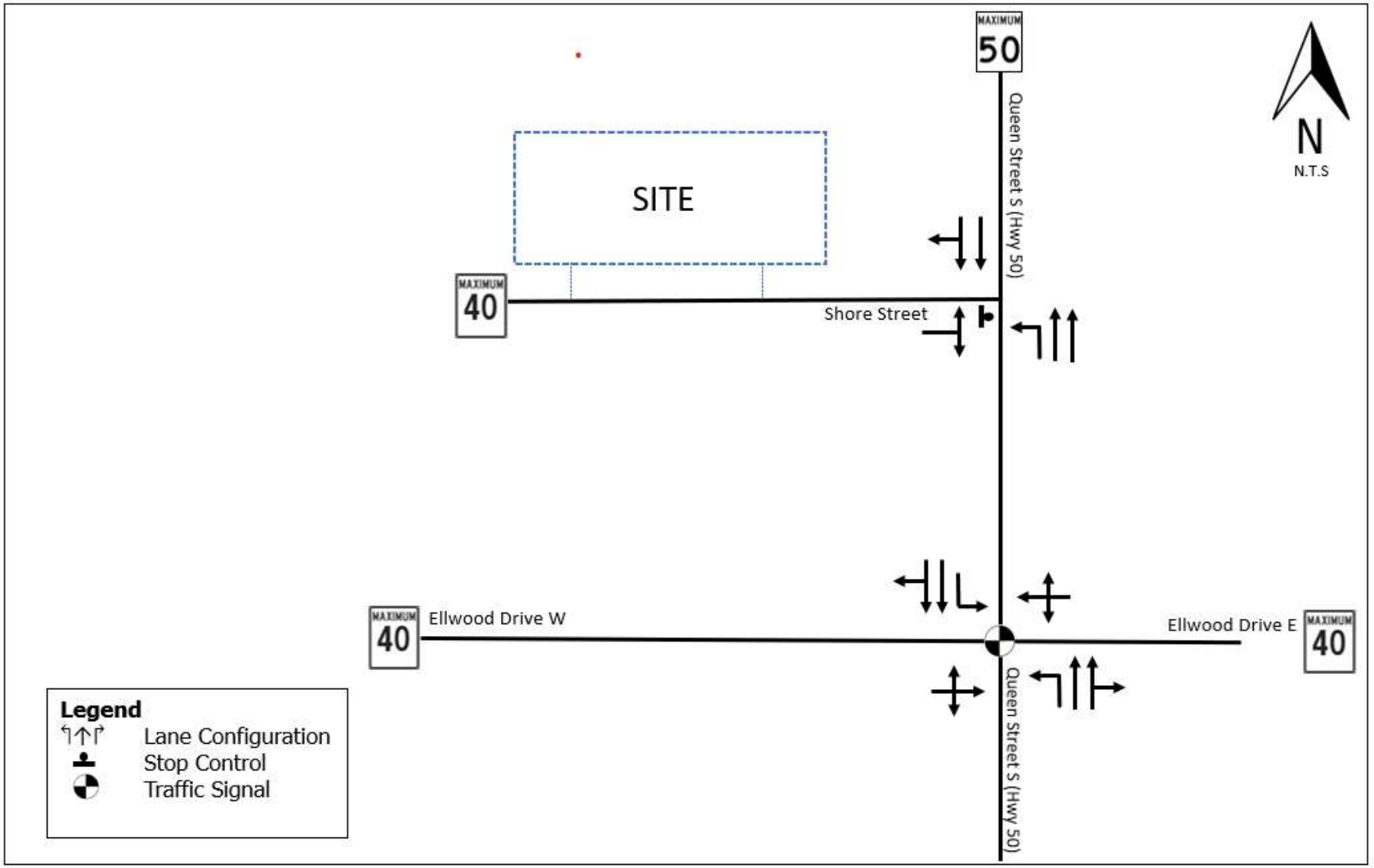
2.2 Existing Intersection Geometry

Queen Street South (Highway 50) & Ellwood Drive is a signalized intersection. The eastbound and westbound approaches consist of a single lane. The northbound and southbound approaches both have a left-turn lane, a through lane and a shared through -right lane.

Queen Street South (Highway 50) & Shore Street is an unsignalized T-intersection with stop control for the eastbound approach. The northbound approach consists of a left-turn lane and two through lanes. The southbound approach consists of a shared through -right lane and a through lane. The eastbound approach consists of single lane.

The proposed development features a looped configuration with two full-access connections to Shore Street. Both connections will intersect existing driveways currently serving commercial developments south of the site.

Figure 3 Existing Road Network



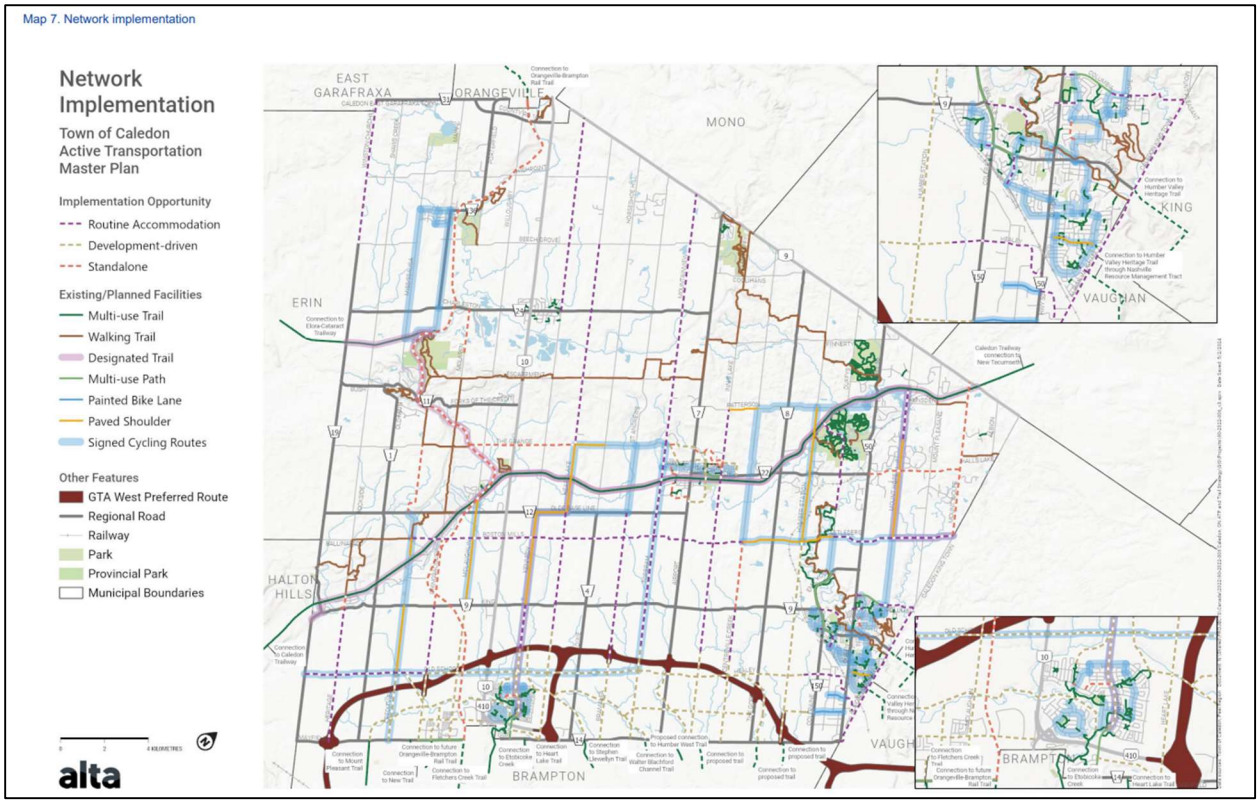
2.3 Multi-Modal Transport

The study area is currently served by GO Transit and Brampton Transit. GO Transit Route 38 operates on weekdays only between Malton GO Station and Bolton GO Station, primarily along Queen Street (Highway 50). It has a headway of 1-2 hours during peak periods. Brampton Transit Route 41 operates only on weekdays between Brampton Gateway Terminal and Bolton, also along Queen Street (Highway 50), with a headway of approximately 110 minutes. There are four transit stops within a 200-meter radius of the site.

The Town's *Active Transportation Master Plan* (ATMP) indicates no existing cycling facilities within the study area road network. However, the ATMP does recommend signed cycling routes along Ellwood Drive in the vicinity of the site (See **Figure 4**).

The subject site currently lacks sidewalks along its Shore Street frontage. However, the most recent site plan includes a 1.5-meter sidewalk along the entire frontage, connecting to the existing roadway (See **Figure 2**).

Figure 4 Recommended Active Transportation Plan



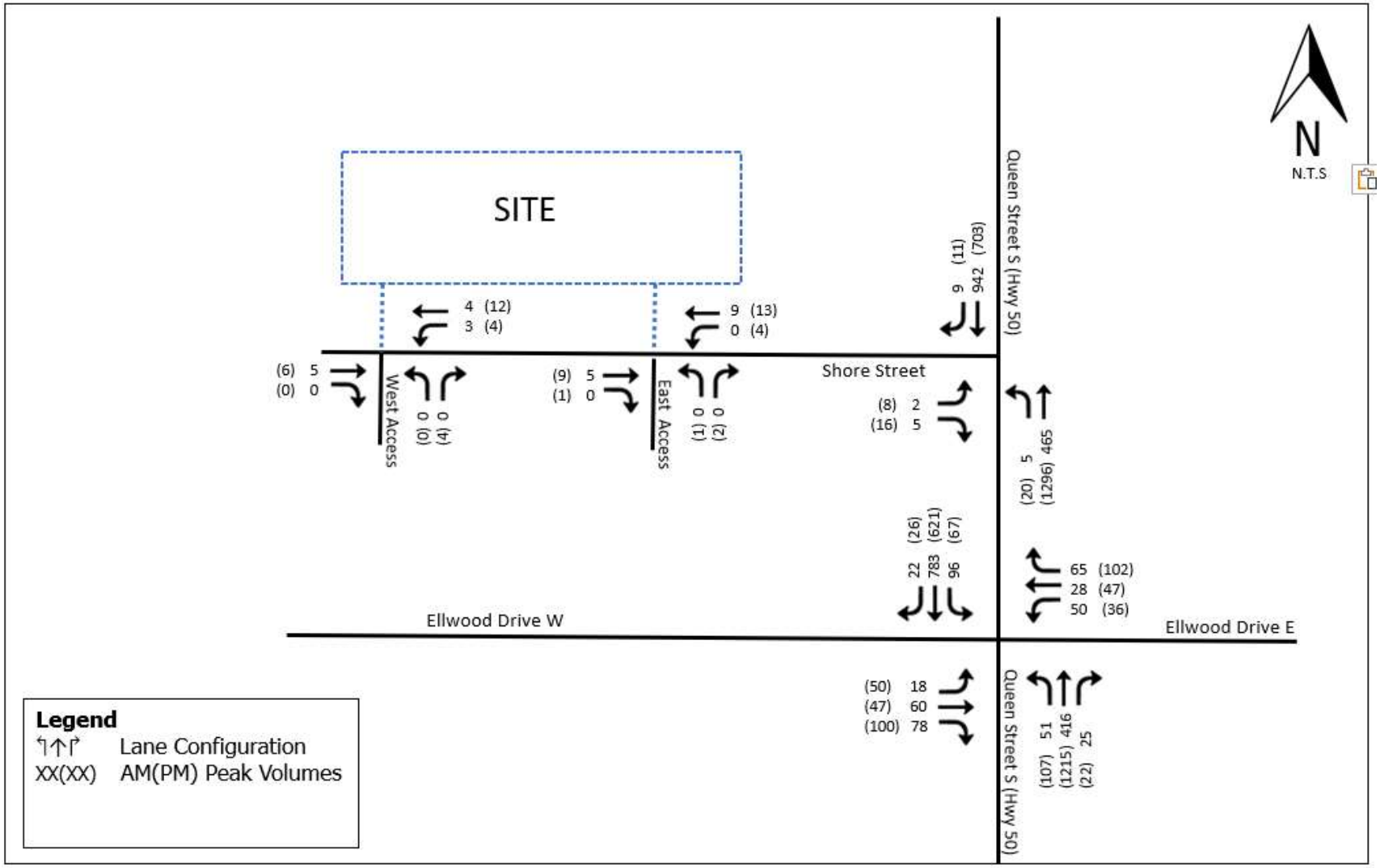
Source: Town of Caledon Active Transportation Plan

2.4 Traffic Volumes

Traffic data collection for the study area intersection was performed on June 05, 2024. The signal timing plan for the study area intersections was provided by the Region. **Figure 5** displays existing traffic volumes. The existing traffic volume counts and signal timing plans are shown in **Appendix B**.

Existing Dwellings Units on Subject Site

Figure 5 Existing Traffic Volumes



3.0 METHODOLOGY

3.1 Base Assumptions

Intersection capacity analysis was conducted using Synchro v11.0. Trip generation for the proposed development was calculated using the 11th edition of the Institute of Transportation Engineers (ITE) *Trip Generation Manual*.

Turn lane requirements were assessed using the *Geometric Design Guide for Canadian Roads* (Transportation Association of Canada) and the *Geometric Design Standards for Ontario Highways* (Ministry of Transportation, Ontario).

3.2 Background Developments

As identified in the TOR study, the Town's Planning website identifies one background development, 84 Nancy Street, located near the subject site. Trip generation data for this development was obtained from its June 2019 Transportation Impact, Parking, and TDM Study. Detailed site-specific trip information is available in **Appendix C** for further review.

3.3 Background Growth

The average annual background growth rate is calculated using historical AADT volumes obtained from the Region's website. Calculations show that the background growth on Queen Street South (Highway 50) in the vicinity of the site is 4.27% per year. These calculations can be found in **Appendix D**.

Existing volumes were increased by 4.27% per year to estimate background growth for Full Build and Future Year conditions.

3.4 Site Trip Generation

The proposed redevelopment will consist of a four-storey residential apartment building with 19 units. The *ITE Trip Generation Manual, 11th Edition,* ITE Code 221 (Multifamily Housing (Mid-Rise) was used to estimate the projected trips by this development.

Table 1 summarizes the land uses and sizes used for trip generation estimates. The trip generation graphs, and trip rates are provided in **Appendix E**.

Table 1 Estimated Traffic Generation

Land Use			AM Peak Hour			PM Peak Hour		
Land Use	ITE Code	Size	Enter	Exit	Total	Enter	Exit	Total
(Multifamily Housing (Mid-Rise) No Close to Rail Transit	221	19 Units	2	5	7	5	3	8

The trip generation analysis results indicate that the proposed development is anticipated to generate 7 and 8 new two-way trips to the adjacent network during the weekday AM and PM peak hours, respectively.

3.5 Trip Distribution

Trips for this proposed development were assigned to the surrounding roadway network using engineering judgment and existing traffic patterns.
The proposed trip distribution for this project is:

AM Peak Hour Inbound:

- 55% to/from north on Queen Street South (Highway 50)
- 25% to/from south on Queen Street South (Highway 50)
- 10% to/from east on Ellwood Drive East
- 10% to/from west on Ellwood Drive West

AM Peak Hour Outbound:

- 25% to/from north on Queen Street South (Highway 50)
- 55% to/from south on Queen Street South (Highway 50)
- 10% to/from east on Ellwood Drive East
- 10% to/from west on Ellwood Drive West

PM Peak Hour Inbound:

- 25% to/from north on Queen Street South (Highway 50)
- 55% to/from south on Queen Street South (Highway 50)
- 10% to/from east on Ellwood Drive East
- 10% to/from west on Ellwood Drive West

PM Peak Hour Outbound:

- 55% to/from north on Queen Street South (Highway 50)
- 25% to/from south on Queen Street South (Highway 50)
- 10% to/from east on Ellwood Drive East
- 10% to/from west on Ellwood Drive West

The project site trips are shown in **Figure 6**. Future Background volumes for 2029 are shown in **Figure 7.** Full Build 2029 volumes are shown in **Figure 8.** Future Year 2034 volumes are shown in **Figure 9.**

Figure 6 Project Site Trips

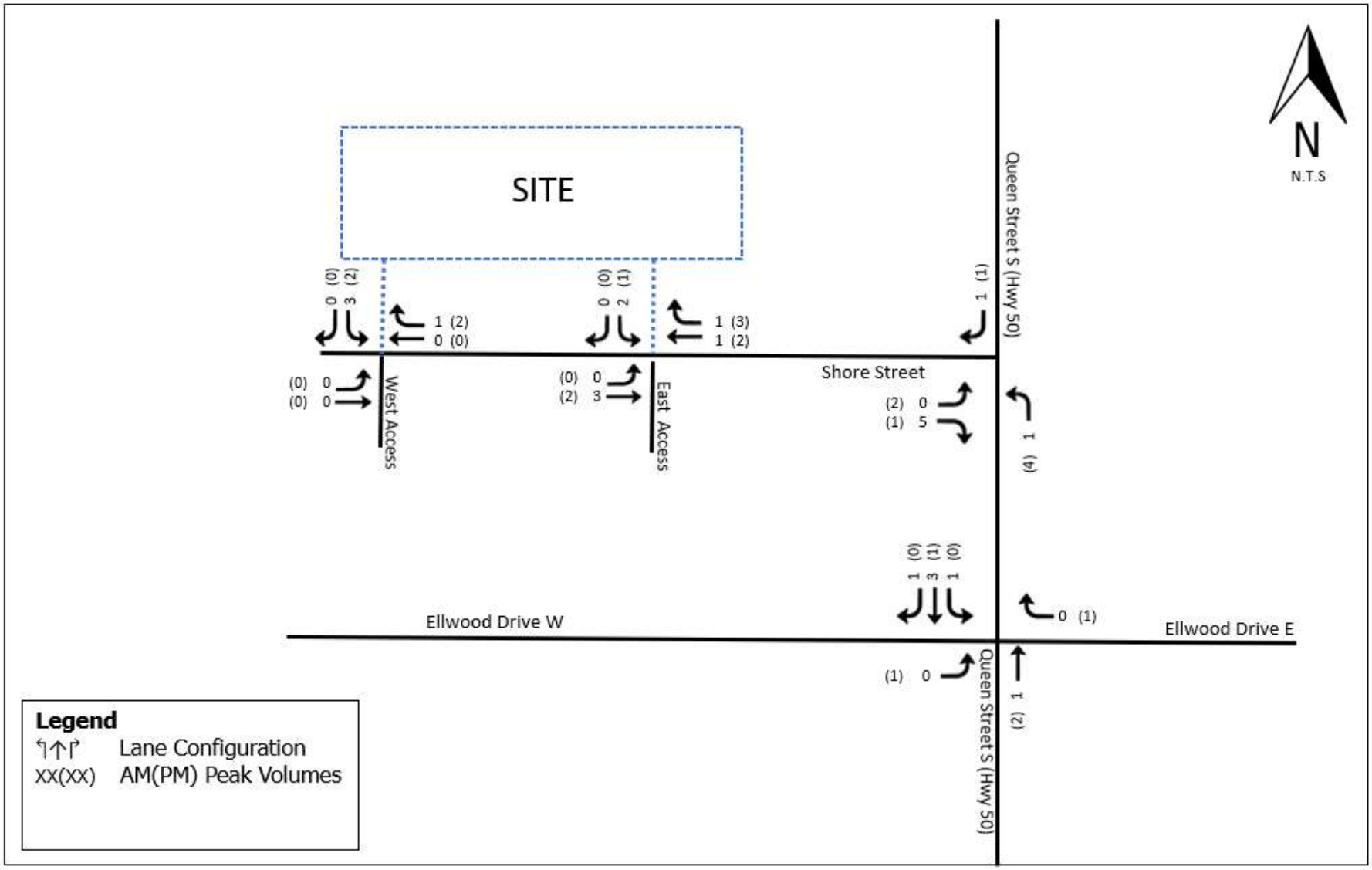


Figure 7 Future Background 2029 Volumes

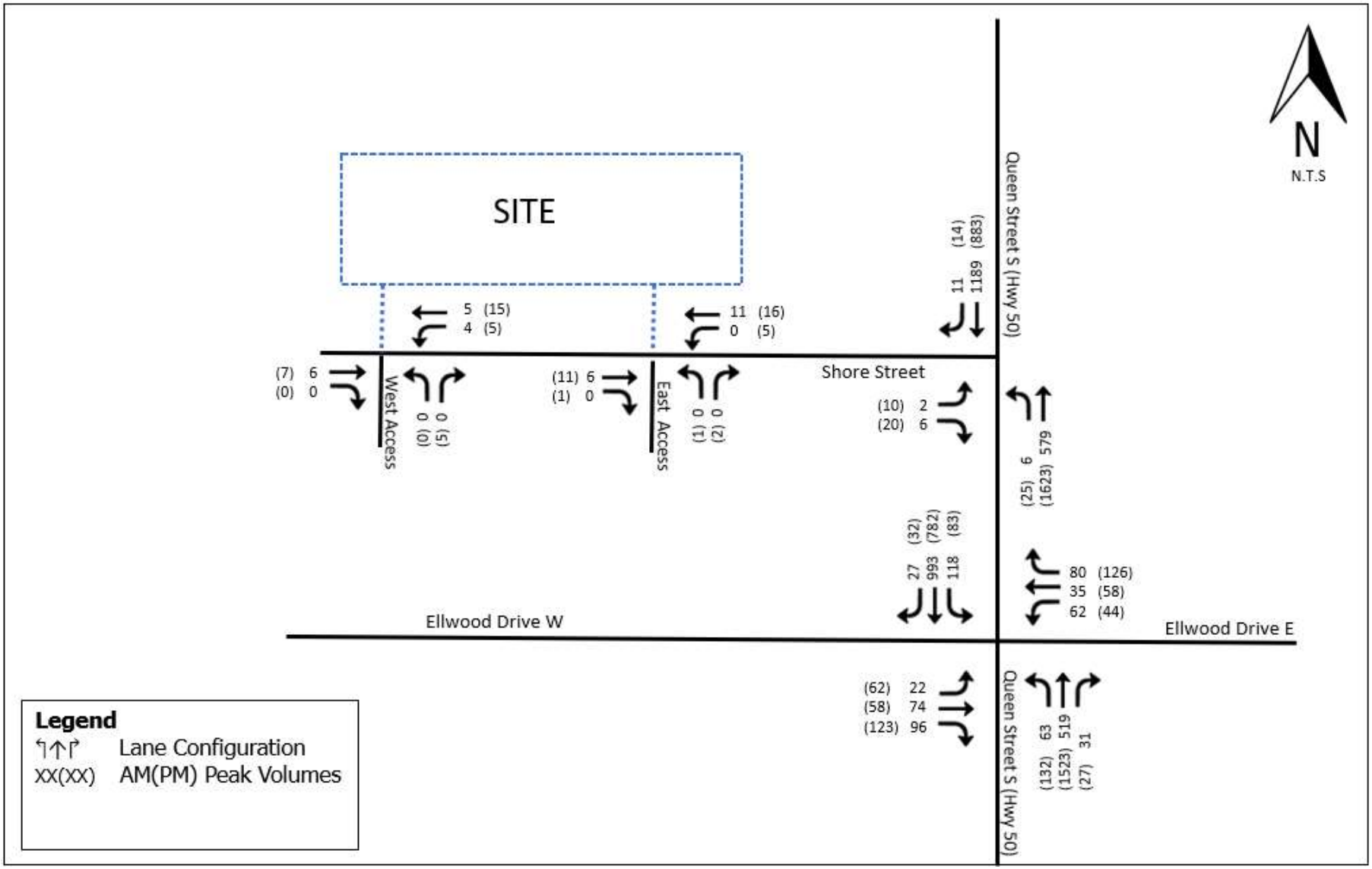


Figure 8 Full Build 2029 Volumes

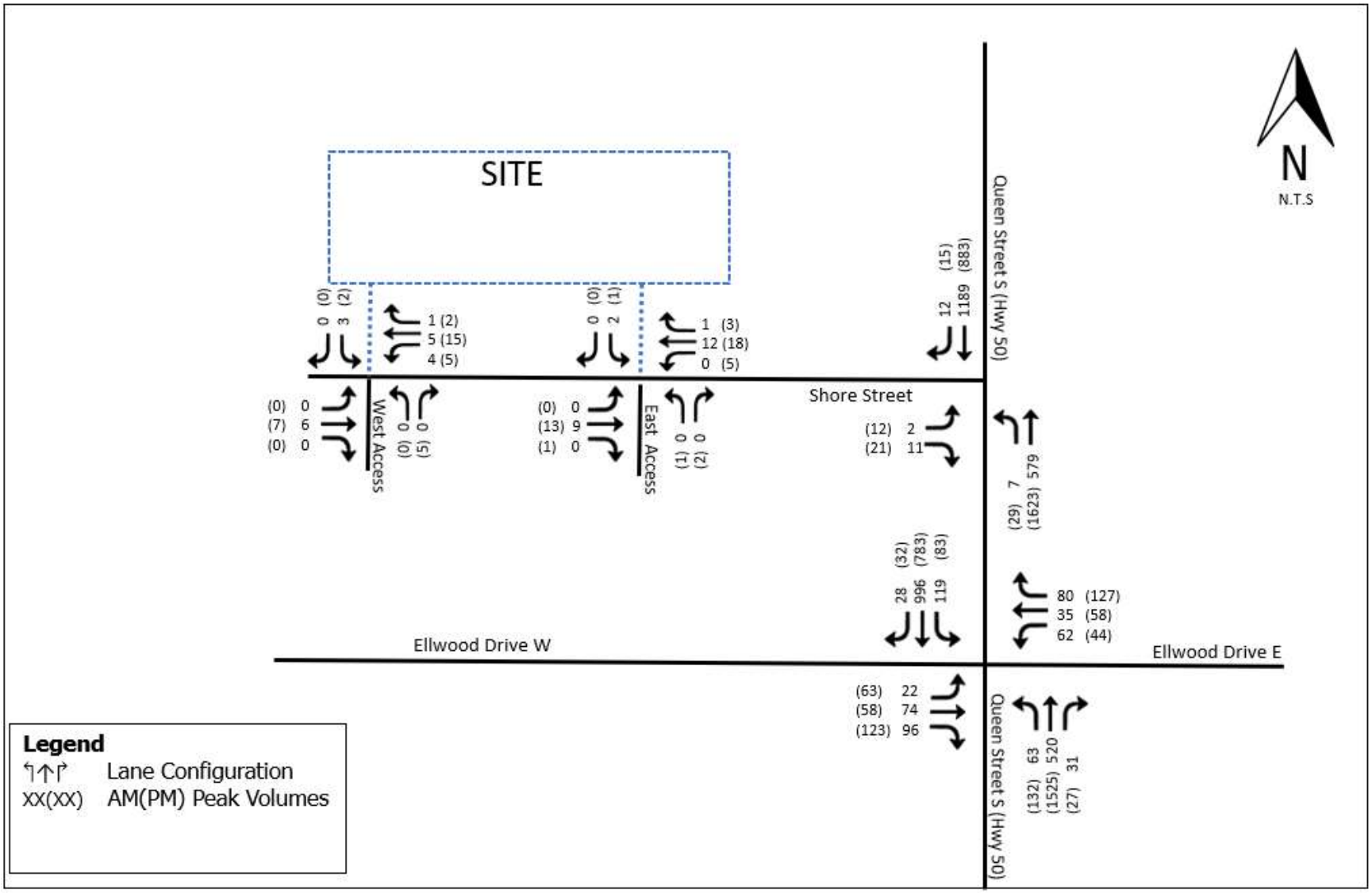
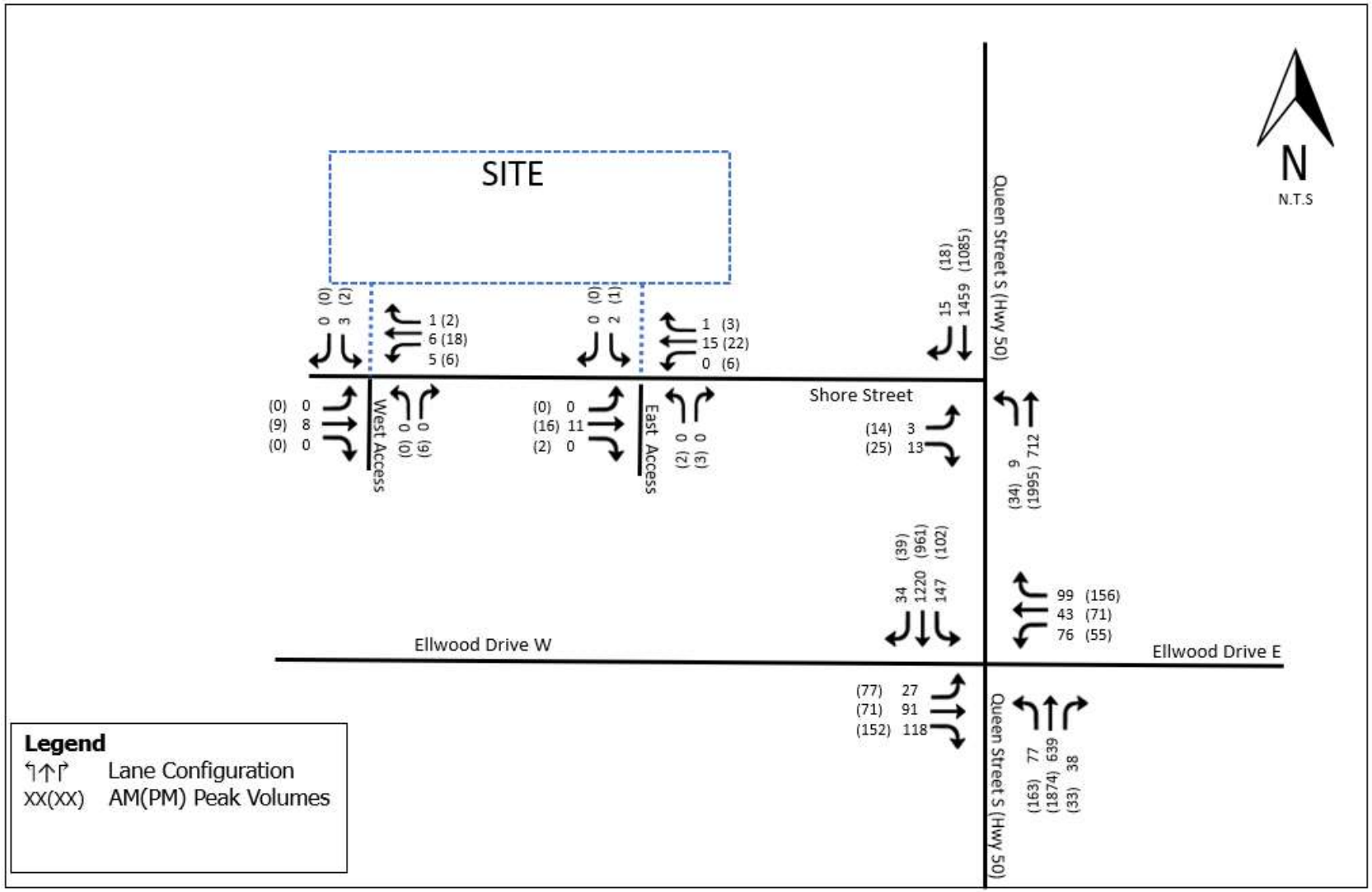


Figure 9 Future Year 2034 Volumes



4.0 TURN LANE/ACCCESS MANAGEMENT

4.1 Right-Turn Lanes

The *Geometric Design Guide for Canadian Roads*, TAC recommends the use of an exclusive right-turn lane when the volume of decelerating or accelerating vehicles compared with the through traffic volume causes undue hazard.

In general, an exclusive right-turn lane should be considered when the volume of right-turning vehicles is between 10 to 20 percent of the through volume, subject to a minimum of 60 vehicles per hour in the design hour. **Table 2** shows the Future Year 2034 volumes used in the analysis.

Table 2 Right-Turn Lane Analysis

Driveway	Approach	AM Volume			PM Volume			Hourly Threshold	Turn Lane needed?
		Through	Right	% RT	Through	Right	% RT		
Shore St & East Access	WB	15	1	7%	22	3	14%	60	No
Shore St & West Access	WB	6	1	17%	18	2	11%	60	No

Based on Future Year 2034 volumes, no right-turn lanes are required for the project accesses.

4.2 Left-Turn Lanes

The warrant for left turn lanes was based on *Chapter E, Section E.B.1 of the Geometric Design Standards for Ontario Highways by the Ministry of Transportation, Ontario* for 2-lane undivided roadways. **Table 3** shows the Future Year 2034 volumes used in the analysis.

Table 3 Left-Turn Lane Analysis

Driveway	Design Speed	Peak	Approach	Advancing Volume	Opposing Volume	Left-Turn Vol	Left-Turn %	Threshold met?
Shore St & East Access	50 km/h	AM	EB	11	16	0	0%	No
		PM		18	31	0	0%	No
Shore St & West Access	50 km/h	AM	EB	8	12	0	0%	No
		PM		9	26	0	0%	No

Based on Future Year 2034 volumes, no left-turn lanes are required for the project accesses.

4.3 Sight Distance Evaluation

Regarding stopping sight distance, which allows drivers to stop safely under normal conditions, the minimum requirement for a level grade on wet pavement at a 50 km/h design speed is 65 meters as summarized below. The stopping sight distance requirements are satisfied at the site accesses

Design Speed (km/h)	50	60	70	80	90	100
Minimum Stopping Sight Distance (m)*	65	85	110	140	170	210

Source: Table 2.5.2, Chapter 2, Geometric Design Guidelines for Canadian Roads

Regarding turning sight distance, which is the distance needed for a driver to detect an unexpected or otherwise difficult-to-perceive information source or condition in a roadway environment that may be visually cluttered, recognize the condition or its potential threat, select an appropriate speed and path, and initiate and complete complex maneuvers. The minimum requirement for a 50 km/h design speed is 75 meters as summarized below. The turning sight distance requirements are satisfied at the site accesses.

Field observations show that there are no sight distance obstructions that obscure the view of vehicles at the proposed accesses.

Shore Street at Site Access – Looking East

Shore Street at Site Access – Looking West

5.0 CAPACITY ANALYSIS

The Transportation Research Board's Highway Capacity Manual (HCM) utilizes a term "level of service" (LOS) to measure how traffic operates in intersections. There are currently six levels of service ranging from A to F. Level of Service "A" represents the best conditions and Level of Service "F" represents the worst. Synchro software was used to determine the level of service for intersections in the study area. All worksheet reports from the analyses can be found in **Appendix F**.

Table 4 shows the control delay per vehicle associated with LOS A through F for signalized and unsignalized intersections.

Table 4 Highway Capacity Manual Levels of Service and Control Delay

Signalized Intersection		**Unsignalized Intersection**	
Level of Service	**Control Delay per Vehicle (sec)**	**Level of Service**	**Control Delay per Vehicle (sec)**
A	≤ 10	A	≤ 10
B	> 10 and ≤ 20	B	> 10 and ≤ 15
C	> 20 and ≤ 35	C	> 15 and ≤ 25
D	> 35 and ≤ 55	D	> 25 and ≤ 35
E	> 55 and ≤ 80	E	> 35 and ≤ 50
F	> 80	F	> 50

5.1 Queen Street South (Highway 50) & Ellwood Drive

Queen Street South (Highway 50) & Ellwood Drive is a signalized intersection. The eastbound and westbound approaches consist of a single lane. The northbound and southbound approaches both have a left-turn lane, a through lane and a shared through -right lane.

Table 5 shows the current LOS, control delay, and 95th percentile queue length for existing conditions.

Table 5 Intersection LOS, Delay, and Queue by Movement - 2024 Existing

Intersection	Approach	Movement	AM			PM		
			LOS	Delay	Queue	LOS	Delay	Queue
Queen St S (Hwy 50) & Ellwood Dr	EB	LT	D	45.3	44.4 m	E	62.9	68.3 m
		TH						
		RT						
	WB	LT	D	45.6	42.8 m	D	53.8	60.8 m
		TH						
		RT						
	NB	LT	A	8.5	11.3 m	A	8.9	22.9 m
		TH	A	8.1	30.7 m	B	11.3	120.6m
		RT						
	SB	LT	A	3.8	10.8 m	A	6.7	9.8 m
		TH	A	4.8	43.2 m	A	5.2	40.5 m
		RT						
	OVERALL		B (12.9s)			B (16.8s)		

Analysis shows that the intersection currently operates with acceptable LOS. However, the eastbound and westbound approaches are experiencing poor LOS and significant delays.

Table 6 shows the expected LOS, control delay, and 95th percentile queue length for Future Background 2029 conditions.

Table 6 Intersection LOS, Delay, and Queue by Movement – 2029 Future Background

Intersection	Approach	Movement	AM			PM		
			LOS	Delay	Queue	LOS	Delay	Queue
Queen St S (Hwy 50) & Ellwood Dr	EB	LT	D	46.3	55.2 m	E	72.2	95.4 m
		TH						
		RT						
	WB	LT	D	53.7	54.9 m	E	55.7	77.6 m
		TH						
		RT						
	NB	LT	B	11.4	16.8 m	B	13.1	31.0 m
		TH	A	9.8	44.6 m	B	17.2	173.8 m
		RT						
	SB	LT	A	4.9	15.8 m	B	14.6	11.8 m
		TH	A	6.6	71.3 m	A	7.1	53.1 m
		RT						
	OVERALL		B (15.0s)			C (21.5s)		

While the overall intersection is expected to function acceptably with future growth, the persistent poor LOS and significant delays on the eastbound and westbound approaches highlight the need for targeted improvements to address these specific areas.

Table 7 shows the expected LOS, control delay, and 95th percentile queue length for Full Build 2029 conditions.

Table 7 Intersection LOS, Delay, and Queue by Movement – 2029 Full Build								
Intersection	Approach	Movement	AM			PM		
			LOS	Delay	Queue	LOS	Delay	Queue
Queen St S (Hwy 50) & Ellwood Dr	EB	LT	D	46.3	55.2 m	E	72.6	96.9 m
		TH						
		RT						
	WB	LT	D	53.7	54.9 m	E	55.6	78.2 m
		TH						
		RT						
	NB	LT	B	11.4	16.9 m	B	13.2	31.0 m
		TH	A	9.8	44.7 m	B	17.3	174.1 m
		RT						
	SB	LT	A	4.9	16.0 m	B	14.7	11.8 m
		TH	A	6.6	71.8 m	A	7.2	53.2 m
		RT						
	OVERALL		B (15.0s)			C (21.7s)		

Table 8 shows the expected LOS, control delay, and 95th percentile queue length for Future Year 2034 conditions.

Table 8 Intersection LOS, Delay, and Queue by Movement – 2034 Future Year								
Intersection	Approach	Movement	AM			PM		
			LOS	Delay	Queue	LOS	Delay	Queue
Queen St S (Hwy 50) & Ellwood Dr	EB	LT	D	45.8	69.8 m	F	96.5	133.5 m
		TH						
		RT						
	WB	LT	E	62.2	71.7 m	E	61.6	107.8 m
		TH						
		RT						
	NB	LT	C	29.4	39.5 m	C	20.4	45.3 m
		TH	B	12.6	62.5 m	C	26.1	248.8 m
		RT						
	SB	LT	A	7.1	22.0 m	E	61.2	42.1 m
		TH	B	10.8	126.6 m	A	9.4	67.3 m
		RT						
	OVERALL		B (18.8s)			C (30.7s)		

Traffic analysis indicates that the proposed development will not adversely impact the overall LOS at the subject intersection under full build-out and future year conditions. The intersection is projected to operate with acceptable LOS, consistent with forecasts under future background traffic conditions.

However, the analysis indicates that the eastbound and westbound approaches are currently experiencing poor LOS and significant delays under both existing and future background traffic conditions. This analysis has determined that the proposed development is not a contributing factor to these deficiencies, as the anticipated site-generated traffic volumes are minimal (less than 10 vph).

Based on these findings, it is recommended that the Region/Town prioritize potential mitigation measures to address the existing operational deficiencies on the eastbound and westbound approaches. These measures may include geometric improvements, signal timing optimization, or the implementation of turning restrictions. Continued monitoring of the intersection's performance is advised to evaluate the effectiveness of any implemented improvements and to identify any future needs.

5.2 Queen Street South (Highway 50) & Shore Street

Queen Street South (Highway 50) & Shore Street is an unsignalized T-intersection with stop control for the eastbound approach. The northbound approach consists of a left-turn lane and two through lanes. The southbound approach consists of a shared through -right lane and a through lane. The eastbound approach consists of single lane.

Table 9 shows the current LOS, control delay, and 95th percentile queue length for existing conditions.

Table 9 Intersection LOS, Delay, and Queue by Movement - 2024 Existing

Intersection	Approach	Movement	AM			PM		
			LOS	Delay	Queue	LOS	Delay	Queue
Queen St S (Hwy 50) & Shore St	EB	LT	B	14.2	0.4 m	B	12.5	1.2 m
		RT	B	10.3	0.2 m	A	9.3	0.6 m
	NB	LT	Free			Free		
		TH	Free			Free		
	SB	TH	Free			Free		
		RT						

Table 10 shows the expected LOS, control delay, and 95th percentile queue length for Future Background 2029 conditions.

Table 10 Intersection LOS, Delay, and Queue by Movement – 2029 Future Background

Intersection	Approach	Movement	AM			PM		
			LOS	Delay	Queue	LOS	Delay	Queue
Queen St S (Hwy 50) & Shore St	EB	LT	C	16.7	0.6 m	B	14.0	1.8 m
		RT	B	11.7	0.3 m	B	10.1	0.8 m
	NB	LT	Free			Free		
		TH	Free			Free		
	SB	TH	Free			Free		
		RT						

Table 11 shows the expected LOS, control delay, and 95th percentile queue length for Full Build 2029 conditions.

Table 11 Intersection LOS, Delay, and Queue by Movement – 2029 Full Build								
Intersection	Approach	Movement	AM			PM		
			LOS	Delay	Queue	LOS	Delay	Queue
Queen St S (Hwy 50) & Shore St	EB	LT	C	16.1	1.0 m	B	14.3	2.0 m
		RT	B	11.7	0.3 m	B	10.1	1.0 m
	NB	LT	Free			Free		
		TH	Free			Free		
	SB	TH	Free			Free		
		RT						

Table 12 shows the expected LOS, control delay, and 95th percentile queue length for Future Year 2034 conditions.

Table 12 Intersection LOS, Delay, and Queue by Movement – 2034 Future Year								
Intersection	Approach	Movement	AM			PM		
			LOS	Delay	Queue	LOS	Delay	Queue
Queen St S (Hwy 50) & Shore St	EB	LT	C	20.2	1.6 m	C	17.2	3.1 m
		RT	B	13.8	0.6 m	B	11.3	1.4 m
	NB	LT	Free			Free		
		TH	Free			Free		
	SB	TH	Free			Free		
		RT						

Analysis shows that acceptable LOS will be maintained with the proposed development traffic/ Full Build conditions and Future Year conditions.

5.3 Shore Street & East Access

The proposed development features a looped configuration with two full-access connections to Shore Street, an east and west access. Both connections will intersect existing driveways currently serving commercial developments south of the site.

Table 13 shows the current LOS, control delay, and 95th percentile queue length for existing conditions.

Table 13 Intersection LOS, Delay, and Queue by Movement - 2024 Existing								
Intersection	Approach	Movement	AM			PM		
			LOS	Delay	Queue	LOS	Delay	Queue
Shore St & East Access	EB	TH	Free			Free		
		RT						
	WB	LT	Free			A	1.6	0.1 m
		TH						
	NB	LT	A	-	-	A	8.5	0.1 m
		RT						

Table 14 shows the expected LOS, control delay, and 95th percentile queue length for Future Background 2029 conditions.

Table 14 Intersection LOS, Delay, and Queue by Movement – 2029 Future Background									
Intersection	Approach	Movement	AM			PM		
			LOS	Delay	Queue	LOS	Delay	Queue
Shore St & East Access	EB	TH	Free			Free		
		RT						
	WB	LT	Free			A	1.8	0.1 m
		TH						
	NB	LT	A	-	-	A	8.6	0.1 m
		RT						

Table 15 shows the expected LOS, control delay, and 95th percentile queue length for Full Build 2029 conditions.

Table 15 Intersection LOS, Delay, and Queue by Movement – 2029 Full Build								
Intersection	Approach	Movement	AM			PM		
			LOS	Delay	Queue	LOS	Delay	Queue
Shore St & East Access/Private Driveway	EB	LT	Free			Free		
		TH						
		RT						
	WB	LT	Free			A	1.4	0.1 m
		TH						
		RT						
	NB	LT	A	-	-	A	8.6	0.1 m
		TH						
		RT						
	SB	LT	A	8.7	0.1	A	9.0	0.1 m
		TH						
		RT						

Table 16 shows the expected LOS, control delay, and 95th percentile queue length for Future Year 2034 conditions.

Table 16 Intersection LOS, Delay, and Queue by Movement – 2034 Future Year								
Intersection	Approach	Movement	AM			PM		
			LOS	Delay	Queue	LOS	Delay	Queue
Shore St & East Access/Private Driveway	EB	LT	Free			Free		
		TH						
		RT						
	WB	LT	Free			A	1.5	0.1 m
		TH						
		RT						
	NB	LT	A	-	-	A	8.7	0.2 m
		TH						
		RT						
	SB	LT	A	8.8	0.1	A	9.1	0.1 m
		TH						
		RT						

Analysis shows that east site access will operate with acceptable LOS and minimal delays and queue lengths.

5.4 Shore Street & West Access

The proposed development features a looped configuration with two full-access connections to Shore Street, an east and west access. Both connections will intersect existing driveways currently serving commercial developments south of the site.

Table 17 shows the current LOS, control delay, and 95th percentile queue length for existing conditions.

Table 17 Intersection LOS, Delay, and Queue by Movement - 2024 Existing

Intersection	Approach	Movement	AM			PM		
			LOS	Delay	Queue	LOS	Delay	Queue
Shore St & West Access	EB	TH	Free			Free		
		RT						
	WB	LT	A	3.0	0.1 m	A	1.8	0.1 m
		TH						
	NB	LT	A	-	-	A	8.4	0.1 m
		RT						

Table 18 shows the expected LOS, control delay, and 95th percentile queue length for Full Build 2029 conditions.

Table 18 Intersection LOS, Delay, and Queue by Movement – 2029 Future Background

Intersection	Approach	Movement	AM			PM		
			LOS	Delay	Queue	LOS	Delay	Queue
Shore St & West Access	EB	TH	Free			Free		
		RT						
	WB	LT	A	3.4	0.1 m	A	1.9	0.1 m
		TH						
	NB	LT	A	-	-	A	8.4	0.2 m
		RT						

Table 19 shows the expected LOS, control delay, and 95th percentile queue length for Full Build 2029 conditions

Table 19 Intersection LOS, Delay, and Queue by Movement – 2029 Full Build

Intersection	Approach	Movement	AM			PM		
			LOS	Delay	Queue	LOS	Delay	Queue
Shore St & West Access/Private Driveway	EB	LT	Free			Free		
		TH						
		RT						
	WB	LT	A	3.0	0.1	A	1.7	0.1 m
		TH						
		RT						
	NB	LT	A	-	-	A	8.4	0.2 m
		TH						
		RT						
	SB	LT	A	8.7	0.1	A	8.9	0.1 m
		TH						
		RT						

Table 20 shows the expected LOS, control delay, and 95th percentile queue length for Future Year 2034 conditions

Table 20 Intersection LOS, Delay, and Queue by Movement – 2034 Future Year								
Intersection	Approach	Movement	AM			PM		
			LOS	Delay	Queue	LOS	Delay	Queue
Shore St & West Access/Private Driveway	EB	LT	Free			Free		
		TH						
		RT						
	WB	LT	A	2.9	0.1	A	1.7	0.1 m
		TH						
		RT						
	NB	LT	A	-	-	A	8.4	0.2 m
		TH						
		RT						
	SB	LT	A	8.8	0.1	A	9.0	0.1 m
		TH						
		RT						

Analysis shows that east site access will operate with acceptable LOS and minimal delays and queue lengths.

Queen Street South at Shore Street – Looking North

6.0 PARKING REQUIREMENTS

The proposed redevelopment will consist of a four-storey residential apartment building with 19 units, 27 vehicular parking spaces, and 14 bike parking spaces.

The following table summarizes the Town's Comprehensive Zoning By-law 2006-50 parking requirements.

Table 21 Zoning By-law 2006-50 Parking Requirements

Type of Use	Size	Zoning By-Law 22-90	
		Rate	Minimum Parking Supply Required
Building, Apartment (Resident)	19-units	1.5 parking spaces per dwelling unit	29
Building, Apartment (Visitor)		0.25 parking spaces per unit for visitor parking in a designated visitor parking area	5

The development proposes 27 parking spaces, including two barrier-free spaces, along with 14 bicycle parking spaces. While this falls short of the minimum requirement of 34 spaces outlined in Comprehensive Zoning By-law 2006-50, it aligns with the evolving approach of many municipalities, which are shifting away from rigid minimums towards flexible, demand-based parking strategies.

To assess the parking demand of this development, the ITE *Parking Generation Manual 5th Edition* was consulted, as per discussions with Town Staff noted in the study's TOR. For a conservative analysis, ITE Code 220 (Multifamily Housing (Low-Rise)) was applied to the weekday and Saturday periods, as directed by Town Staff. This decision was made because the proposed number of units falls within the data range of the ITE graphs for this land use code, ensuring a more cautious estimate of parking needs.

The following table summarizes the ITE-based calculations, with details available in the appendices:

Table 22 ITE Parking Generation 5th Edition

Land Use	Size	ITE Code	Time Period	ITE Equation/Rate	Peak Period Parking Demand
Multifamily Housing (Low-Rise) (Occupied dwelling Units)	19 units	220	Weekday (Monday – Friday)	Fitted Curve Equation: P = 1.33(X) -20.15	5 Spaces
				Average Rate: 1.22	23 spaces
			Saturday	Fitted Curve Equation: P = 1.29(X) -1.37	23 Spaces
				Average Rate: 1.28	24 spaces

Based on the ITE analysis, the proposed 27 parking spaces exceed the estimated peak demand for both weekdays and Saturdays. On weekdays, the estimated demand is 23 spaces, and on Saturdays, it is 24 spaces.

Therefore, it can be concluded that the proposed parking supply is adequate to accommodate the anticipated demand from this development, despite not meeting the minimum requirement

outlined in the zoning by-law. This aligns with the current trend towards demand-based parking management, which prioritizes efficient land use and responsiveness to actual parking needs over rigid, potentially excessive minimums.

6.1 Site Circulation Analysis

To ensure the feasibility of the proposed driveway connection and internal driveway, an AutoTURN swept path analysis was conducted. This analysis generated vehicular turning templates to confirm the accessibility of these areas.

The results of the AutoTURN analysis demonstrate that the design accommodates the necessary vehicle movements effectively. Detailed diagrams from this analysis are provided in the appendices.

6.2 On-site Transportation Demand Management (TDM)

Transportation Demand Management (TDM) refers to variety of strategies to reduce congestion, minimize the number of single-occupant vehicle, encourage non-auto modes of travel, and reduce vehicle dependency to create a sustainable transportation system. In short, TDM works to change how, when, where, and why people travel.

TDM strategies that can be applied to the subject site including the followings:

- **Bicycle Parking** – The redevelopment proposes to provide a total of 14 bicycle parking spaces. Provision of bicycle parking spaces will complement the Town's and Regions cycling plan. The applicant is responsible for this initiative.
- **Transit Incentives** – It is recommended that pre-loaded Presto Cards ($25) be provided to homeowners at the time of registration to encourage transit use. The applicant is responsible for this initiative.
- **Information Packages (Transit maps, Transit Schedules, Cycling maps)** – It is recommended that homeowners be provided with transit and cycling information packages at the time of registration. The applicant is responsible for this initiative.
- **TDM Communication Outreach Strategy** - It is recommended that an event be organized by the applicant to invite representatives from the Region and City to distribute the pre-loaded Presto Cards and Information Packages as described above to the new homeowners. The event will be initiated once the occupancy reached 75% and the location of the event will be determined closer to the event date.

7.0 SUMMARY AND CONCLUSIONS

CGE Transportation Consulting was retained by Bolton Shore Holdings Ltd. to prepare a Transportation Study for a proposed residential redevelopment, located at 15, 21 and 27 Shore Street in the Town of Caledon (Bolton), Peel Region

Proposed Development

The development will consist of a four-storey residential apartment building with 19 units, 27 vehicular parking spaces, and 14 bike parking spaces. The development will include two full-access connections to Shore Street in a looped configuration. Full Build for the project is targeted for 2029.

Trip Generation

The trip generation analysis results indicate that the proposed development is anticipated to generate 7 and 8 new two-way trips to the adjacent network during the weekday AM and PM peak hours, respectively.

Turn Lanes

Based on Future Year 2034 volumes, no left-turn and no right-turn lanes are required for the project accesses.

Traffic Impacts

Analysis shows that overall acceptable levels of service are maintained with the 2029 Full Build development traffic as well as 2034 Future Year conditions at the Queen Street South (Highway 50) & Ellwood Drive signalized intersection. Traffic analysis confirms the proposed development will not worsen the overall traffic flow at the intersection. While the eastbound and westbound approaches already experience delays, this is unrelated to the project's minimal traffic contribution. To address these existing issues, it's recommended that the Region/Town focus on improvements like adjusting road layout, signal timing, or turning restrictions, while continuing to monitor the intersection's performance.

Analysis shows that acceptable LOS will be maintained with the proposed development traffic or full build conditions at the Queen Street South (Highway 50) & Shore Street intersection.

Analysis shows that proposed site accesses will operate with acceptable LOS and minimal delays and queue lengths.

Parking

The proposed 27 parking spaces, exceeding the estimated demand based on ITE analysis, are deemed adequate to serve the development despite falling short of zoning by-law minimums, aligning with the trend towards demand-based parking strategies.

Appendix A:

Terms of Reference and Feedback

From: Alex Mior <Alex.Mior@caledon.ca>
Sent: Monday, May 6, 2024 11:51 AM
To: Maurizio Rogato <mrogato@blackthorncorp.ca>
Subject: FW: Shore Street: Traffic Study Terms of Reference...

Hi Maurizio,

I hope you had a great weekend & are doing well.

It was nice to meet you (in-person) at the Delta event a couple weeks ago.

Please see the comments on your Terms of Reference for the Traffic Study below.

If you have any questions, please don't hesitate to contact me.

Kind Regards,

Alex Mior
Community Planner, Development
Planning Department

Office: 905.584.2272 x. 4528
Email: alex.mior@caledon.ca

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From: Emma Howlett <Emma.Howlett@caledon.ca>
Sent: Monday, May 6, 2024 11:46 AM
To: Alex Mior <Alex.Mior@caledon.ca>
Cc: Kavleen Younan <Kavleen.Younan@caledon.ca>
Subject: RE: Shore Street: Traffic Study Terms of Reference...

Hello Alex,

Town Transportation staff have reviewed the Terms of Reference (TOR) submitted for PRE 2023-0116: 15, 21 & 27 Shore Street, Town of Caledon – Transportation Impact Study and offer the following comments:

1. Average rates were used to establish the anticipated trip generation stated in the TOR, staff are in agreement with this approach in the case specified. In the body of the report please state that average rates were used and justify that average rate are most applicable in this specific case.
2. Regarding the proposed Institute of Transportation Engineers (ITE) parking rates please review to ensure:
    - that the proposal fits the definition of ITE LUC 220 Midrise;
    - that the proposed number of units falls within the parking data point range in the graph;
    - that the density surveyed is comparable to the proposed development; and

    - Revise if required. Please note in this specific case, ITE definitions and data should be included in the Appendix of the report.
3. Proxy sites may or may not be required depending on the findings of the comment above. If proxy site data is required proposing comparable proxy sites is the responsibility of the consultant. Please see below for standard requirements:
    - For residential apartments the ideal data will be the result of vehicle ownership rates from proxy sites in a similar context. If this is not possible, the resident parking demand may be determined through appropriate survey periods.
    - Proposed proxy sites should be comparable to the proposed development's context within Caledon. Staff recommend reviewing the Zoning - Town of Caledon maps or areal imagery to determine locations of apartment buildings within Caledon. However, Staff are open to reviewing locations outside Caledon provided adequate justification is made to the comparability of the context.
    - Proxy site data should be collected at peak periods reflective of typical conditions (i.e., major holiday or construction is not occurring preventing usage of units or parking).
    - Data should be included in the appendix of the report including:
        - Days of the survey;
        - Total onsite parking spaces;
        - Number of units on site;
        - # of vacancies;
        - Observed parking - separating out legal, illegal, off-site, and total parking;
        - percentage of the total parking capacity; and
        - observed parking demand ratio per unit.
4. Please ensure that as part of the proposal the proposed development will be connected the existing sidewalk network, this could be done in a simple pedestrian circulation plan if desired.
5. Please use standard vehicles where specific vehicles are not applicable, PTAC vehicles should be used for passenger vehicle parking spaces.
6. Given the proposed development's location, a TOR should be circulated with the Region to provide additional insight as required.

Regards,

Emma Howlett, EIT
Transportation Coordinator, Engineering, Public Works, & Transportation Department

Office: 905.584.2272 x 4309 | Email: Emma.Howlett@caledon.ca

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From: Alex Mior <Alex.Mior@caledon.ca>
Sent: April 23, 2024 1:07 PM
To: Kavleen Younan <Kavleen.Younan@caledon.ca>; Emma Howlett <Emma.Howlett@caledon.ca>
Subject: FW: Shore Street: Traffic Study Terms of Reference...

Hi Kavleen & Emma,

Hope you're both doing well.

Please see the Terms of Reference for the Traffic Study for Shore Street (PRE 2023-0116 & PRE 2023-0274).

Please let me know if you have any questions.

Kind Regards,

Alex Mior
Community Planner, Development
Planning Department

Office: 905.584.2272 x. 4528
Email: alex.mior@caledon.ca

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From: Maurizio Rogato <mrogato@blackthorncorp.ca>
Sent: Tuesday, April 23, 2024 9:42 AM
To: Alex Mior <Alex.Mior@caledon.ca>
Cc: Kody Giallonardo <kody@blackthorncorp.ca>; Casey Ge <casey@cgeconsulting.ca>
Subject: Shore Street: Traffic Study Terms of Reference...

Alex,

Good morning and hope you are doing great.

Attached are the proposed Terms of Reference for the Traffic Study at Shore Street.

Please circulate internally and let us know if the Terms are acceptable.

Looking forward.

Thanks,

Maurizio

Maurizio Rogato B.U.R.Pl., M.C.I.P., R.P.P.
Principal

BLACKTHORN
Development
Corp.

Land Development | Land Use Planning | Project Management | Government Relations

Tel: 416-888-7159
www.blackthorncorp.ca

From: Shen, Yifan
To: Casey Ge
Cc: Zare, Mina; Maurizio Rogato; Hamdani, Hashim
Subject: RE: Shore Street: Traffic Study Terms of Reference...
Date: May 28, 2024 2:53:07 PM

Hi Casey,

Thank you for passing along the Terms of Reference. Please find my comments below:

Please see the traffic comments below and the link here for the detailed Region of Peel TIS formatting and contact information for background traffic (growth rate, AADT, signal timing, etc.).

- Regional Road 50 (Highway 50) – Urban Main Street (for information)

Access Type	Minimum Spacing Requirement
Full to Full	150 m
Full to RI/RO	75 m
RI/RO to RI/RO	Individual Site Review

- Please review the Controlled Access By-law 62-2013, which speaks to the Road Characterization Study (RCS). The RCS defines our various road classifications as well as the minimum access spacing distances that are associated with them.
- Analysis Period - Acceptable.
- Intersections – Please include the intersection of **Highway 50 and Ellwood Drive West** due to proximity and to understand the stress put onto the surrounding intersections.
- Horizon Years - Please include a 10-year horizon period.
- Please see the following contacts to obtain data for your analysis:
    - Please contact transportationplanningdata@peelregion.ca to confirm growth rates along the subject Regional road(s).
    - Please contact Damian Jamroz (damian.jamroz@peelregion.ca) Supervisor of Traffic Operations to obtain the most recent TMCs and/or average annual daily traffic (AADT).
    - Please contact Rebecca Caughey (Rebecca.caughey@peelregion.ca) Supervisor of Traffic Signals and Streetlighting, to obtain traffic signal timing parameters and ensure that the information includes the appropriate walk/don't walk splits, recall modes and offsets.
    - Please contact your Local Municipality Planning Department to obtain details on surrounding developments in the area that would affect traffic capacity in the planning horizon year(s).

Should you have any questions or concerns, please do not hesitate to let me know.

Thank you,

Yifan Shen

Specialist, Transportation Development
Transportation Development
Region of Peel
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON L6T 4B9

From: Casey Ge <casey@cgeconsulting.ca>
Sent: Tuesday, May 28, 2024 2:21 PM
To: Shen, Yifan <yifan.shen@peelregion.ca>; Zare, Mina <mina.zare@peelregion.ca>
Cc: Maurizio Rogato <mrogato@blackthorncorp.ca>
Subject: RE: Shore Street: Traffic Study Terms of Reference...

Hi Yifan, TOR attached for your review.

Thanks

Casey Ge, P.Eng.
President

CGE Consulting
e: casey@cgeconsulting.ca
p: 416-602-1885

From: Shen, Yifan <yifan.shen@peelregion.ca>
Sent: Tuesday, May 28, 2024 2:15 PM
To: Casey Ge <casey@cgeconsulting.ca>; Zare, Mina <mina.zare@peelregion.ca>

Cc: Maurizio Rogato <mrogato@blackthorncorp.ca>
Subject: RE: Shore Street: Traffic Study Terms of Reference...

Hi Casey,

Good afternoon, apologies for the delay. Would you happen to have the TOR that I assume was initially attached to the email? I believe it got lost in the email chain.

Warm regards,

Yifan Shen
Specialist, Transportation Development
Transportation Development
Region of Peel
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON L6T 4B9

From: Casey Ge <casey@cgeconsulting.ca>
Sent: Tuesday, May 28, 2024 2:00 PM
To: Zare, Mina <mina.zare@peelregion.ca>; Shen, Yifan <yifan.shen@peelregion.ca>
Cc: Maurizio Rogato <mrogato@blackthorncorp.ca>
Subject: RE: Shore Street: Traffic Study Terms of Reference...

Good afternoon Yifan,

Please advise if you are able to provide a response to us by end of this week. We would like to get started with the traffic study as soon as possible.

Thank you

Casey Ge, P.Eng.
President

CGE Consulting
e: casey@cgeconsulting.ca
p: 416-602-1885

From: Zare, Mina <mina.zare@peelregion.ca>
Sent: Monday, May 6, 2024 1:34 PM
To: Casey Ge <casey@cgeconsulting.ca>; Shen, Yifan <yifan.shen@peelregion.ca>
Cc: Maurizio Rogato <mrogato@blackthorncorp.ca>
Subject: RE: Shore Street: Traffic Study Terms of Reference...

Hi Casey,

I am forwarding the TOR to my colleague (Yifan Shen) who is working in this area of Highway 50.

Warm regards,

Mina Zare, MA, PMP (She, Her)
Specialist, Transportation Development
Transportation Division, Public Works
Region of Peel
10 Peel Centre Drive Suite B, 4th Floor
Brampton, ON L6T 4B9

From: Casey Ge <casey@cgeconsulting.ca>
Sent: Monday, May 6, 2024 1:09 PM
To: Zare, Mina <mina.zare@peelregion.ca>
Cc: Maurizio Rogato <mrogato@blackthorncorp.ca>
Subject: FW: Shore Street: Traffic Study Terms of Reference...

Hello Mina, we have been retained to undertake the transportation study for the proposed 4-storey 19-unit apartment building.

It is a small development and nominal amount of traffic is anticipated, however due to its proximity to Highway 50 I am circulating a terms of reference for your review. City also requested that Region be consulted for TOR approval.

If you have any questions please feel free to contact me.

Thank you and look forward to receive your response.

Casey Ge, P.Eng.
President

CGE Consulting
e: casey@cgeconsulting.ca
p: 416-602-1885

Appendix B:

Traffic Volumes and Signal Timing Plan

Ontario Traffic Inc.
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Project #24-248 - CGE Transportation Consulting

Intersection Count Report

Intersection:	Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W
Municipality:	Bolton
Count Date:	Wednesday, Jun 05, 2024
Site Code:	2424800004
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	

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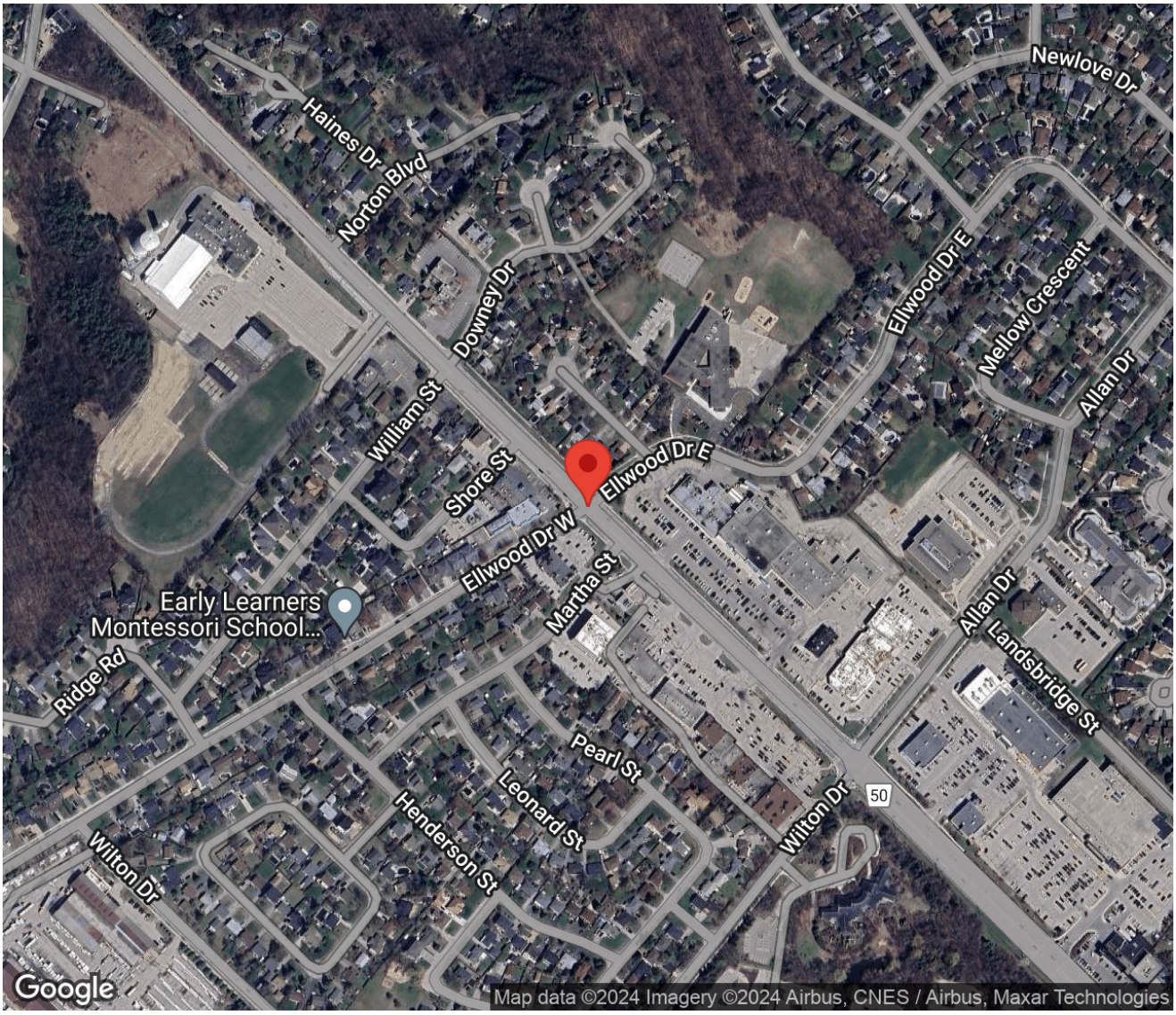
Traffic Count Map

Intersection:	Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W
Site Code:	2424800004
Municipality:	Bolton
Count Date:	Jun 05, 2024



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W
Site Code:	2424800004
Municipality:	Bolton
Count Date:	Jun 05, 2024

Hwy 50 (Queen St S) - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	30	862	12	0	904	2	36	335	13	0	384	0	1288
08:00 - 09:00	96	783	22	0	901	33	51	416	25	0	492	1	1393
BREAK													
16:00 - 17:00	67	621	26	0	714	8	107	1215	22	0	1344	2	2058
17:00 - 18:00	85	568	26	0	679	7	123	1171	24	0	1318	8	1997
GRAND TOTAL	**278**	**2834**	**86**	**0**	**3198**	**50**	**317**	**3137**	**84**	**0**	**3538**	**11**	**6736**

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Traffic Count Summary

Intersection:	Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W
Site Code:	2424800004
Municipality:	Bolton
Count Date:	Jun 05, 2024

Ellwood Dr E - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	29	9	46	0	84	1	13	13	61	0	87	0	171
08:00 - 09:00	50	28	65	0	143	7	18	60	78	0	156	12	299
BREAK													
16:00 - 17:00	36	47	102	0	185	8	50	47	100	0	197	1	382
17:00 - 18:00	33	39	69	0	141	7	52	39	91	0	182	10	323
GRAND TOTAL	**148**	**123**	**282**	**0**	**553**	**23**	**133**	**159**	**330**	**0**	**622**	**23**	**1175**

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Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W
Site Code: 2424800004
Municipality: Bolton
Count Date: Jun 05, 2024

North Approach - Hwy 50 (Queen St S)

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	3	202	1	0	206	1	0	0	0	1	0	0	0	0	0	0
07:15	4	194	1	0	199	1	7	0	0	8	0	0	0	0	0	0
07:30	8	216	3	0	227	0	1	0	0	1	0	0	0	0	0	2
07:45	13	231	7	0	251	0	11	0	0	11	0	0	0	0	0	0
08:00	13	193	5	0	211	0	6	0	0	6	0	0	0	0	0	0
08:15	20	214	3	0	237	0	7	0	0	7	0	0	0	0	0	6
08:30	38	178	6	0	222	4	6	0	0	10	0	0	0	0	0	17
08:45	21	175	8	0	204	0	4	0	0	4	0	0	0	0	0	10
SUBTOTAL	120	1603	34	0	1757	6	42	0	0	48	0	0	0	0	0	35

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Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W
Site Code: 2424800004
Municipality: Bolton
Count Date: Jun 05, 2024

North Approach - Hwy 50 (Queen St S)

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	20	157	8	0	185	0	6	0	0	6	0	0	0	0	0	3
16:15	12	159	9	0	180	0	4	0	0	4	0	0	0	0	0	2
16:30	14	146	4	0	164	0	1	0	0	1	0	0	0	0	0	0
16:45	20	144	5	0	169	1	4	0	0	5	0	0	0	0	0	3
17:00	26	147	6	0	179	0	0	0	0	0	0	0	0	0	0	0
17:15	16	133	8	0	157	0	1	0	0	1	0	0	0	0	0	4
17:30	23	159	7	0	189	0	1	0	0	1	0	0	0	0	0	3
17:45	20	126	5	0	151	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	151	1171	52	0	1374	1	18	0	0	19	0	0	0	0	0	15
GRAND TOTAL	**271**	**2774**	**86**	**0**	**3131**	**7**	**60**	**0**	**0**	**67**	**0**	**0**	**0**	**0**	**0**	**50**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W
Site Code: 2424800004
Municipality: Bolton
Count Date: Jun 05, 2024

South Approach - Hwy 50 (Queen St S)

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	8	82	5	0	95	0	2	1	0	3	0	0	0	0	0	0
07:15	7	67	0	0	74	1	6	2	0	9	0	0	0	0	0	0
07:30	10	79	3	0	92	2	3	0	0	5	0	0	0	0	0	0
07:45	8	88	2	0	98	0	8	0	0	8	0	0	0	0	0	0
08:00	12	96	4	0	112	1	3	1	0	5	0	0	0	0	0	0
08:15	5	105	5	0	115	1	1	1	0	3	0	0	0	0	0	0
08:30	16	86	7	0	109	3	3	1	0	7	0	0	0	0	0	0
08:45	12	117	5	0	134	1	5	1	0	7	0	0	0	0	0	1
SUBTOTAL	78	720	31	0	829	9	31	7	0	47	0	0	0	0	0	1

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W
Site Code: 2424800004
Municipality: Bolton
Count Date: Jun 05, 2024

South Approach - Hwy 50 (Queen St S)

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	29	286	4	0	319	0	1	0	0	1	0	0	0	0	0	0
16:15	25	293	4	0	322	1	4	1	0	6	0	0	0	0	0	2
16:30	25	332	7	0	364	0	2	1	0	3	0	0	0	0	0	0
16:45	27	296	5	0	328	0	1	0	0	1	0	0	0	0	0	0
17:00	15	267	5	0	287	0	2	0	0	2	0	0	0	0	0	2
17:15	30	276	7	0	313	0	0	0	0	0	0	0	0	0	0	0
17:30	36	301	5	0	342	0	0	0	0	0	0	0	0	0	0	5
17:45	42	324	7	0	373	0	1	0	0	1	0	0	0	0	0	1
SUBTOTAL	229	2375	44	0	2648	1	11	2	0	14	0	0	0	0	0	10
GRAND TOTAL	**307**	**3095**	**75**	**0**	**3477**	**10**	**42**	**9**	**0**	**61**	**0**	**0**	**0**	**0**	**0**	**11**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W
Site Code: 2424800004
Municipality: Bolton
Count Date: Jun 05, 2024

East Approach - Ellwood Dr E

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	5	3	5	0	13	0	0	0	0	0	0	0	0	0	0	0
07:15	5	0	8	0	13	0	1	0	0	1	0	0	0	0	0	0
07:30	6	3	13	0	22	2	0	3	0	5	0	0	0	0	0	1
07:45	9	2	15	0	26	2	0	2	0	4	0	0	0	0	0	0
08:00	6	3	12	0	21	0	0	1	0	1	0	0	0	0	0	0
08:15	5	3	11	0	19	0	0	1	0	1	0	0	0	0	0	0
08:30	12	7	17	0	36	2	0	1	0	3	0	0	0	0	0	3
08:45	23	14	20	0	57	2	1	2	0	5	0	0	0	0	0	4
SUBTOTAL	71	35	101	0	207	8	2	10	0	20	0	0	0	0	0	8

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W
Site Code: 2424800004
Municipality: Bolton
Count Date: Jun 05, 2024

East Approach - Ellwood Dr E

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	5	8	26	0	39	1	0	0	0	1	0	0	0	0	0	3
16:15	6	17	33	0	56	0	0	0	0	0	0	0	0	0	0	1
16:30	10	11	14	0	35	0	0	1	0	1	0	0	0	0	0	2
16:45	14	11	28	0	53	0	0	0	0	0	0	0	0	0	0	2
17:00	8	17	16	0	41	0	0	1	0	1	0	0	0	0	0	3
17:15	8	7	20	0	35	0	0	0	0	0	0	0	0	0	0	1
17:30	11	9	13	0	33	0	0	0	0	0	0	0	0	0	0	3
17:45	6	5	19	0	30	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	68	85	169	0	322	1	1	2	0	4	0	0	0	0	0	15
GRAND TOTAL	139	120	270	0	529	9	3	12	0	24	0	0	0	0	0	23

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W
Site Code: 2424800004
Municipality: Bolton
Count Date: Jun 05, 2024

West Approach - Ellwood Dr W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	1	1	13	0	15	0	1	0	0	1	0	0	0	0	0	0
07:15	2	3	20	0	25	0	0	0	0	0	0	0	0	0	0	0
07:30	5	4	14	0	23	1	0	0	0	1	0	0	0	0	0	0
07:45	3	4	14	0	21	1	0	0	0	1	0	0	0	0	0	0
08:00	4	3	16	0	23	1	0	0	0	1	0	0	0	0	0	2
08:15	7	9	22	0	38	0	1	0	0	1	0	0	0	0	0	1
08:30	3	29	16	0	48	0	2	1	0	3	0	1	0	0	1	7
08:45	3	15	22	0	40	0	0	1	0	1	0	0	0	0	0	2
SUBTOTAL	28	68	137	0	233	3	4	2	0	9	0	1	0	0	1	12

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W
Site Code: 2424800004
Municipality: Bolton
Count Date: Jun 05, 2024

West Approach - Ellwood Dr W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	10	10	30	0	50	0	0	1	0	1	0	0	0	0	0	0
16:15	18	5	26	0	49	0	0	0	0	0	0	0	0	0	0	0
16:30	10	18	26	0	54	0	0	0	0	0	0	0	0	0	0	0
16:45	12	14	16	0	42	0	0	1	0	1	0	0	0	0	0	1
17:00	21	10	19	0	50	0	1	1	0	2	0	0	0	0	0	1
17:15	9	13	25	0	47	0	0	0	0	0	0	0	0	0	0	4
17:30	16	9	27	0	52	0	0	0	0	0	0	0	0	0	0	3
17:45	5	6	18	0	29	1	0	1	0	2	0	0	0	0	0	2
SUBTOTAL	101	85	187	0	373	1	1	4	0	6	0	0	0	0	0	11
GRAND TOTAL	**129**	**153**	**324**	**0**	**606**	**4**	**5**	**6**	**0**	**15**	**0**	**1**	**0**	**0**	**1**	**23**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	08:00:00
To:	09:00:00	To:	09:00:00

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W
Site Code: 2424800004
Count Date: Jun 05, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Hwy 50 (Queen St S) runs N/S

North Approach

	Out	In	Total
Cars	874	481	1355
Trucks	27	18	45
Bicycles	0	0	0
	901	**499**	**1400**

Hwy 50 (Queen St S)

Bicycles	0	0	0	0
Trucks	0	23	4	0
Cars	22	760	92	0
Totals	**22**	**783**	**96**	**0**

East Approach

	Out	In	Total
Cars	133	169	302
Trucks	10	11	21
Bicycles	0	1	1
	143	**181**	**324**

Peds: 33

Ellwood Dr W

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	1	17	**18**
1	3	56	**60**
0	2	76	**78**

Peds: 12

Peds: 7

Ellwood Dr E

Totals	Cars	Trucks	Bicycles
0	0	0	0
65	60	5	0
28	27	1	0
50	46	4	0

Peds: 1

West Approach

	Out	In	Total
Cars	149	94	243
Trucks	6	7	13
Bicycles	1	0	1
	156	**101**	**257**

Totals	**51**	**416**	**25**	**0**
Cars	45	404	21	0
Trucks	6	12	4	0
Bicycles	0	0	0	0

Hwy 50 (Queen St S)

South Approach

	Out	In	Total
Cars	470	882	1352
Trucks	22	29	51
Bicycles	0	0	0
	492	**911**	**1403**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W
Site Code: 2424800004
Count Date: Jun 05, 2024
Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Hwy 50 (Queen St S)						South Approach Hwy 50 (Queen St S)						East Approach Ellwood Dr E						West Approach Ellwood Dr W						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:00	13	199	5	0	0	217	13	99	5	0	0	117	6	3	13	0	0	22	5	3	16	0	2	24	380
08:15	20	221	3	0	6	244	6	106	6	0	0	118	5	3	12	0	0	20	7	10	22	0	1	39	421
08:30	42	184	6	0	17	232	19	89	8	0	0	116	14	7	18	0	3	39	3	32	17	0	7	52	439
08:45	21	179	8	0	10	208	13	122	6	0	1	141	25	15	22	0	4	62	3	15	23	0	2	41	452
Grand Total	**96**	**783**	**22**	**0**	**33**	**901**	**51**	**416**	**25**	**0**	**1**	**492**	**50**	**28**	**65**	**0**	**7**	**143**	**18**	**60**	**78**	**0**	**12**	**156**	**1692**
Approach %	10.7	86.9	2.4	0		-	10.4	84.6	5.1	0		-	35	19.6	45.5	0		-	11.5	38.5	50	0		-	
Totals %	5.7	46.3	1.3	0		53.3	3	24.6	1.5	0		29.1	3	1.7	3.8	0		8.5	1.1	3.5	4.6	0		9.2	
PHF	**0.57**	**0.89**	**0.69**	**0**		**0.92**	**0.67**	**0.85**	**0.78**	**0**		**0.87**	**0.5**	**0.47**	**0.74**	**0**		**0.58**	**0.64**	**0.47**	**0.85**	**0**		**0.75**	**0.94**
Cars	92	760	22	0		874	45	404	21	0		470	46	27	60	0		133	17	56	76	0		149	1626
% Cars	95.8	97.1	100	0		97	88.2	97.1	84	0		95.5	92	96.4	92.3	0		93	94.4	93.3	97.4	0		95.5	96.1
Trucks	4	23	0	0		27	6	12	4	0		22	4	1	5	0		10	1	3	2	0		6	65
% Trucks	4.2	2.9	0	0		3	11.8	2.9	16	0		4.5	8	3.6	7.7	0		7	5.6	5	2.6	0		3.8	3.8
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	1
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1.7	0	0		0.6	0.1
Peds					33	-					1	-					7	-					12	-	53
% Peds					62.3	-					1.9	-					13.2	-					22.6	-	

Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period		One Hour Peak	
From:	16:00:00	From:	16:00:00
To:	18:00:00	To:	17:00:00

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W
Site Code: 2424800004
Count Date: Jun 05, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Hwy 50 (Queen St S) runs N/S

North Approach

	Out	In	Total
Cars	698	1358	2056
Trucks	16	9	25
Bicycles	0	0	0
	714	**1367**	**2081**

Hwy 50 (Queen St S)

Bicycles	0	0	0	0
Trucks	0	15	1	0
Cars	26	606	66	0
Totals	**26**	**621**	**67**	**0**

East Approach

	Out	In	Total
Cars	183	133	316
Trucks	2	3	5
Bicycles	0	0	0
	185	**136**	**321**

Ellwood Dr W

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	50	**50**
0	0	47	**47**
0	2	98	**100**

Peds: 1

Peds: 8

N
W
E
S

Peds: 8

Peds: 2

Ellwood Dr E

Totals	Cars	Trucks	Bicycles
0	0	0	0
102	101	1	0
47	47	0	0
36	35	1	0

West Approach

	Out	In	Total
Cars	195	179	374
Trucks	2	1	3
Bicycles	0	0	0
	197	**180**	**377**

Hwy 50 (Queen St S)

Totals	**107**	**1215**	**22**	**0**
Cars	106	1207	20	0
Trucks	1	8	2	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	1333	739	2072
Trucks	11	18	29
Bicycles	0	0	0
	1344	**757**	**2101**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W
Site Code: 2424800004
Count Date: Jun 05, 2024
Period: 16:00 - 18:00

Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Hwy 50 (Queen St S)						South Approach Hwy 50 (Queen St S)						East Approach Ellwood Dr E						West Approach Ellwood Dr W						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:00	20	163	8	0	3	191	29	287	4	0	0	320	6	8	26	0	3	40	10	10	31	0	0	51	602
16:15	12	163	9	0	2	184	26	297	5	0	2	328	6	17	33	0	1	56	18	5	26	0	0	49	617
16:30	14	147	4	0	0	165	25	334	8	0	0	367	10	11	15	0	2	36	10	18	26	0	0	54	622
16:45	21	148	5	0	3	174	27	297	5	0	0	329	14	11	28	0	2	53	12	14	17	0	1	43	599
Grand Total	**67**	**621**	**26**	**0**	**8**	**714**	**107**	**1215**	**22**	**0**	**2**	**1344**	**36**	**47**	**102**	**0**	**8**	**185**	**50**	**47**	**100**	**0**	**1**	**197**	**2440**
Approach %	9.4	87	3.6	0		-	8	90.4	1.6	0		-	19.5	25.4	55.1	0		-	25.4	23.9	50.8	0		-	
Totals %	2.7	25.5	1.1	0		29.3	4.4	49.8	0.9	0		55.1	1.5	1.9	4.2	0		7.6	2	1.9	4.1	0		8.1	
PHF	**0.8**	**0.95**	**0.72**	**0**		**0.93**	**0.92**	**0.91**	**0.69**	**0**		**0.92**	**0.64**	**0.69**	**0.77**	**0**		**0.83**	**0.69**	**0.65**	**0.81**	**0**		**0.91**	**0.98**
Cars	66	606	26	0		698	106	1207	20	0		1333	35	47	101	0		183	50	47	98	0		195	2409
% Cars	98.5	97.6	100	0		97.8	99.1	99.3	90.9	0		99.2	97.2	100	99	0		98.9	100	100	98	0		99	98.7
Trucks	1	15	0	0		16	1	8	2	0		11	1	0	1	0		2	0	0	2	0		2	31
% Trucks	1.5	2.4	0	0		2.2	0.9	0.7	9.1	0		0.8	2.8	0	1	0		1.1	0	0	2	0		1	1.3
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					8	-					2	-					8	-					1	-	19
% Peds					42.1	-					10.5	-					42.1	-					5.3	-	

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	**May 31, 2024**		**Prepared Date**	**June 4, 2024**
Database Rev	**iNET**		**Completed By**	**N.R.L**
Timing Card / Field rev	**9**		**Checked By**	**J.V**

Location	**Highway 50 and Ellwood Drive**

Phase #	**Street Name - Direction**	**Vehicle Minimum (s)**	**Pedestrian Minimum (s)**		**Amber (s)**	**All Red (s)**	**TIME PERIOD (s) (Green+Amber+All Red)**		
			WALK	**FDWALK**			**AM SPLITS**	**OFF SPLITS**	**PM SPLITS**
1	Not In Use	-	-	-	-	-	-	-	-
2	Highway 50 - Southbound	10	10	16	4	2.3	80	65	102
3	Not In Use	-	-	-	-	-	-	-	-
4	Ellwood Drive - Westbound	10	10	25	4	3.6	40	45	38
5	Highway 50 - SBLT Prot. Perm.	5	0	0	3	0	9	9	9
6	Highway 50 - Northbound	10	10	16	4	2.3	71	56	93
7	Not In Use	-	-	-	-	-	-	-	-
8	Ellwood Drive - Eastbound	10	10	25	4	3.6	40	45	38

System Control
Yes

Semi-Actuated Mode
Yes

TIME (M-F)	**PEAK**	**CYCLE LENGTH (s)**	**OFFSET (s)**
06:00 - 09:00	AM	120	55
09:00 - 14:00	OFF	110	81
14:00 - 20:00	PM	140	107

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #24-248 - CGE Transportation Consulting

Intersection Count Report

Intersection:	Hwy 50 (Queen St S) & Shore St
Municipality:	Bolton
Count Date:	Wednesday, Jun 05, 2024
Site Code:	2424800001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
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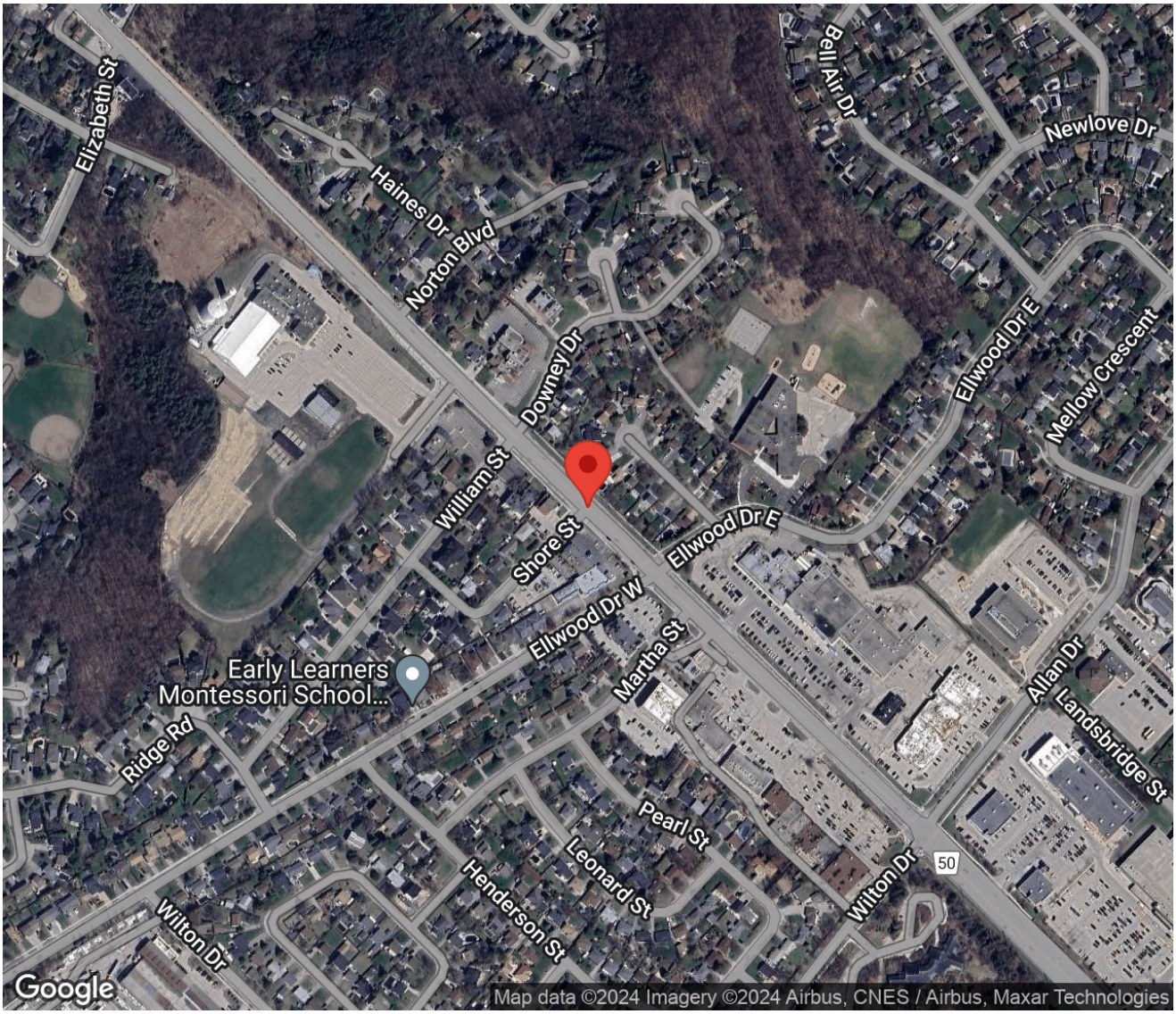
Traffic Count Map

Intersection:	Hwy 50 (Queen St S) & Shore St
Site Code:	2424800001
Municipality:	Bolton
Count Date:	Jun 05, 2024



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: Hwy 50 (Queen St S) & Shore St
Site Code: 2424800001
Municipality: Bolton
Count Date: Jun 05, 2024

Hwy 50 (Queen St S) - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	897	3	0	900	0	1	394	0	0	395	0	1295
08:00 - 09:00	0	900	8	0	908	0	6	485	0	0	491	0	1399
BREAK													
16:00 - 17:00	0	703	11	0	714	0	20	1296	0	0	1316	0	2030
17:00 - 18:00	0	667	16	0	683	0	10	1218	0	1	1229	0	1912
GRAND TOTAL	**0**	**3167**	**38**	**0**	**3205**	**0**	**37**	**3393**	**0**	**1**	**3431**	**0**	**6636**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: Hwy 50 (Queen St S) & Shore St
Site Code: 2424800001
Municipality: Bolton
Count Date: Jun 05, 2024

Shore St - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	0	0	0	0	0	0	0	4	0	4	2	4
08:00 - 09:00	0	0	0	0	0	0	3	0	3	0	6	5	6
BREAK													
16:00 - 17:00	0	0	0	0	0	0	8	0	16	0	24	4	24
17:00 - 18:00	0	0	0	0	0	0	17	0	12	0	29	8	29
GRAND TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**28**	**0**	**35**	**0**	**63**	**19**	**63**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Shore St
Site Code: 2424800001
Municipality: Bolton
Count Date: Jun 05, 2024

North Approach - Hwy 50 (Queen St S)

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	203	0	0	203	0	0	0	0	0	0	0	0	0	0	0
07:15	0	195	0	0	195	0	8	0	0	8	0	0	0	0	0	0
07:30	0	234	0	0	234	0	3	0	0	3	0	0	0	0	0	0
07:45	0	244	3	0	247	0	10	0	0	10	0	0	0	0	0	0
08:00	0	212	2	0	214	0	5	0	0	5	0	0	0	0	0	0
08:15	0	231	1	0	232	0	7	0	0	7	0	0	0	0	0	0
08:30	0	225	2	0	227	0	8	1	0	9	0	0	0	0	0	0
08:45	0	208	2	0	210	0	4	0	0	4	0	0	0	0	0	0
SUBTOTAL	0	1752	10	0	1762	0	45	1	0	46	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Shore St
Site Code: 2424800001
Municipality: Bolton
Count Date: Jun 05, 2024

North Approach - Hwy 50 (Queen St S)

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	0	183	1	0	184	0	6	1	0	7	0	0	0	0	0	0
16:15	0	178	1	0	179	0	4	0	0	4	0	0	0	0	0	0
16:30	0	160	2	0	162	0	2	0	0	2	0	0	0	0	0	0
16:45	0	166	6	0	172	0	4	0	0	4	0	0	0	0	0	0
17:00	0	172	6	0	178	0	0	0	0	0	0	0	0	0	0	0
17:15	0	156	2	0	158	0	0	0	0	0	0	0	0	0	0	0
17:30	0	180	3	0	183	0	1	0	0	1	0	0	0	0	0	0
17:45	0	156	5	0	161	0	2	0	0	2	0	0	0	0	0	0
SUBTOTAL	0	1351	26	0	1377	0	19	1	0	20	0	0	0	0	0	0
GRAND TOTAL	0	3103	36	0	3139	0	64	2	0	66	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Shore St
Site Code: 2424800001
Municipality: Bolton
Count Date: Jun 05, 2024

South Approach - Hwy 50 (Queen St S)

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	87	0	0	87	0	2	0	0	2	0	0	0	0	0	0
07:15	0	80	0	0	80	0	6	0	0	6	0	0	0	0	0	0
07:30	0	92	0	0	92	0	7	0	0	7	0	0	0	0	0	0
07:45	1	109	0	0	110	0	11	0	0	11	0	0	0	0	0	0
08:00	2	111	0	0	113	0	6	0	0	6	0	0	0	0	0	0
08:15	1	117	0	0	118	0	2	0	0	2	0	0	0	0	0	0
08:30	1	105	0	0	106	0	4	0	0	4	0	0	0	0	0	0
08:45	2	133	0	0	135	0	7	0	0	7	0	0	0	0	0	0
SUBTOTAL	7	834	0	0	841	0	45	0	0	45	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Shore St
Site Code: 2424800001
Municipality: Bolton
Count Date: Jun 05, 2024

South Approach - Hwy 50 (Queen St S)

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
16:00	7	305	0	0	312	0	1	0	0	1	0	0	0	0	0	0
16:15	7	334	0	0	341	0	5	0	0	5	0	0	0	0	0	0
16:30	1	335	0	0	336	0	2	0	0	2	0	0	0	0	0	0
16:45	5	313	0	0	318	0	1	0	0	1	0	0	0	0	0	0
17:00	1	289	0	0	290	1	2	0	0	3	0	0	0	0	0	0
17:15	5	277	0	0	282	0	0	0	0	0	0	0	0	0	0	0
17:30	2	323	0	0	325	0	0	0	0	0	0	0	0	0	0	0
17:45	1	325	0	1	327	0	2	0	0	2	0	0	0	0	0	0
SUBTOTAL	29	2501	0	1	2531	1	13	0	0	14	0	0	0	0	0	0
GRAND TOTAL	36	3335	0	1	3372	1	58	0	0	59	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Shore St
Site Code: 2424800001
Municipality: Bolton
Count Date: Jun 05, 2024

West Approach - Shore St

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	2
08:00	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	2
08:15	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
08:45	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	3	0	6	0	9	0	0	1	0	1	0	0	0	0	0	7

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Shore St
Site Code: 2424800001
Municipality: Bolton
Count Date: Jun 05, 2024

West Approach - Shore St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
16:00	3	0	3	0	6	0	0	1	0	1	0	0	0	0	0	0
16:15	4	0	3	0	7	0	0	0	0	0	0	0	0	0	0	3
16:30	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	1
16:45	1	0	5	0	6	0	0	0	0	0	0	0	0	0	0	0
17:00	4	0	6	0	10	0	0	0	0	0	0	0	0	0	0	0
17:15	3	0	3	0	6	0	0	1	0	1	0	0	0	0	0	2
17:30	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
17:45	7	0	2	0	9	0	0	0	0	0	0	0	0	0	0	1
SUBTOTAL	25	0	26	0	51	0	0	2	0	2	0	0	0	0	0	12
GRAND TOTAL	**28**	**0**	**32**	**0**	**60**	**0**	**0**	**3**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**19**

Peak Hour Diagram

Specified Period
From: 07:00:00
To: 09:00:00

One Hour Peak
From: 07:45:00
To: 08:45:00

Intersection: Hwy 50 (Queen St S) & Shore St
Site Code: 2424800001
Count Date: Jun 05, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Hwy 50 (Queen St S) runs N/S

North Approach

	Out	In	Total
Cars	920	444	1364
Trucks	31	23	54
Bicycles	0	0	0
	951	**467**	**1418**

Hwy 50 (Queen St S)

Bicycles	0	0	0
Trucks	1	30	0
Cars	8	912	0
Totals	**9**	**942**	**0**

Peds: 0

Shore St

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	2	**2**
0	1	4	**5**

Peds: 7

Peds: 0

Peds: 0

West Approach

	Out	In	Total
Cars	6	13	19
Trucks	1	1	2
Bicycles	0	0	0
	7	**14**	**21**

Totals	**5**	**465**	**0**
Cars	5	442	0
Trucks	0	23	0
Bicycles	0	0	0

Hwy 50 (Queen St S)

South Approach

	Out	In	Total
Cars	447	916	1363
Trucks	23	31	54
Bicycles	0	0	0
	470	**947**	**1417**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
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Peak Hour Summary

Intersection: Hwy 50 (Queen St S) & Shore St
Site Code: 2424800001
Count Date: Jun 05, 2024
Period: 07:00 - 09:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Hwy 50 (Queen St S)						South Approach Hwy 50 (Queen St S)						East Approach						West Approach Shore St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45		254	3	0	0	257	1	120		0	0	121					0		0		3	0	2	3	381
08:00		217	2	0	0	219	2	117		0	0	119					0		1		1	0	2	2	340
08:15		238	1	0	0	239	1	119		0	0	120					0		1		1	0	0	2	361
08:30		233	3	0	0	236	1	109		0	0	110					0		0		0	0	3	0	346
Grand Total		**942**	**9**	**0**	**0**	**951**	**5**	**465**		**0**	**0**	**470**					**0**	**0**	**2**		**5**	**0**	**7**	**7**	**1428**
Approach %		99.1	0.9	0		-	1.1	98.9		0		-						-	28.6		71.4	0		-	
Totals %		66	0.6	0		66.6	0.4	32.9		0		32.9						0	0.1		0.4	0		0.5	
PHF		**0.93**	**0.75**	**0**		**0.93**	**0.63**	**0.97**		**0**		**0.97**						**0**	**0.5**		**0.42**	**0**		**0.58**	**0.94**
Cars		912	8	0		920	5	442		0		447						0	2		4	0		6	1373
% Cars		96.8	88.9	0		96.7	100	95.1		0		95.1						0	100		80	0		85.7	96.1
Trucks		30	1	0		31	0	23		0		23						0	0		1	0		1	55
% Trucks		3.2	11.1	0		3.3	0	4.9		0		4.9						0	0		20	0		14.3	3.9
Bicycles		0	0	0		0	0	0		0		0						0	0		0	0		0	0
% Bicycles		0	0	0		0	0	0		0		0						0	0		0	0		0	0
Peds					0	-					0	-					0	-					7	-	7
% Peds					0	-					0	-					0	-					100	-	

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Peak Hour Diagram

Specified Period		One Hour Peak	
From:	16:00:00	From:	16:00:00
To:	18:00:00	To:	17:00:00

Intersection: Hwy 50 (Queen St S) & Shore St
Site Code: 2424800001
Count Date: Jun 05, 2024

Weather conditions: Clear

**** Unsignalized Intersection **** **Major Road:** Hwy 50 (Queen St S) runs N/S

North Approach

	Out	In	Total
Cars	697	1295	1992
Trucks	17	9	26
Bicycles	0	0	0
	714	**1304**	**2018**

Hwy 50 (Queen St S)

Bicycles	0	0	0
Trucks	1	16	0
Cars	10	687	0
Totals	**11**	**703**	**0**

Shore St

			Totals
0	0	0	**0**
0	0	8	**8**
0	1	15	**16**

Peds: 0

Peds: 4

N
W
E
S

Peds: 0

Peds: 0

West Approach

	Out	In	Total
Cars	23	30	53
Trucks	1	1	2
Bicycles	0	0	0
	24	**31**	**55**

Totals	**20**	**1296**	**0**
Cars	20	1287	0
Trucks	0	9	0
Bicycles	0	0	0

Hwy 50 (Queen St S)

South Approach

	Out	In	Total
Cars	1307	702	2009
Trucks	9	17	26
Bicycles	0	0	0
	1316	**719**	**2035**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Hwy 50 (Queen St S) & Shore St
Site Code: 2424800001
Count Date: Jun 05, 2024
Period: 16:00 - 18:00

Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Hwy 50 (Queen St S)						South Approach Hwy 50 (Queen St S)						East Approach						West Approach Shore St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:00		189	2	0	0	191	7	306		0	0	313					0		3		4	0	0	7	511
16:15		182	1	0	0	183	7	339		0	0	346					0		4		3	0	3	7	536
16:30		162	2	0	0	164	1	337		0	0	338					0		0		4	0	1	4	506
16:45		170	6	0	0	176	5	314		0	0	319					0		1		5	0	0	6	501
Grand Total		**703**	**11**	**0**	**0**	**714**	**20**	**1296**		**0**	**0**	**1316**					**0**	**0**	**8**		**16**	**0**	**4**	**24**	**2054**
Approach %		98.5	1.5	0		-	1.5	98.5		0		-						-	33.3		66.7	0		-	
Totals %		34.2	0.5	0		34.8	1	63.1		0		64.1						0	0.4		0.8	0		1.2	
PHF		**0.93**	**0.46**	**0**		**0.93**	**0.71**	**0.96**		**0**		**0.95**						**0**	**0.5**		**0.8**	**0**		**0.86**	**0.96**
Cars		687	10	0		697	20	1287		0		1307						0	8		15	0		23	2027
% Cars		97.7	90.9	0		97.6	100	99.3		0		99.3						0	100		93.8	0		95.8	98.7
Trucks		16	1	0		17	0	9		0		9						0	0		1	0		1	27
% Trucks		2.3	9.1	0		2.4	0	0.7		0		0.7						0	0		6.3	0		4.2	1.3
Bicycles		0	0	0		0	0	0		0		0						0	0		0	0		0	0
% Bicycles		0	0	0		0	0	0		0		0						0	0		0	0		0	0
Peds					0	-					0	-					0	-					4	-	4
% Peds					0	-					0	-					0	-					100	-	

Ontario Traffic Inc.
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Project #24-248 - CGE Transportation Consulting

Intersection Count Report

Intersection:	Shore St & East Site Access
Municipality:	Bolton
Count Date:	Wednesday, Jun 05, 2024
Site Code:	2424800003
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
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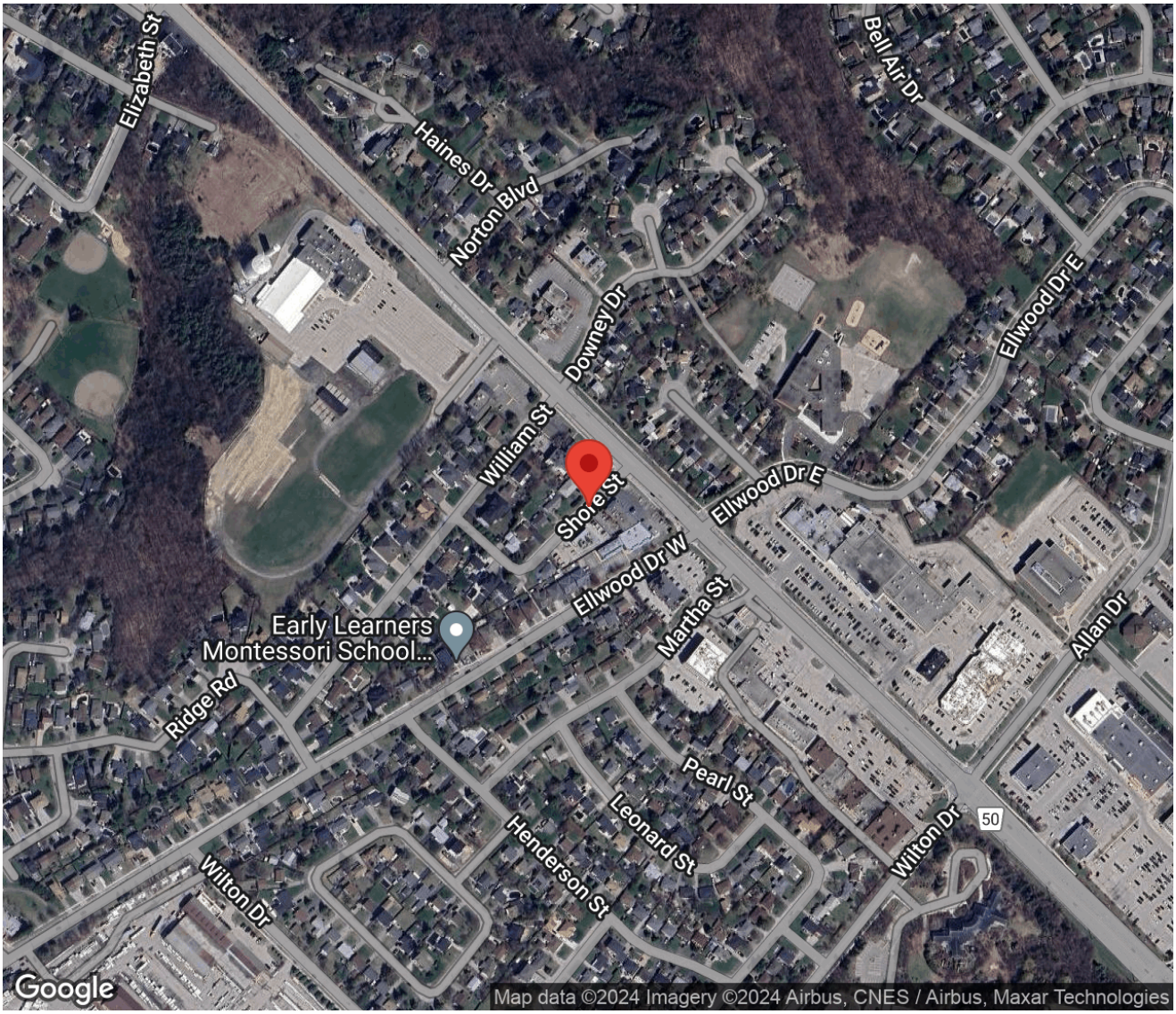
Traffic Count Map

Intersection:	Shore St & East Site Access
Site Code:	2424800003
Municipality:	Bolton
Count Date:	Jun 05, 2024



Ontario Traffic Inc.
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Traffic Count Summary

Intersection:	Shore St & East Site Access
Site Code:	2424800003
Municipality:	Bolton
Count Date:	Jun 05, 2024

East Site Access - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	0	0	0	0	0	0	0	0	0	0	1	0
08:00 - 09:00	0	0	0	0	0	0	0	0	0	0	0	0	0
BREAK													
16:00 - 17:00	0	0	0	0	0	0	1	0	2	0	3	2	3
17:00 - 18:00	0	0	0	0	0	0	0	0	0	0	0	1	0
GRAND TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**3**	**4**	**3**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Shore St & East Site Access
Site Code:	2424800003
Municipality:	Bolton
Count Date:	Jun 05, 2024

Shore St - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	3	0	0	3	0	0	4	0	0	4	0	7
08:00 - 09:00	0	6	0	0	6	0	0	6	0	0	6	0	12
BREAK													
16:00 - 17:00	4	13	0	0	17	0	0	9	1	0	10	0	27
17:00 - 18:00	1	8	0	0	9	0	0	6	0	0	6	0	15
GRAND TOTAL	**5**	**30**	**0**	**0**	**35**	**0**	**0**	**25**	**1**	**0**	**26**	**0**	**61**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Shore St & East Site Access
Site Code: 2424800003
Municipality: Bolton
Count Date: Jun 05, 2024

South Approach - East Site Access

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Shore St & East Site Access
Site Code: 2424800003
Municipality: Bolton
Count Date: Jun 05, 2024

South Approach - East Site Access

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
16:00	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	1
16:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
SUBTOTAL	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	3
GRAND TOTAL	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	4

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Shore St & East Site Access
Site Code: 2424800003
Municipality: Bolton
Count Date: Jun 05, 2024

East Approach - Shore St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
08:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
08:15	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
08:30	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Shore St & East Site Access
Site Code: 2424800003
Municipality: Bolton
Count Date: Jun 05, 2024

East Approach - Shore St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
16:00	3	2	0	0	5	0	1	0	0	1	0	0	0	0	0	0
16:15	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0
16:30	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
16:45	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0
17:00	0	3	0	0	3	1	0	0	0	1	0	0	0	0	0	0
17:15	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0
17:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	4	20	0	0	24	1	1	0	0	2	0	0	0	0	0	0
GRAND TOTAL	4	29	0	0	33	1	1	0	0	2	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Shore St & East Site Access
Site Code: 2424800003
Municipality: Bolton
Count Date: Jun 05, 2024

West Approach - Shore St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
07:45	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
08:00	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	9	0	0	9	0	1	0	0	1	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Shore St & East Site Access
Site Code: 2424800003
Municipality: Bolton
Count Date: Jun 05, 2024

West Approach - Shore St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
16:00	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	0
16:15	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0
16:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
16:45	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0
17:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:15	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
17:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:45	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	13	1	0	14	0	2	0	0	2	0	0	0	0	0	0
GRAND TOTAL	0	22	1	0	23	0	3	0	0	3	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	07:45:00
To:	09:00:00	To:	08:45:00

Intersection: Shore St & East Site Access
Site Code: 2424800003
Count Date: Jun 05, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Shore St runs E/W

East Approach

	Out	In	Total
Cars	9	4	13
Trucks	0	1	1
Bicycles	0	0	0
	9	**5**	**14**

Peds: 0

Shore St

	Totals
0 0 0	**0**
0 1 4	**5**
0 0 0	**0**

Peds: 0

Peds: 0

Shore St

	Totals			
	0	0	0	0
	9	9	0	0
	0	0	0	0

West Approach

	Out	In	Total
Cars	4	9	13
Trucks	1	0	1
Bicycles	0	0	0
	5	**9**	**14**

Totals	0	0	0
Cars	0	0	0
Trucks	0	0	0
Bicycles	0	0	0

East Site Access

South Approach

	Out	In	Total
Cars	0	0	0
Trucks	0	0	0
Bicycles	0	0	0
	0	**0**	**0**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Shore St & East Site Access
Site Code: 2424800003
Count Date: Jun 05, 2024
Period: 07:00 - 09:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach						South Approach East Site Access						East Approach Shore St						West Approach Shore St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45					0		0		0	0	0	0	0	3		0	0	3		3	0	0	0	3	6
08:00					0		0		0	0	0	0	0	1		0	0	1		2	0	0	0	2	3
08:15					0		0		0	0	0	0	0	3		0	0	3		0	0	0	0	0	3
08:30					0		0		0	0	0	0	0	2		0	0	2		0	0	0	0	0	2
Grand Total					**0**	**0**	**0**		**0**	**0**	**0**	**0**	**0**	**9**		**0**	**0**	**9**		**5**	**0**	**0**	**0**	**5**	**14**
Approach %						-	0		0	0		-	0	100		0		-		100	0	0		-	
Totals %						0	0		0	0		0	0	64.3		0		64.3		35.7	0	0		35.7	
PHF						**0**	**0**		**0**	**0**		**0**	**0**	**0.75**		**0**		**0.75**		**0.42**	**0**	**0**		**0.42**	**0.58**
Cars						0	0		0	0		0	0	9		0		9		4	0	0		4	13
% Cars						0	0		0	0		0	0	100		0		100		80	0	0		80	92.9
Trucks						0	0		0	0		0	0	0		0		0		1	0	0		1	1
% Trucks						0	0		0	0		0	0	0		0		0		20	0	0		20	7.1
Bicycles						0	0		0	0		0	0	0		0		0		0	0	0		0	0
% Bicycles						0	0		0	0		0	0	0		0		0		0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period		One Hour Peak	
From:	16:00:00	From:	16:00:00
To:	18:00:00	To:	17:00:00

Intersection: Shore St & East Site Access
Site Code: 2424800003
Count Date: Jun 05, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Shore St runs E/W

East Approach

	Out	In	Total
Cars	16	9	25
Trucks	1	2	3
Bicycles	0	0	0
	17	**11**	**28**

Peds: 0

Shore St

			Totals
0	0	0	**0**
0	2	7	**9**
0	0	1	**1**

Peds: 0

Peds: 0

Shore St

	Totals			
	0	0	0	0
	13	12	1	0
	4	4	0	0

Peds: 2

West Approach

	Out	In	Total
Cars	8	13	21
Trucks	2	1	3
Bicycles	0	0	0
	10	**14**	**24**

Totals	**1**	**2**	**0**
Cars	1	2	0
Trucks	0	0	0
Bicycles	0	0	0

East Site Access

South Approach

	Out	In	Total
Cars	3	5	8
Trucks	0	0	0
Bicycles	0	0	0
	3	**5**	**8**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Shore St & East Site Access
Site Code: 2424800003
Count Date: Jun 05, 2024
Period: 16:00 - 18:00

Peak Hour Data (16:00 - 17:00)

Start Time	North Approach						South Approach East Site Access						East Approach Shore St						West Approach Shore St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:00					0		1		1	0	1	2	3	3		0	0	6		4	0	0	0	4	12
16:15					0		0		1	0	0	1	0	6		0	0	6		1	1	0	0	2	9
16:30					0		0		0	0	1	0	0	2		0	0	2		1	0	0	0	1	3
16:45					0		0		0	0	0	0	1	2		0	0	3		3	0	0	0	3	6
Grand Total					**0**	**0**	**1**		**2**	**0**	**2**	**3**	**4**	**13**		**0**	**0**	**17**		**9**	**1**	**0**	**0**	**10**	**30**
Approach %						-	33.3		66.7	0		-	23.5	76.5		0		-		90	10	0		-	
Totals %						0	3.3		6.7	0		10	13.3	43.3		0		56.7		30	3.3	0		33.3	
PHF						**0**	**0.25**		**0.5**	**0**		**0.38**	**0.33**	**0.54**		**0**		**0.71**		**0.56**	**0.25**	**0**		**0.63**	**0.63**
Cars						0	1		2	0		3	4	12		0		16		7	1	0		8	27
% Cars						0	100		100	0		100	100	92.3		0		94.1		77.8	100	0		80	90
Trucks						0	0		0	0		0	0	1		0		1		2	0	0		2	3
% Trucks						0	0		0	0		0	0	7.7		0		5.9		22.2	0	0		20	10
Bicycles						0	0		0	0		0	0	0		0		0		0	0	0		0	0
% Bicycles						0	0		0	0		0	0	0		0		0		0	0	0		0	0
Peds					0	-					2	-					0	-					0	-	2
% Peds					0	-					100	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #24-248 - CGE Transportation Consulting

Intersection Count Report

Intersection:	Shore St & West Site Access
Municipality:	Bolton
Count Date:	Wednesday, Jun 05, 2024
Site Code:	2424800002
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
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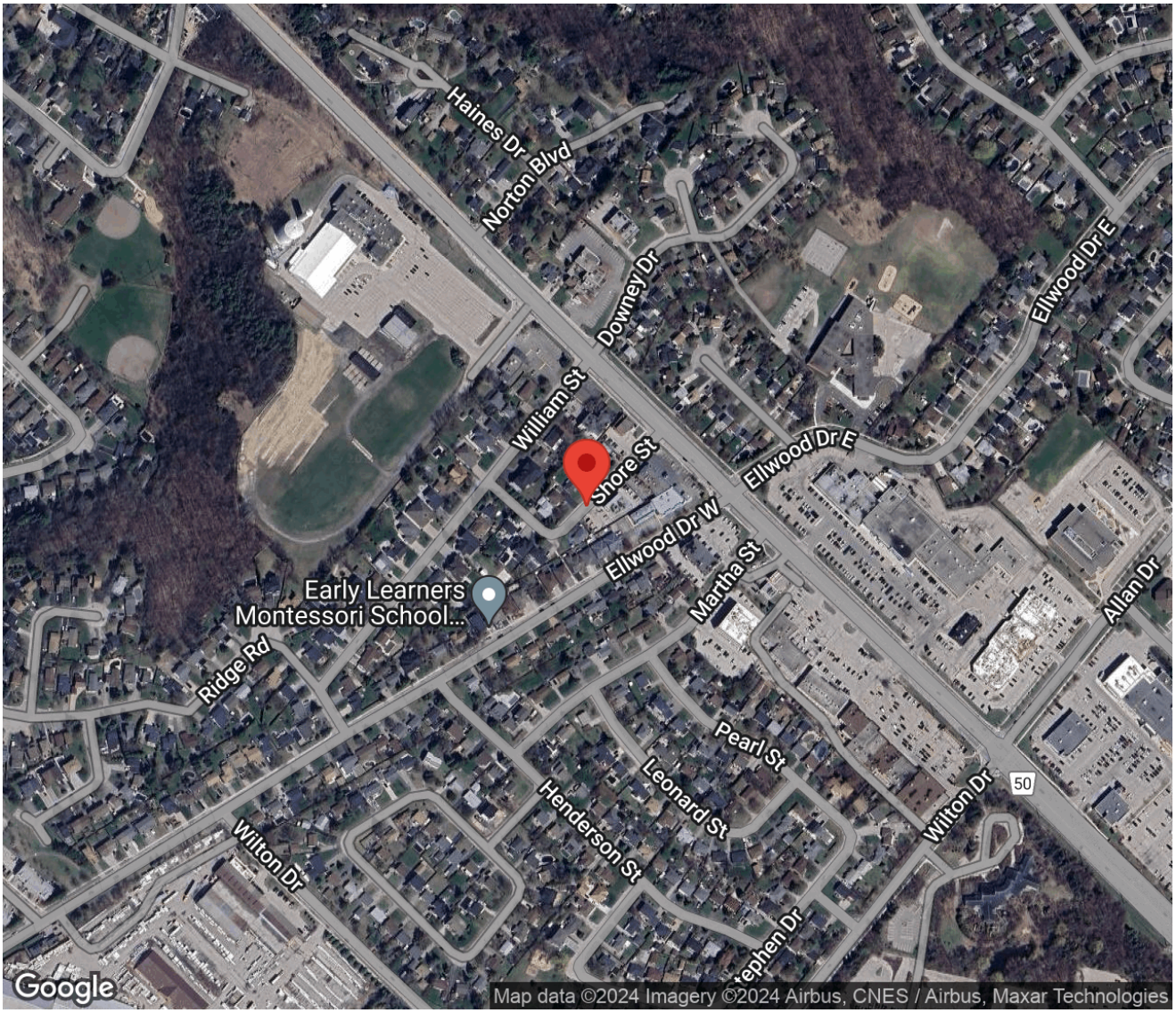
Traffic Count Map

Intersection:	Shore St & West Site Access
Site Code:	2424800002
Municipality:	Bolton
Count Date:	Jun 05, 2024



Ontario Traffic Inc.
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Traffic Count Summary

Intersection: Shore St & West Site Access
Site Code: 2424800002
Municipality: Bolton
Count Date: Jun 05, 2024

Commerical Entrance - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	0	0	0	0	0	0	0	0	0	0	8	0
08:00 - 09:00	0	0	0	0	0	0	0	0	0	0	0	9	0
BREAK													
16:00 - 17:00	0	0	0	0	0	0	0	0	4	0	4	2	4
17:00 - 18:00	0	0	0	0	0	0	1	0	6	0	7	7	7
GRAND TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**10**	**0**	**11**	**26**	**11**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Shore St & West Site Access
Site Code:	2424800002
Municipality:	Bolton
Count Date:	Jun 05, 2024

Shore St - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	3	0	0	3	0	0	3	0	0	3	0	6
08:00 - 09:00	3	1	0	0	4	0	0	7	0	0	7	0	11
BREAK													
16:00 - 17:00	4	11	0	1	16	0	0	6	0	0	6	0	22
17:00 - 18:00	0	8	0	0	8	0	0	2	1	0	3	0	11
GRAND TOTAL	**7**	**23**	**0**	**1**	**31**	**0**	**0**	**18**	**1**	**0**	**19**	**0**	**50**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Shore St & West Site Access
Site Code: 2424800002
Municipality: Bolton
Count Date: Jun 05, 2024

North Approach - Commerical Entrance

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Shore St & West Site Access
Site Code: 2424800002
Municipality: Bolton
Count Date: Jun 05, 2024

North Approach - Commerical Entrance

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Shore St & West Site Access
Site Code: 2424800002
Municipality: Bolton
Count Date: Jun 05, 2024

South Approach - West Site Access

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Shore St & West Site Access
Site Code: 2424800002
Municipality: Bolton
Count Date: Jun 05, 2024

South Approach - West Site Access

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	1
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
16:45	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	4
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
17:45	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	1
SUBTOTAL	1	0	10	0	11	0	0	0	0	0	0	0	0	0	0	9
GRAND TOTAL	1	0	10	0	11	0	0	0	0	0	0	0	0	0	0	26

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Shore St & West Site Access
Site Code: 2424800002
Municipality: Bolton
Count Date: Jun 05, 2024

East Approach - Shore St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
08:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	3	4	0	0	7	0	0	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Shore St & West Site Access
Site Code: 2424800002
Municipality: Bolton
Count Date: Jun 05, 2024

East Approach - Shore St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	1	2	0	0	3	0	0	0	1	1	0	0	0	0	0	0
16:15	1	5	0	0	6	0	0	0	0	0	0	0	0	0	0	0
16:30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
16:45	1	2	0	0	3	0	0	0	0	0	0	2	0	0	2	0
17:00	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
17:15	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0
17:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	4	17	0	0	21	0	0	0	1	1	0	2	0	0	2	0
GRAND TOTAL	7	21	0	0	28	0	0	0	1	1	0	2	0	0	2	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Shore St & West Site Access
Site Code: 2424800002
Municipality: Bolton
Count Date: Jun 05, 2024

West Approach - Shore St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
07:45	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
08:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
08:15	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
08:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
08:45	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	9	0	0	9	0	1	0	0	1	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Shore St & West Site Access
Site Code: 2424800002
Municipality: Bolton
Count Date: Jun 05, 2024

West Approach - Shore St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	1	0	0	1	0	1	0	0	1	0	2	0	0	2	0
17:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	4	1	0	5	0	2	0	0	2	0	2	0	0	2	0
GRAND TOTAL	**0**	**13**	**1**	**0**	**14**	**0**	**3**	**0**	**0**	**3**	**0**	**2**	**0**	**0**	**2**	**0**

Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period
From: 07:00:00
To: 09:00:00

One Hour Peak
From: 07:45:00
To: 08:45:00

Intersection: Shore St & West Site Access
Site Code: 2424800002
Count Date: Jun 05, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Shore St runs E/W

North Approach

	Out	In	Total
Cars	0	0	0
Trucks	0	0	0
Bicycles	0	0	0
	0	**0**	**0**

Commerical Entrance

Bicycles	0	0	0	0
Trucks	0	0	0	0
Cars	0	0	0	0
Totals	**0**	**0**	**0**	**0**

East Approach

	Out	In	Total
Cars	7	5	12
Trucks	0	0	0
Bicycles	0	0	0
	7	**5**	**12**

Peds: 0

Shore St

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	0	0	**0**	
0	0	5	**5**	
0	0	0	**0**	

Peds: 0

N
W E
S

Peds: 0

Shore St

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	0	0	0	0
	4	4	0	0
	3	3	0	0

Peds: 12

West Approach

	Out	In	Total
Cars	5	4	9
Trucks	0	0	0
Bicycles	0	0	0
	5	**4**	**9**

West Site Access

Totals	**0**	**0**	**0**	**0**
Cars	0	0	0	0
Trucks	0	0	0	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	0	3	3
Trucks	0	0	0
Bicycles	0	0	0
	0	**3**	**3**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Shore St & West Site Access
Site Code: 2424800002
Count Date: Jun 05, 2024
Period: 07:00 - 09:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Commerical Entrance						South Approach West Site Access						East Approach Shore St						West Approach Shore St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45	0	0	0	0	0	0	0	0	0	0	7	0	0	3	0	0	0	3	0	2	0	0	0	2	5
08:00	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	1	1
08:15	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	3	0	1	0	0	0	1	4
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	1	2
Grand Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**3**	**4**	**0**	**0**	**0**	**7**	**0**	**5**	**0**	**0**	**0**	**5**	**12**
Approach %	0	0	0	0		-	0	0	0	0		-	42.9	57.1	0	0		-	0	100	0	0		-	
Totals %	0	0	0	0		0	0	0	0	0		0	25	33.3	0	0		58.3	0	41.7	0	0		41.7	
PHF	**0**	**0**	**0**	**0**		**0**	**0**	**0**	**0**	**0**		**0**	**0.25**	**0.33**	**0**	**0**		**0.58**	**0**	**0.63**	**0**	**0**		**0.63**	**0.6**
Cars	0	0	0	0		0	0	0	0	0		0	3	4	0	0		7	0	5	0	0		5	12
% Cars	0	0	0	0		0	0	0	0	0		0	100	100	0	0		100	0	100	0	0		100	100
Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					12	-					0	-					0	-	12
% Peds					0	-					100	-					0	-					0	-	

Peak Hour Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:00:00
To: 17:00:00

Intersection: Shore St & West Site Access
Site Code: 2424800002
Count Date: Jun 05, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Shore St runs E/W

North Approach

	Out	In	Total
Cars	0	0	0
Trucks	0	0	0
Bicycles	0	0	0
	0	**0**	**0**

Commerical Entrance

Bicycles	0	0	0	0
Trucks	0	0	0	0
Cars	0	0	0	0
Totals	**0**	**0**	**0**	**0**

East Approach

	Out	In	Total
Cars	13	7	20
Trucks	1	2	3
Bicycles	2	2	4
	16	**11**	**27**

Shore St

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	U-turn
0	0	0	**0**	Through
2	1	3	**6**	Right
0	0	0	**0**	Left

Peds: 0

Peds: 0

Peds: 2

Shore St

	Totals	Cars	Trucks	Bicycles
U-turn	**1**	0	1	0
Through	**0**	0	0	0
Left	**11**	9	0	2
Right	**4**	4	0	0

West Approach

	Out	In	Total
Cars	3	9	12
Trucks	1	0	1
Bicycles	2	2	4
	6	**11**	**17**

Totals	**0**	**0**	**4**	**0**
Cars	0	0	4	0
Trucks	0	0	0	0
Bicycles	0	0	0	0

West Site Access

South Approach

	Out	In	Total
Cars	4	4	8
Trucks	0	0	0
Bicycles	0	0	0
	4	**4**	**8**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

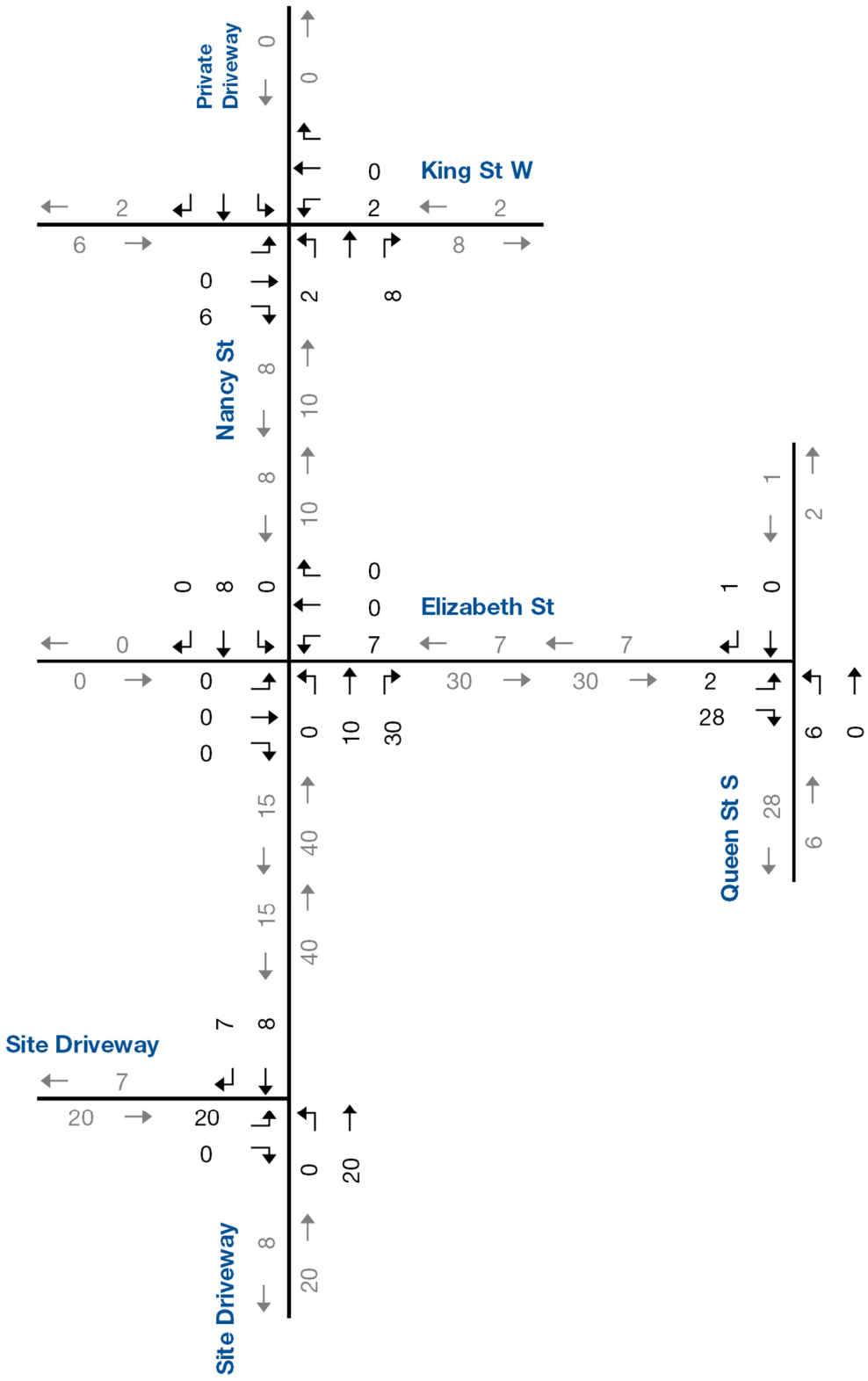
Intersection:	Shore St & West Site Access
Site Code:	2424800002
Count Date:	Jun 05, 2024
Period:	16:00 - 18:00

Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Commerical Entrance						South Approach West Site Access						East Approach Shore St						West Approach Shore St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:00	0	0	0	0	0	0	0	0	3	0	1	3	1	2	0	1	0	4	0	0	0	0	0	0	7
16:15	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	6	0	2	0	0	0	2	8
16:30	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	1
16:45	0	0	0	0	0	0	0	0	1	0	0	1	1	4	0	0	0	5	0	4	0	0	0	4	10
Grand Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**2**	**4**	**4**	**11**	**0**	**1**	**0**	**16**	**0**	**6**	**0**	**0**	**0**	**6**	**26**
Approach %	0	0	0	0		-	0	0	100	0		-	25	68.8	0	6.3		-	0	100	0	0		-	
Totals %	0	0	0	0		0	0	0	15.4	0		15.4	15.4	42.3	0	3.8		61.5	0	23.1	0	0		23.1	
PHF	**0**	**0**	**0**	**0**		**0**	**0**	**0**	**0.33**	**0**		**0.33**	**1**	**0.55**	**0**	**0.25**		**0.67**	**0**	**0.38**	**0**	**0**		**0.38**	**0.65**
Cars	0	0	0	0		0	0	0	4	0		4	4	9	0	0		13	0	3	0	0		3	20
% Cars	0	0	0	0		0	0	0	100	0		100	100	81.8	0	0		81.3	0	50	0	0		50	76.9
Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	1		1	0	1	0	0		1	2
% Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	100		6.3	0	16.7	0	0		16.7	7.7
Bicycles	0	0	0	0		0	0	0	0	0		0	0	2	0	0		2	0	2	0	0		2	4
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	18.2	0	0		12.5	0	33.3	0	0		33.3	15.4
Peds					0	-					2	-					0	-					0	-	2
% Peds					0	-					100	-					0	-					0	-	

Appendix C:

Background Development Study - Site Trips

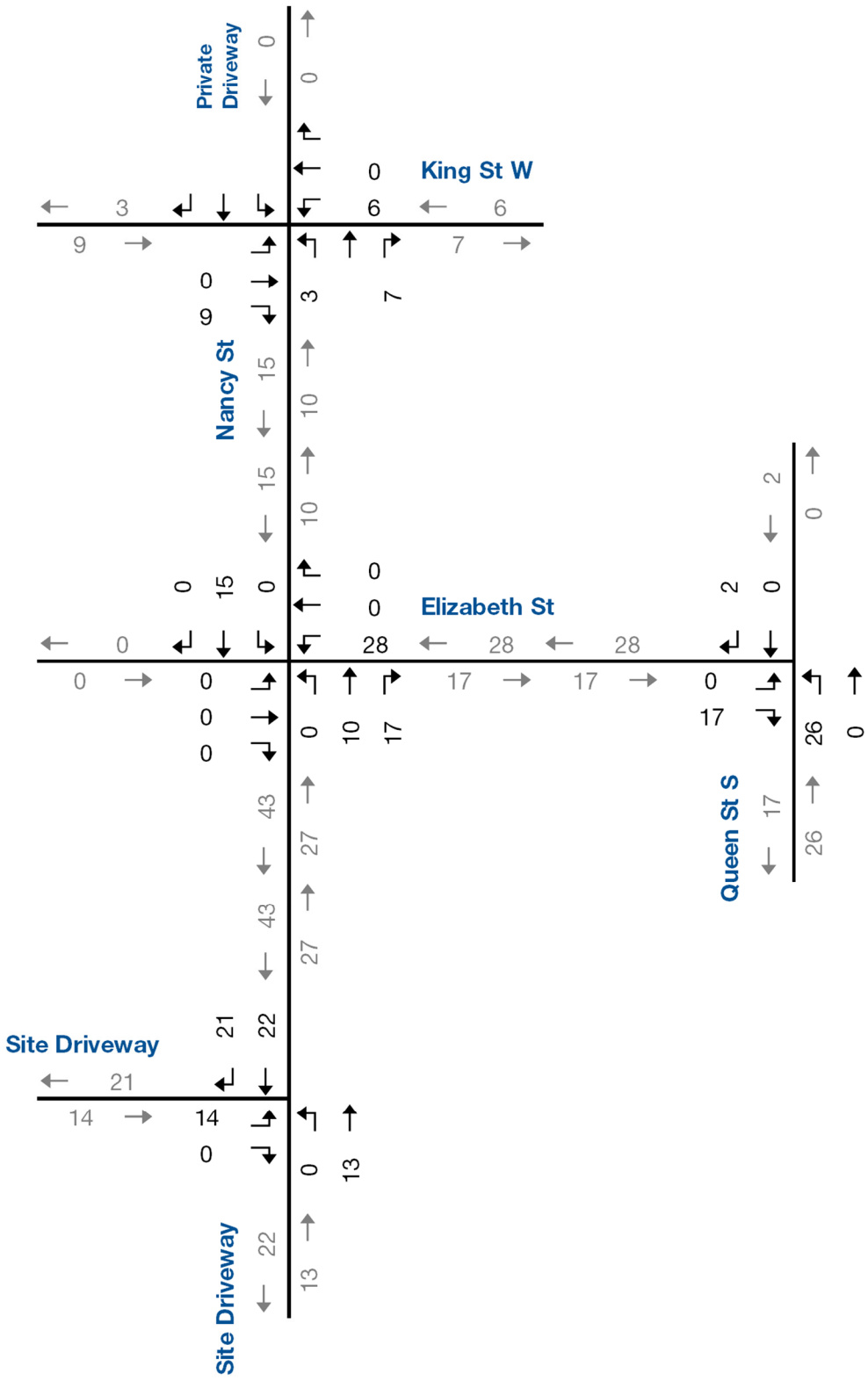


NTS

Estimated Site Generated Traffic – AM Peak Hour

84 Nancy Street
190433

Figure 3.2A



NTS

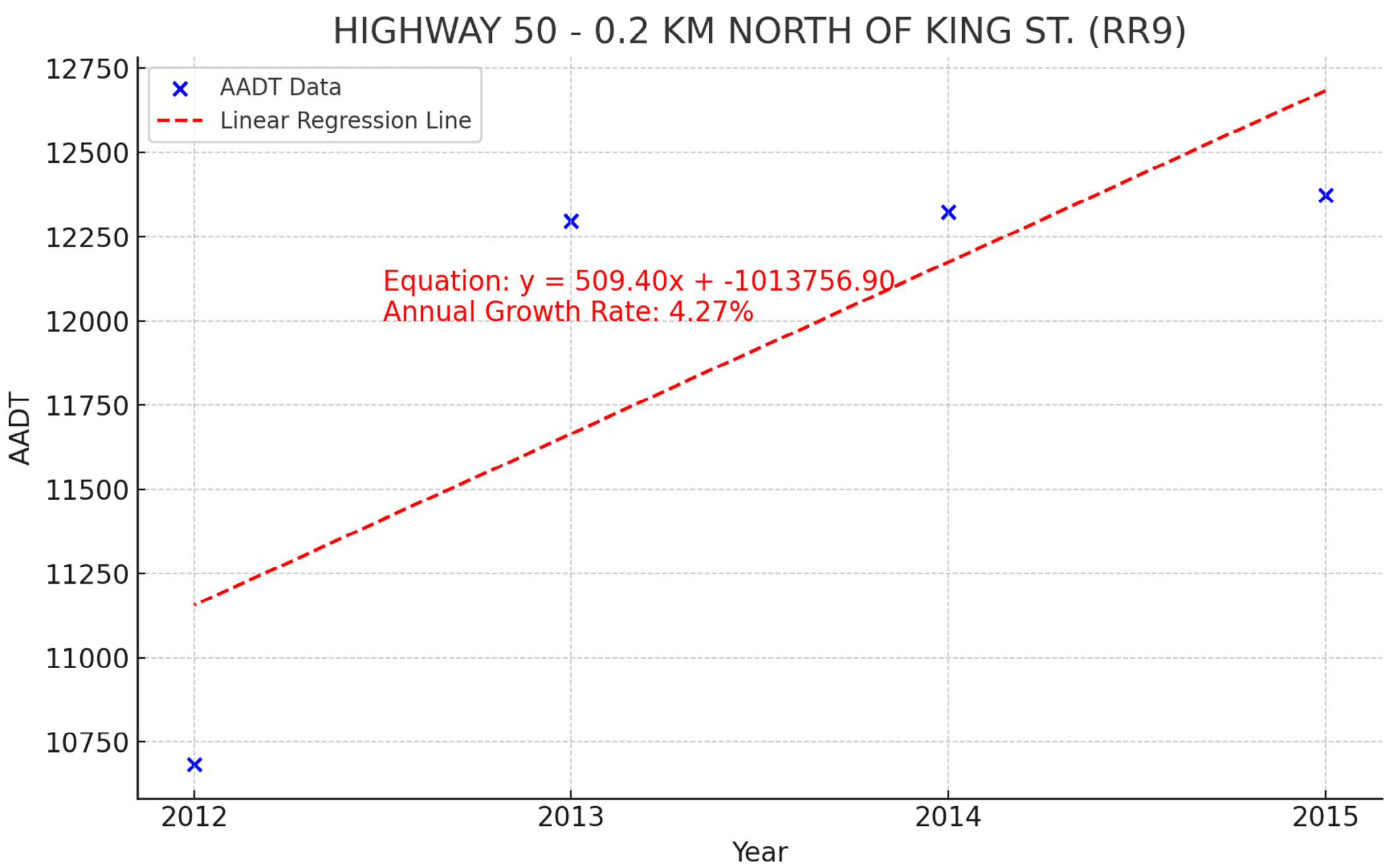
Estimated Site Generated Traffic – PM Peak Hour

84 Nancy Street
190433

Figure 3.2B

Appendix D:

Background Growth Rate Calculations



Year	AADT
2015	12374
2014	12324
2013	12297
2012	10685

Appendix E:

Trip Generation Graphs

Query | Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
221

LAND USE GROUP:
(200-299) Residential

LAND USE :
221 - Multifamily Housing (Mid-Rise)

LAND USE SUBCATEGORY:
Not Close to Rail Transit

SETTING/LOCATION:
General Urban/Suburban

INDEPENDENT VARIABLE (IV):
Dwelling Units

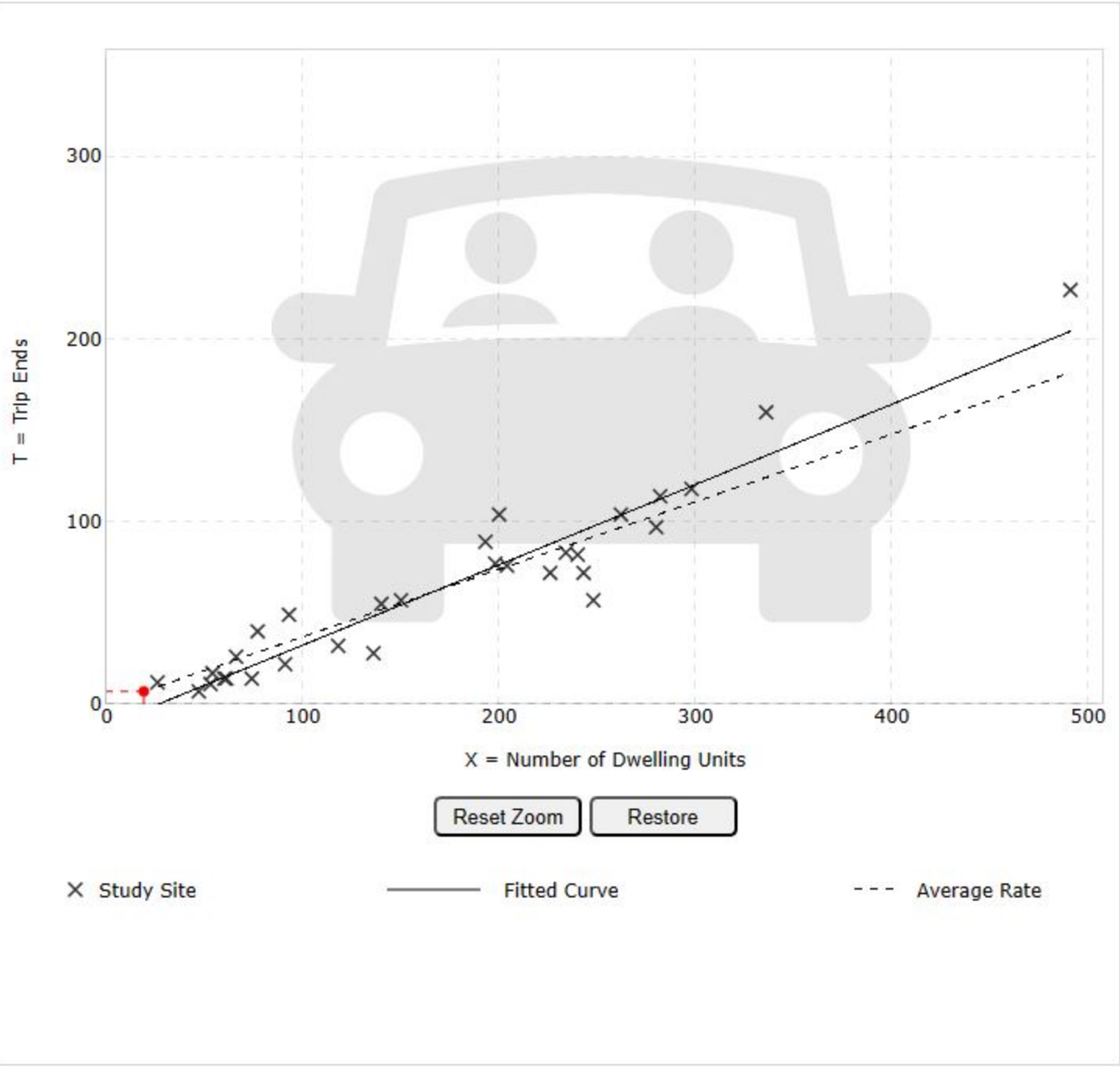
TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
19 Calculate

Trip ends are not estimated for some methods as it yields negative values

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (221) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
30

Avg. Num. of Dwelling Units:
173

Average Rate:
0.37

Range of Rates:
0.15 - 0.53

Standard Deviation:
0.09

Fitted Curve Equation:
T = 0.44(X) - 11.61

R^2:
0.91

Directional Distribution:
23% entering, 77% exiting

Calculated Trip Ends:
Average Rate: 7 (Total), 2 (Entry), 5 (Exit)
Fitted Curve: Not Available

Query | Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
221

LAND USE GROUP:
(200-299) Residential

LAND USE :
221 - Multifamily Housing (Mid-Rise)

LAND USE SUBCATEGORY:
Not Close to Rail Transit

SETTING/LOCATION:
General Urban/Suburban

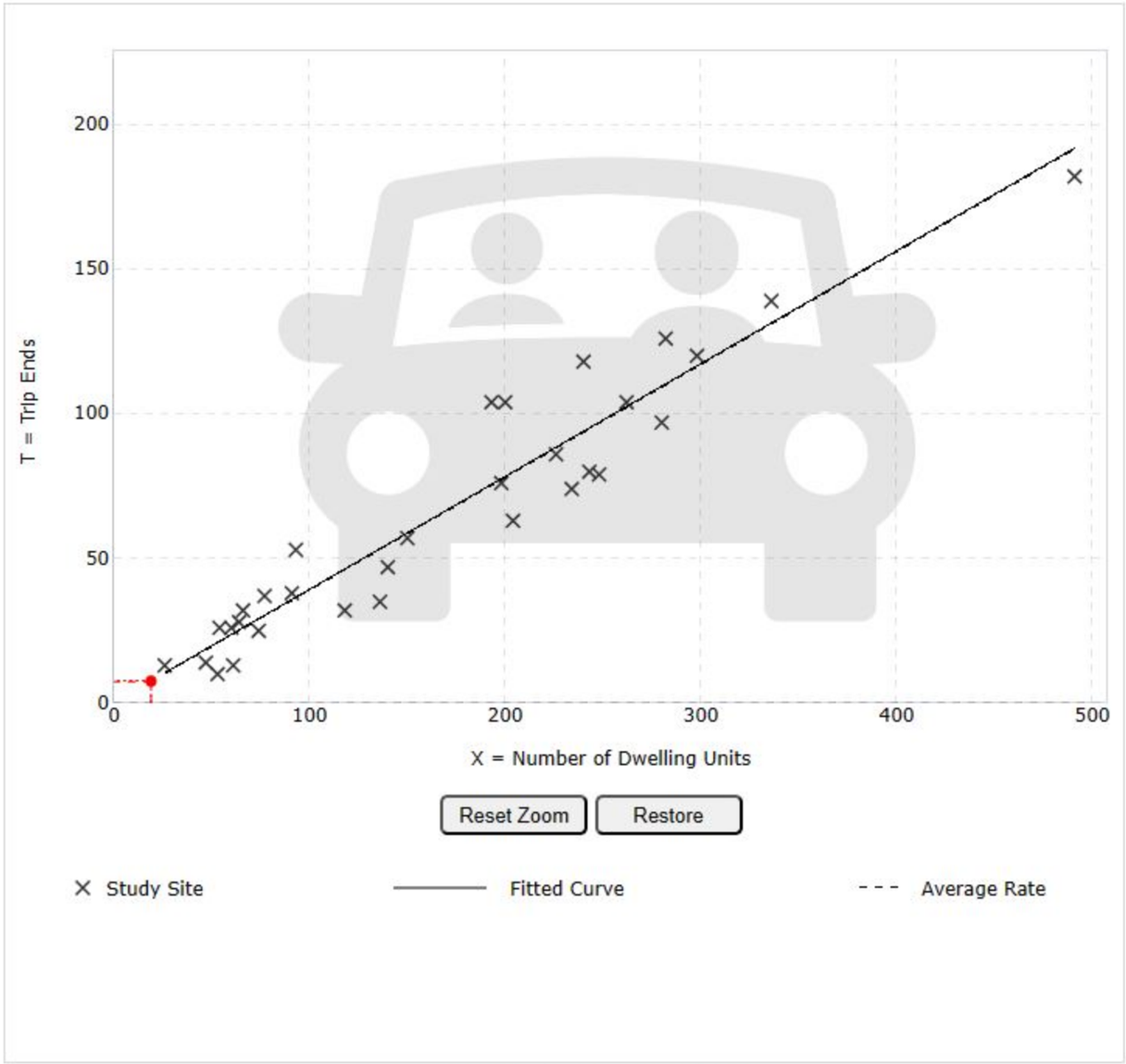
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
19 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (221) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
31

Avg. Num. of Dwelling Units:
169

Average Rate:
0.39

Range of Rates:
0.19 - 0.57

Standard Deviation:
0.08

Fitted Curve Equation:
T = 0.39(X) + 0.34

R^2:
0.91

Directional Distribution:
61% entering, 39% exiting

Calculated Trip Ends:
Average Rate: 7 (Total), 5 (Entry), 2 (Exit)
Fitted Curve: 8 (Total), 5 (Entry), 3 (Exit)

Appendix F:

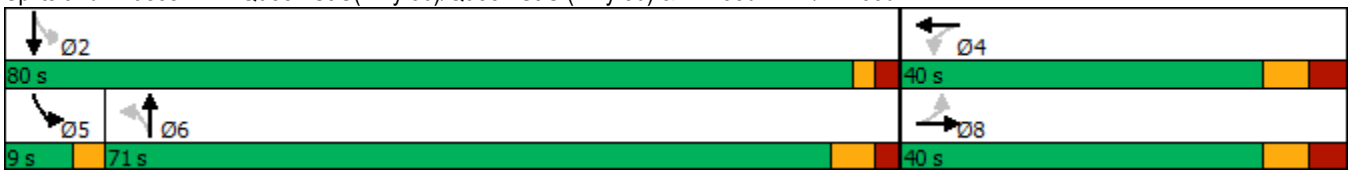
Synchro Analysis Output

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	60	78	50	28	65	51	416	25	96	783	22
Future Volume (vph)	18	60	78	50	28	65	51	416	25	96	783	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	45.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.98		0.99	1.00		0.99	1.00	
Frt		0.932			0.939			0.991			0.996	
Flt Protected		0.994			0.983		0.950			0.950		
Satd. Flow (prot)	0	1697	0	0	1617	0	1630	3479	0	1738	3528	0
Flt Permitted		0.914			0.747		0.331			0.462		
Satd. Flow (perm)	0	1556	0	0	1229	0	563	3479	0	839	3528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			35			8			4	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		247.4			102.8			658.2			86.1	
Travel Time (s)		22.3			9.3			47.4			6.2	
Confl. Peds. (#/hr)	33		1	1		33	12		7	7		12
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	5%	3%	8%	4%	8%	12%	3%	16%	5%	3%	0%
Adj. Flow (vph)	19	64	83	53	30	69	54	443	27	102	833	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	166	0	0	152	0	54	470	0	102	856	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	39.6	39.6		39.6	39.6		32.3	32.3		8.0	32.3	
Total Split (s)	40.0	40.0		40.0	40.0		71.0	71.0		9.0	80.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		59.2%	59.2%		7.5%	66.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	2.0	
All-Red Time (s)	3.6	3.6		3.6	3.6		2.3	2.3		0.0	2.3	
Lost Time Adjust (s)		0.0			-2.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.6			5.6		6.3	6.3		3.0	4.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		Max	Max		None	Max	
Act Effct Green (s)		14.5			16.5		64.8	64.8		77.1	75.8	
Actuated g/C Ratio		0.14			0.16		0.63	0.63		0.75	0.74	
v/c Ratio		0.65			0.67		0.15	0.21		0.15	0.33	
Control Delay		43.1			45.4		10.0	8.5		4.4	5.2	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		43.1			45.4		10.0	8.5		4.4	5.2	
LOS		D			D		B	A		A	A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		43.1			45.4			8.7			5.2	
Approach LOS		D			D			A			A	
Queue Length 50th (m)		23.5			21.9		3.9	18.2		4.2	24.7	
Queue Length 95th (m)		44.4			42.8		11.3	30.7		10.8	43.2	
Internal Link Dist (m)		223.4			78.8			634.2			62.1	
Turn Bay Length (m)							45.0			45.0		
Base Capacity (vph)		521			437		356	2209		685	2617	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.32			0.35		0.15	0.21		0.15	0.33	

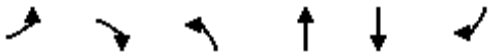
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 102.2			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 13.1		Intersection LOS: B	
Intersection Capacity Utilization 68.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	60	78	50	28	65	51	416	25	96	783	22
Future Volume (vph)	18	60	78	50	28	65	51	416	25	96	783	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.6			5.6		6.3	6.3		3.0	4.3	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		0.99	1.00		1.00	1.00	
Frt		0.93			0.94		1.00	0.99		1.00	1.00	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1694			1620		1618	3481		1733	3528	
Flt Permitted		0.91			0.75		0.33	1.00		0.46	1.00	
Satd. Flow (perm)		1558			1232		563	3481		842	3528	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	19	64	83	53	30	69	54	443	27	102	833	23
RTOR Reduction (vph)	0	35	0	0	29	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	131	0	0	123	0	54	467	0	102	855	0
Confl. Peds. (#/hr)	33		1	1		33	12		7	7		12
Confl. Bikes (#/hr)			1			1						
Heavy Vehicles (%)	6%	5%	3%	8%	4%	8%	12%	3%	16%	5%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		14.5			14.5		64.8	64.8		75.8	75.8	
Effective Green, g (s)		14.5			16.5		64.8	64.8		75.8	75.8	
Actuated g/C Ratio		0.14			0.16		0.63	0.63		0.74	0.74	
Clearance Time (s)		7.6			7.6		6.3	6.3		3.0	4.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		221			198		356	2207		676	2616	
v/s Ratio Prot								0.13		0.01	c0.24	
v/s Ratio Perm		0.08			c0.10		0.10			0.10		
v/c Ratio		0.59			0.62		0.15	0.21		0.15	0.33	
Uniform Delay, d1		41.1			39.9		7.6	7.9		3.7	4.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.2			5.7		0.9	0.2		0.1	0.3	
Delay (s)		45.3			45.6		8.5	8.1		3.8	4.8	
Level of Service		D			D		A	A		A	A	
Approach Delay (s)		45.3			45.6			8.2			4.7	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	102.2	Sum of lost time (s)	16.9
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	5	5	465	942	9
Future Volume (Veh/h)	2	5	5	465	942	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	2	5	5	495	1002	10
Pedestrians	7				7	
Lane Width (m)	3.7				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	1				1	
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)				86		
pX, platoon unblocked	0.96					
vC, conflicting volume	1278	513	1019			
vC1, stage 1 conf vol	1014					
vC2, stage 2 conf vol	264					
vCu, unblocked vol	1198	513	1019			
tC, single (s)	6.8	7.3	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.5	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	301	458	684			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	7	5	248	248	668	344
Volume Left	2	5	0	0	0	0
Volume Right	5	0	0	0	0	10
cSH	399	684	1700	1700	1700	1700
Volume to Capacity	0.02	0.01	0.15	0.15	0.39	0.20
Queue Length 95th (m)	0.4	0.2	0.0	0.0	0.0	0.0
Control Delay (s)	14.2	10.3	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	14.2	0.1			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	5	0	0	9	0	0
Future Volume (Veh/h)	5	0	0	9	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58
Hourly flow rate (vph)	9	0	0	16	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			9		25	9
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			9		25	9
tC, single (s)			4.1		6.4	6.4
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		100	100
cM capacity (veh/h)			1624		996	1022

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	9	16	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1624	1700
Volume to Capacity	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	5	0	3	4	0	0
Future Volume (Veh/h)	5	0	3	4	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60
Hourly flow rate (vph)	8	0	5	7	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			8		25	8
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			8		25	8
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1625		993	1080

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	8	12	0
Volume Left	0	5	0
Volume Right	0	0	0
cSH	1700	1625	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (m)	0.0	0.1	0.0
Control Delay (s)	0.0	3.0	0.0
Lane LOS		A	A
Approach Delay (s)	0.0	3.0	0.0
Approach LOS			A

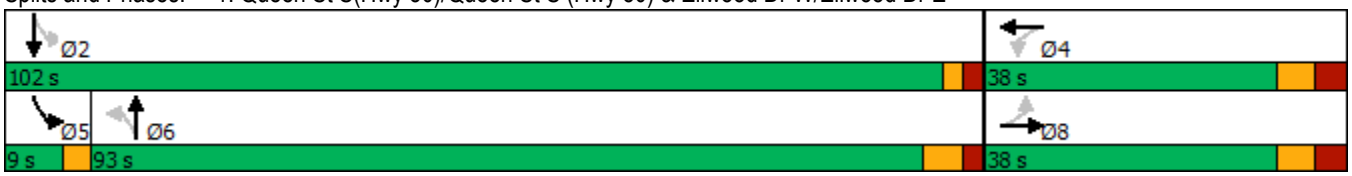
Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	47	100	36	47	102	107	1215	22	67	621	26
Future Volume (vph)	50	47	100	36	47	102	107	1215	22	67	621	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	45.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.99		1.00	1.00			1.00	
Frt		0.931			0.926			0.997			0.994	
Flt Protected		0.987			0.990		0.950			0.950		
Satd. Flow (prot)	0	1734	0	0	1719	0	1807	3595	0	1789	3523	0
Flt Permitted		0.734			0.812		0.400			0.170		
Satd. Flow (perm)	0	1288	0	0	1410	0	760	3595	0	320	3523	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			41			2			7	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		247.4			102.8			658.2			86.1	
Travel Time (s)		22.3			9.3			47.4			6.2	
Confl. Peds. (#/hr)	8		2	2		8	1		8	8		1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	2%	3%	0%	1%	1%	1%	10%	2%	3%	0%
Adj. Flow (vph)	51	48	102	37	48	104	109	1240	22	68	634	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	201	0	0	189	0	109	1262	0	68	661	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	37.6	37.6		37.6	37.6		32.3	32.3		8.0	30.3	
Total Split (s)	38.0	38.0		38.0	38.0		93.0	93.0		9.0	102.0	
Total Split (%)	27.1%	27.1%		27.1%	27.1%		66.4%	66.4%		6.4%	72.9%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	2.0	
All-Red Time (s)	3.6	3.6		3.6	3.6		2.3	2.3		0.0	2.3	
Lost Time Adjust (s)		-3.0			-3.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.6			4.6		6.3	6.3		3.0	4.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		Max	Max		None	Max	
Act Effct Green (s)		23.6			23.6		88.8	88.8		99.2	97.9	
Actuated g/C Ratio		0.18			0.18		0.68	0.68		0.76	0.75	
v/c Ratio		0.77			0.66		0.21	0.52		0.22	0.25	
Control Delay		61.1			49.3		10.8	12.4		6.5	5.7	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		61.1			49.3		10.8	12.4		6.5	5.7	
LOS		E			D		B	B		A	A	
Approach Delay		61.1			49.3			12.2			5.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		E			D			B			A	
Queue Length 50th (m)		41.3			35.7		10.1	80.8		3.8	23.6	
Queue Length 95th (m)		68.3			60.8		22.9	120.6		9.8	40.5	
Internal Link Dist (m)		223.4			78.8			634.2			62.1	
Turn Bay Length (m)							45.0			45.0		
Base Capacity (vph)		356			392		517	2449		311	2646	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.56			0.48		0.21	0.52		0.22	0.25	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 130.4			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 17.1		Intersection LOS: B	
Intersection Capacity Utilization 68.3%		ICU Level of Service C	
Analysis Period (min) 15			

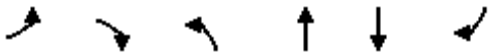
Splits and Phases: 1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	47	100	36	47	102	107	1215	22	67	621	26
Future Volume (vph)	50	47	100	36	47	102	107	1215	22	67	621	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		6.3	6.3		3.0	4.3	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.93		1.00	1.00		1.00	0.99	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1734			1719		1805	3596		1789	3523	
Flt Permitted		0.73			0.81		0.40	1.00		0.17	1.00	
Satd. Flow (perm)		1289			1410		761	3596		321	3523	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	51	48	102	37	48	104	109	1240	22	68	634	27
RTOR Reduction (vph)	0	29	0	0	34	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	172	0	0	155	0	109	1261	0	68	659	0
Confl. Peds. (#/hr)	8		2	2		8	1		8	8		1
Heavy Vehicles (%)	0%	0%	2%	3%	0%	1%	1%	1%	10%	2%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		20.6			20.6		88.8	88.8		98.5	98.5	
Effective Green, g (s)		23.6			23.6		88.8	88.8		98.5	98.5	
Actuated g/C Ratio		0.18			0.18		0.68	0.68		0.75	0.75	
Clearance Time (s)		7.6			7.6		6.3	6.3		3.0	4.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		232			254		515	2437		294	2648	
v/s Ratio Prot								c0.35		0.01	c0.19	
v/s Ratio Perm		c0.13			0.11		0.14			0.17		
v/c Ratio		0.74			0.61		0.21	0.52		0.23	0.25	
Uniform Delay, d1		50.8			49.5		7.9	10.5		6.3	5.0	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		12.1			4.3		0.9	0.8		0.4	0.2	
Delay (s)		62.9			53.8		8.9	11.3		6.7	5.2	
Level of Service		E			D		A	B		A	A	
Approach Delay (s)		62.9			53.8			11.1			5.3	
Approach LOS		E			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	131.0	Sum of lost time (s)	13.9
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	16	20	1296	703	11
Future Volume (Veh/h)	8	16	20	1296	703	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	8	17	21	1350	732	11
Pedestrians	4					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)				86		
pX, platoon unblocked	0.82					
vC, conflicting volume	1458	376	747			
vC1, stage 1 conf vol	742					
vC2, stage 2 conf vol	717					
vCu, unblocked vol	1128	376	747			
tC, single (s)	6.8	7.0	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.4	2.2			
p0 queue free %	98	97	98			
cM capacity (veh/h)	379	606	867			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	25	21	675	675	488	255
Volume Left	8	21	0	0	0	0
Volume Right	17	0	0	0	0	11
cSH	508	867	1700	1700	1700	1700
Volume to Capacity	0.05	0.02	0.40	0.40	0.29	0.15
Queue Length 95th (m)	1.2	0.6	0.0	0.0	0.0	0.0
Control Delay (s)	12.5	9.3	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	12.5	0.1			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	9	1	4	13	1	2
Future Volume (Veh/h)	9	1	4	13	1	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	14	2	6	21	2	3
Pedestrians					2	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			18		50	17
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			18		50	17
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1609		959	1066

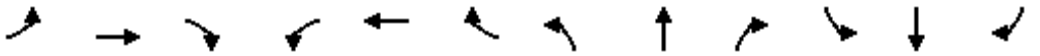
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	16	27	5
Volume Left	0	6	2
Volume Right	2	0	3
cSH	1700	1609	1020
Volume to Capacity	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.1	0.1
Control Delay (s)	0.0	1.6	8.5
Lane LOS		A	A
Approach Delay (s)	0.0	1.6	8.5
Approach LOS			A

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	14.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	6	0	4	12	0	4
Future Volume (Veh/h)	6	0	4	12	0	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	9	0	6	18	0	6
Pedestrians					2	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			11		41	11
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			11		41	11
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1618		970	1074

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	9	24	6
Volume Left	0	6	0
Volume Right	0	0	6
cSH	1700	1618	1074
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.0	0.1	0.1
Control Delay (s)	0.0	1.8	8.4
Lane LOS		A	A
Approach Delay (s)	0.0	1.8	8.4
Approach LOS			A

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	14.1%	ICU Level of Service	A
Analysis Period (min)	15		

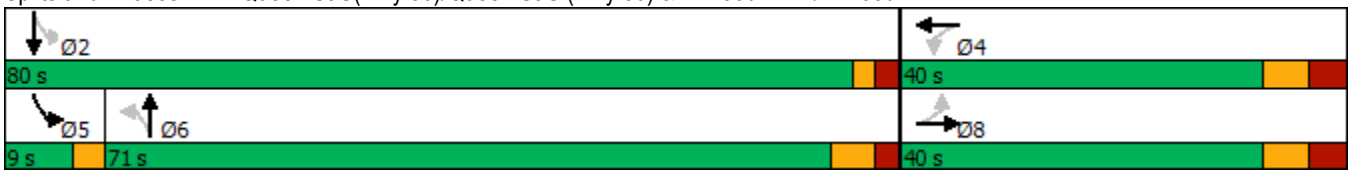


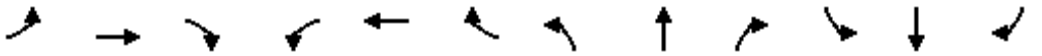
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	74	96	62	35	80	63	519	31	118	993	27
Future Volume (vph)	22	74	96	62	35	80	63	519	31	118	993	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	45.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.98		0.99	1.00		0.99	1.00	
Frt		0.932			0.939			0.992			0.996	
Flt Protected		0.994			0.983		0.950			0.950		
Satd. Flow (prot)	0	1698	0	0	1617	0	1630	3484	0	1738	3528	0
Flt Permitted		0.912			0.691		0.261			0.400		
Satd. Flow (perm)	0	1553	0	0	1137	0	445	3484	0	727	3528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			35			8			4	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		247.4			102.8			658.2			86.1	
Travel Time (s)		22.3			9.3			47.4			6.2	
Confl. Peds. (#/hr)	33		1	1		33	12		7	7		12
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	5%	3%	8%	4%	8%	12%	3%	16%	5%	3%	0%
Adj. Flow (vph)	23	79	102	66	37	85	67	552	33	126	1056	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	204	0	0	188	0	67	585	0	126	1085	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	39.6	39.6		39.6	39.6		32.3	32.3		8.0	32.3	
Total Split (s)	40.0	40.0		40.0	40.0		71.0	71.0		9.0	80.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		59.2%	59.2%		7.5%	66.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	2.0	
All-Red Time (s)	3.6	3.6		3.6	3.6		2.3	2.3		0.0	2.3	
Lost Time Adjust (s)		0.0			-2.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.6			5.6		6.3	6.3		3.0	4.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		Max	Max		None	Max	
Act Effct Green (s)		17.9			19.9		64.9	64.9		77.2	75.9	
Actuated g/C Ratio		0.17			0.19		0.61	0.61		0.73	0.72	
v/c Ratio		0.69			0.78		0.25	0.27		0.21	0.43	
Control Delay		44.7			54.2		14.1	10.5		6.0	7.4	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		44.7			54.2		14.1	10.5		6.0	7.4	
LOS		D			D		B	B		A	A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		44.7			54.2			10.9			7.2	
Approach LOS		D			D			B			A	
Queue Length 50th (m)		31.7			30.3		5.8	26.7		6.4	41.1	
Queue Length 95th (m)		55.2			54.9		16.8	44.6		15.8	71.3	
Internal Link Dist (m)		223.4			78.8			634.2			62.1	
Turn Bay Length (m)							45.0			45.0		
Base Capacity (vph)		505			394		272	2140		588	2533	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.40			0.48		0.25	0.27		0.21	0.43	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 105.8			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 15.6		Intersection LOS: B	
Intersection Capacity Utilization 76.1%		ICU Level of Service D	
Analysis Period (min) 15			

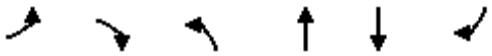
Splits and Phases: 1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E





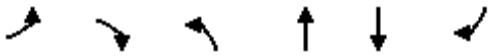
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	74	96	62	35	80	63	519	31	118	993	27
Future Volume (vph)	22	74	96	62	35	80	63	519	31	118	993	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.6			5.6		6.3	6.3		3.0	4.3	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		0.99	1.00		1.00	1.00	
Frt		0.93			0.94		1.00	0.99		1.00	1.00	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1695			1619		1621	3482		1735	3528	
Flt Permitted		0.91			0.69		0.26	1.00		0.40	1.00	
Satd. Flow (perm)		1555			1139		445	3482		730	3528	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	23	79	102	66	37	85	67	552	33	126	1056	29
RTOR Reduction (vph)	0	34	0	0	28	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	170	0	0	160	0	67	582	0	126	1084	0
Confl. Peds. (#/hr)	33		1	1		33	12		7	7		12
Confl. Bikes (#/hr)			1			1						
Heavy Vehicles (%)	6%	5%	3%	8%	4%	8%	12%	3%	16%	5%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		17.9			17.9		64.9	64.9		75.9	75.9	
Effective Green, g (s)		17.9			19.9		64.9	64.9		75.9	75.9	
Actuated g/C Ratio		0.17			0.19		0.61	0.61		0.72	0.72	
Clearance Time (s)		7.6			7.6		6.3	6.3		3.0	4.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		263			214		273	2137		581	2533	
v/s Ratio Prot								0.17		0.01	c0.31	
v/s Ratio Perm		0.11			c0.14		0.15			0.14		
v/c Ratio		0.65			0.75		0.25	0.27		0.22	0.43	
Uniform Delay, d1		40.9			40.5		9.3	9.5		4.7	6.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.4			13.2		2.1	0.3		0.2	0.5	
Delay (s)		46.3			53.7		11.4	9.8		4.9	6.6	
Level of Service		D			D		B	A		A	A	
Approach Delay (s)		46.3			53.7			9.9			6.4	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	105.7	Sum of lost time (s)	16.9
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	6	6	579	1189	11
Future Volume (vph)	2	6	6	579	1189	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.899				0.999	
Flt Protected	0.988		0.950			
Satd. Flow (prot)	1484	0	1825	3476	3504	0
Flt Permitted	0.988		0.950			
Satd. Flow (perm)	1484	0	1825	3476	3504	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	61.6			86.1	503.6	
Travel Time (s)	5.5			6.2	36.3	
Confl. Peds. (#/hr)			7			7
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	20%	0%	5%	4%	12%
Adj. Flow (vph)	2	6	6	616	1265	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	6	616	1277	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	6	6	579	1189	11
Future Volume (Veh/h)	2	6	6	579	1189	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	2	6	6	616	1265	12
Pedestrians	7					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	1					
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)				86		
pX, platoon unblocked	0.93					
vC, conflicting volume	1598	646	1284			
vC1, stage 1 conf vol	1278					
vC2, stage 2 conf vol	320					
vCu, unblocked vol	1497	646	1284			
tC, single (s)	6.8	7.3	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.5	2.2			
p0 queue free %	99	98	99			
cM capacity (veh/h)	219	371	543			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	8	6	308	308	843	434
Volume Left	2	6	0	0	0	0
Volume Right	6	0	0	0	0	12
cSH	317	543	1700	1700	1700	1700
Volume to Capacity	0.03	0.01	0.18	0.18	0.50	0.26
Queue Length 95th (m)	0.6	0.3	0.0	0.0	0.0	0.0
Control Delay (s)	16.7	11.7	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	16.7	0.1			0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	6	0	0	11	0	0
Future Volume (Veh/h)	6	0	0	11	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58
Hourly flow rate (vph)	10	0	0	19	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			10		29	10
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			10		29	10
tC, single (s)			4.1		6.4	6.4
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		100	100
cM capacity (veh/h)			1623		991	1021

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	10	19	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1623	1700
Volume to Capacity	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	6	0	4	5	0	0
Future Volume (Veh/h)	6	0	4	5	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60
Hourly flow rate (vph)	10	0	7	8	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			10		32	10
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			10		32	10
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1623		983	1077

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	10	15	0
Volume Left	0	7	0
Volume Right	0	0	0
cSH	1700	1623	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.0	0.1	0.0
Control Delay (s)	0.0	3.4	0.0
Lane LOS		A	A
Approach Delay (s)	0.0	3.4	0.0
Approach LOS			A

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	7.2%	ICU Level of Service	A
Analysis Period (min)	15		

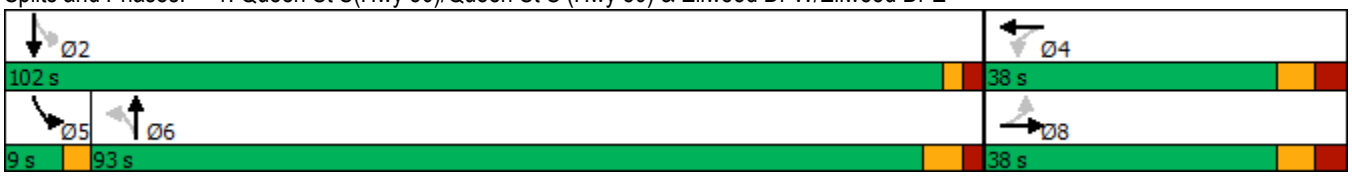
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	58	123	44	58	126	132	1523	27	83	782	32
Future Volume (vph)	62	58	123	44	58	126	132	1523	27	83	782	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	45.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.99		1.00	1.00			1.00	
Frt		0.931			0.925			0.997			0.994	
Flt Protected		0.987			0.990		0.950			0.950		
Satd. Flow (prot)	0	1734	0	0	1717	0	1807	3595	0	1789	3523	0
Flt Permitted		0.708			0.797		0.339			0.093		
Satd. Flow (perm)	0	1242	0	0	1382	0	644	3595	0	175	3523	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			42			2			7	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		247.4			102.8			658.2			86.1	
Travel Time (s)		22.3			9.3			47.4			6.2	
Confl. Peds. (#/hr)	8		2	2		8	1		8	8		1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	2%	3%	0%	1%	1%	1%	10%	2%	3%	0%
Adj. Flow (vph)	63	59	126	45	59	129	135	1554	28	85	798	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	248	0	0	233	0	135	1582	0	85	831	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	37.6	37.6		37.6	37.6		32.3	32.3		8.0	30.3	
Total Split (s)	38.0	38.0		38.0	38.0		93.0	93.0		9.0	102.0	
Total Split (%)	27.1%	27.1%		27.1%	27.1%		66.4%	66.4%		6.4%	72.9%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	2.0	
All-Red Time (s)	3.6	3.6		3.6	3.6		2.3	2.3		0.0	2.3	
Lost Time Adjust (s)		-3.0			-3.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.6			4.6		6.3	6.3		3.0	4.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		Max	Max		None	Max	
Act Effct Green (s)		28.6			28.6		86.9	86.9		99.2	97.9	
Actuated g/C Ratio		0.21			0.21		0.64	0.64		0.73	0.72	
v/c Ratio		0.86			0.72		0.33	0.69		0.43	0.33	
Control Delay		70.5			53.3		14.7	18.1		12.5	7.6	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		70.5			53.3		14.7	18.1		12.5	7.6	
LOS		E			D		B	B		B	A	
Approach Delay		70.5			53.3			17.8			8.0	

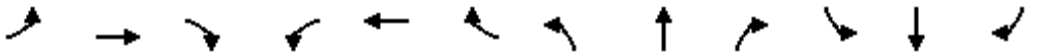
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		E			D			B			A	
Queue Length 50th (m)		56.0			48.2		16.4	142.0		6.2	41.1	
Queue Length 95th (m)		#95.4			77.6		31.0	173.8		11.8	53.1	
Internal Link Dist (m)		223.4			78.8			634.2			62.1	
Turn Bay Length (m)							45.0			45.0		
Base Capacity (vph)		333			373		413	2308		199	2548	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.74			0.62		0.33	0.69		0.43	0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 135.4			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 21.8		Intersection LOS: C	
Intersection Capacity Utilization 81.2%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

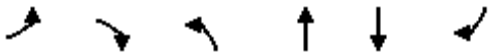




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	58	123	44	58	126	132	1523	27	83	782	32
Future Volume (vph)	62	58	123	44	58	126	132	1523	27	83	782	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		6.3	6.3		3.0	4.3	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.93		1.00	1.00		1.00	0.99	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1734			1719		1806	3596		1789	3524	
Flt Permitted		0.71			0.80		0.34	1.00		0.09	1.00	
Satd. Flow (perm)		1243			1384		644	3596		175	3524	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	63	59	126	45	59	129	135	1554	28	85	798	33
RTOR Reduction (vph)	0	28	0	0	33	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	220	0	0	200	0	135	1581	0	85	829	0
Confl. Peds. (#/hr)	8		2	2		8	1		8	8		1
Heavy Vehicles (%)	0%	0%	2%	3%	0%	1%	1%	1%	10%	2%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		25.6			25.6		86.9	86.9		97.9	97.9	
Effective Green, g (s)		28.6			28.6		86.9	86.9		97.9	97.9	
Actuated g/C Ratio		0.21			0.21		0.64	0.64		0.72	0.72	
Clearance Time (s)		7.6			7.6		6.3	6.3		3.0	4.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		262			292		413	2307		198	2548	
v/s Ratio Prot								c0.44		c0.02	0.24	
v/s Ratio Perm		c0.18			0.14		0.21			0.29		
v/c Ratio		0.84			0.68		0.33	0.69		0.43	0.33	
Uniform Delay, d1		51.2			49.2		11.0	15.5		13.1	6.8	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		20.9			6.5		2.1	1.7		1.5	0.3	
Delay (s)		72.2			55.7		13.1	17.2		14.6	7.1	
Level of Service		E			E		B	B		B	A	
Approach Delay (s)		72.2			55.7			16.9			7.8	
Approach LOS		E			E			B			A	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	135.4	Sum of lost time (s)	13.9
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	20	25	1623	883	14
Future Volume (Veh/h)	10	20	25	1623	883	14
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	10	21	26	1691	920	15
Pedestrians	4					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)				86		
pX, platoon unblocked	0.71					
vC, conflicting volume	1829	472	939			
vC1, stage 1 conf vol	932					
vC2, stage 2 conf vol	898					
vCu, unblocked vol	1354	472	939			
tC, single (s)	6.8	7.0	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.4	2.2			
p0 queue free %	97	96	96			
cM capacity (veh/h)	311	523	735			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	31	26	846	846	613	322
Volume Left	10	26	0	0	0	0
Volume Right	21	0	0	0	0	15
cSH	429	735	1700	1700	1700	1700
Volume to Capacity	0.07	0.04	0.50	0.50	0.36	0.19
Queue Length 95th (m)	1.8	0.8	0.0	0.0	0.0	0.0
Control Delay (s)	14.0	10.1	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	14.0	0.2			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	11	1	5	16	1	2
Future Volume (Veh/h)	11	1	5	16	1	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	17	2	8	25	2	3
Pedestrians					2	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			21		61	20
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			21		61	20
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1605		944	1062

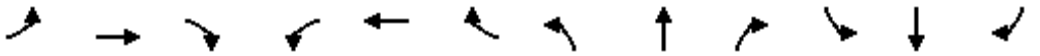
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	19	33	5
Volume Left	0	8	2
Volume Right	2	0	3
cSH	1700	1605	1011
Volume to Capacity	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.1	0.1
Control Delay (s)	0.0	1.8	8.6
Lane LOS		A	A
Approach Delay (s)	0.0	1.8	8.6
Approach LOS			A

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	15.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	7	0	5	15	0	5
Future Volume (Veh/h)	7	0	5	15	0	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	11	0	8	23	0	8
Pedestrians					2	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			13		52	13
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			13		52	13
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1616		955	1071

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	11	31	8
Volume Left	0	8	0
Volume Right	0	0	8
cSH	1700	1616	1071
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.0	0.1	0.2
Control Delay (s)	0.0	1.9	8.4
Lane LOS		A	A
Approach Delay (s)	0.0	1.9	8.4
Approach LOS			A

Intersection Summary			
Average Delay		2.5	
Intersection Capacity Utilization		15.2%	ICU Level of Service
Analysis Period (min)		15	

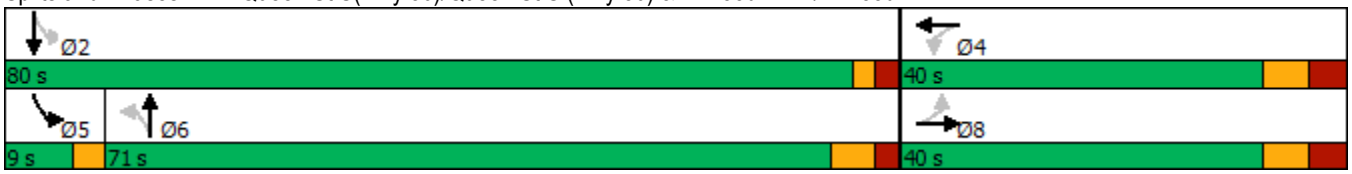


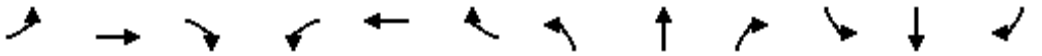
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	74	96	62	35	80	63	520	31	119	996	28
Future Volume (vph)	22	74	96	62	35	80	63	520	31	119	996	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	45.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.98		0.99	1.00		0.99	1.00	
Frt		0.932			0.939			0.992			0.996	
Flt Protected		0.994			0.983		0.950			0.950		
Satd. Flow (prot)	0	1698	0	0	1617	0	1630	3484	0	1738	3528	0
Flt Permitted		0.912			0.691		0.259			0.399		
Satd. Flow (perm)	0	1553	0	0	1137	0	442	3484	0	726	3528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			35			8			4	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		247.4			102.8			658.2			86.1	
Travel Time (s)		22.3			9.3			47.4			6.2	
Confl. Peds. (#/hr)	33		1	1		33	12		7	7		12
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	5%	3%	8%	4%	8%	12%	3%	16%	5%	3%	0%
Adj. Flow (vph)	23	79	102	66	37	85	67	553	33	127	1060	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	204	0	0	188	0	67	586	0	127	1090	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	39.6	39.6		39.6	39.6		32.3	32.3		8.0	32.3	
Total Split (s)	40.0	40.0		40.0	40.0		71.0	71.0		9.0	80.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		59.2%	59.2%		7.5%	66.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	2.0	
All-Red Time (s)	3.6	3.6		3.6	3.6		2.3	2.3		0.0	2.3	
Lost Time Adjust (s)		0.0			-2.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.6			5.6		6.3	6.3		3.0	4.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		Max	Max		None	Max	
Act Effct Green (s)		17.9			19.9		64.9	64.9		77.2	75.9	
Actuated g/C Ratio		0.17			0.19		0.61	0.61		0.73	0.72	
v/c Ratio		0.69			0.78		0.25	0.27		0.22	0.43	
Control Delay		44.7			54.2		14.1	10.5		6.0	7.4	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		44.7			54.2		14.1	10.5		6.0	7.4	
LOS		D			D		B	B		A	A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		44.7			54.2			10.9			7.2	
Approach LOS		D			D			B			A	
Queue Length 50th (m)		31.7			30.3		5.8	26.7		6.5	41.3	
Queue Length 95th (m)		55.2			54.9		16.9	44.7		16.0	71.8	
Internal Link Dist (m)		223.4			78.8			634.2			62.1	
Turn Bay Length (m)							45.0			45.0		
Base Capacity (vph)		505			394		271	2140		587	2533	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.40			0.48		0.25	0.27		0.22	0.43	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 105.8			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 15.6		Intersection LOS: B	
Intersection Capacity Utilization 76.2%		ICU Level of Service D	
Analysis Period (min) 15			

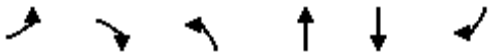
Splits and Phases: 1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	74	96	62	35	80	63	520	31	119	996	28
Future Volume (vph)	22	74	96	62	35	80	63	520	31	119	996	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.6			5.6		6.3	6.3		3.0	4.3	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		0.99	1.00		1.00	1.00	
Frt		0.93			0.94		1.00	0.99		1.00	1.00	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1695			1619		1621	3482		1735	3528	
Flt Permitted		0.91			0.69		0.26	1.00		0.40	1.00	
Satd. Flow (perm)		1555			1139		443	3482		729	3528	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	23	79	102	66	37	85	67	553	33	127	1060	30
RTOR Reduction (vph)	0	34	0	0	28	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	170	0	0	160	0	67	583	0	127	1089	0
Confl. Peds. (#/hr)	33		1	1		33	12		7	7		12
Confl. Bikes (#/hr)			1			1						
Heavy Vehicles (%)	6%	5%	3%	8%	4%	8%	12%	3%	16%	5%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		17.9			17.9		64.9	64.9		75.9	75.9	
Effective Green, g (s)		17.9			19.9		64.9	64.9		75.9	75.9	
Actuated g/C Ratio		0.17			0.19		0.61	0.61		0.72	0.72	
Clearance Time (s)		7.6			7.6		6.3	6.3		3.0	4.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		263			214		272	2137		580	2533	
v/s Ratio Prot								0.17		0.01	c0.31	
v/s Ratio Perm		0.11			c0.14		0.15			0.14		
v/c Ratio		0.65			0.75		0.25	0.27		0.22	0.43	
Uniform Delay, d1		40.9			40.5		9.3	9.5		4.7	6.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.4			13.2		2.1	0.3		0.2	0.5	
Delay (s)		46.3			53.7		11.4	9.8		4.9	6.6	
Level of Service		D			D		B	A		A	A	
Approach Delay (s)		46.3			53.7			9.9			6.4	
Approach LOS		D			D			A			A	

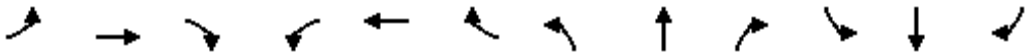
Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	105.7	Sum of lost time (s)	16.9
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	11	7	579	1189	12
Future Volume (Veh/h)	2	11	7	579	1189	12
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	2	12	7	616	1265	13
Pedestrians	7					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	1					
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)				86		
pX, platoon unblocked	0.93					
vC, conflicting volume	1600	646	1285			
vC1, stage 1 conf vol	1278					
vC2, stage 2 conf vol	322					
vCu, unblocked vol	1499	646	1285			
tC, single (s)	6.8	7.3	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.5	2.2			
p0 queue free %	99	97	99			
cM capacity (veh/h)	219	371	543			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	14	7	308	308	843	435
Volume Left	2	7	0	0	0	0
Volume Right	12	0	0	0	0	13
cSH	338	543	1700	1700	1700	1700
Volume to Capacity	0.04	0.01	0.18	0.18	0.50	0.26
Queue Length 95th (m)	1.0	0.3	0.0	0.0	0.0	0.0
Control Delay (s)	16.1	11.7	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	16.1	0.1			0.0	
Approach LOS	C					

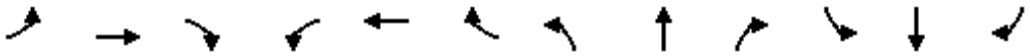
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	9	0	0	12	1	0	0	0	2	0	0
Future Volume (Veh/h)	0	9	0	0	12	1	0	0	0	2	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Hourly flow rate (vph)	0	16	0	0	21	2	0	0	0	3	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	23			16			38	39	16	38	38	22
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	23			16			38	39	16	38	38	22
tC, single (s)	4.1			4.1			7.1	6.5	6.4	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.5	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1592			1615			972	853	1013	967	854	1055

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	23	0	3
Volume Left	0	0	0	3
Volume Right	0	2	0	0
cSH	1592	1615	1700	967
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	0.0	8.7
Lane LOS			A	A
Approach Delay (s)	0.0	0.0	0.0	8.7
Approach LOS			A	A

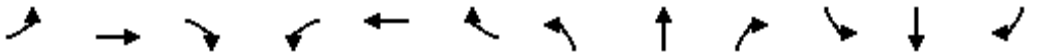
Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	6	0	4	5	1	0	0	0	3	0	0
Future Volume (Veh/h)	0	6	0	4	5	1	0	0	0	3	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Hourly flow rate (vph)	0	10	0	7	8	2	0	0	0	5	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	10			10			33	34	10	33	33	9
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	10			10			33	34	10	33	33	9
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	99	100	100
cM capacity (veh/h)	1610			1623			976	855	1077	971	856	1073

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	10	17	0	5
Volume Left	0	7	0	5
Volume Right	0	2	0	0
cSH	1610	1623	1700	971
Volume to Capacity	0.00	0.00	0.01	0.01
Queue Length 95th (m)	0.0	0.1	0.0	0.1
Control Delay (s)	0.0	3.0	0.0	8.7
Lane LOS		A	A	A
Approach Delay (s)	0.0	3.0	0.0	8.7
Approach LOS			A	A

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	13.9%	ICU Level of Service		A
Analysis Period (min)	15			



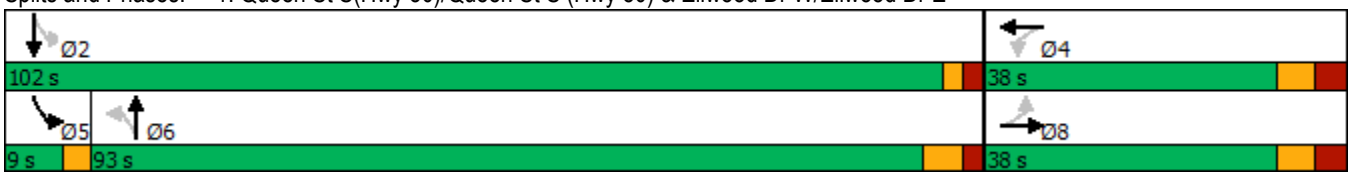
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	58	123	44	58	127	132	1525	27	83	783	32
Future Volume (vph)	63	58	123	44	58	127	132	1525	27	83	783	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	45.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.99		1.00	1.00			1.00	
Frt		0.932			0.925			0.997			0.994	
Flt Protected		0.987			0.990		0.950			0.950		
Satd. Flow (prot)	0	1736	0	0	1717	0	1807	3595	0	1789	3523	0
Flt Permitted		0.705			0.800		0.339			0.092		
Satd. Flow (perm)	0	1238	0	0	1387	0	644	3595	0	173	3523	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			42			2			7	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		247.4			102.8			658.2			86.1	
Travel Time (s)		22.3			9.3			47.4			6.2	
Confl. Peds. (#/hr)	8		2	2		8	1		8	8		1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	2%	3%	0%	1%	1%	1%	10%	2%	3%	0%
Adj. Flow (vph)	64	59	126	45	59	130	135	1556	28	85	799	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	249	0	0	234	0	135	1584	0	85	832	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	37.6	37.6		37.6	37.6		32.3	32.3		8.0	30.3	
Total Split (s)	38.0	38.0		38.0	38.0		93.0	93.0		9.0	102.0	
Total Split (%)	27.1%	27.1%		27.1%	27.1%		66.4%	66.4%		6.4%	72.9%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	2.0	
All-Red Time (s)	3.6	3.6		3.6	3.6		2.3	2.3		0.0	2.3	
Lost Time Adjust (s)		-3.0			-3.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.6			4.6		6.3	6.3		3.0	4.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		Max	Max		None	Max	
Act Effct Green (s)		28.8			28.8		86.9	86.9		99.2	97.9	
Actuated g/C Ratio		0.21			0.21		0.64	0.64		0.73	0.72	
v/c Ratio		0.86			0.72		0.33	0.69		0.43	0.33	
Control Delay		70.5			53.1		14.7	18.2		12.7	7.6	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		70.5			53.1		14.7	18.2		12.7	7.6	
LOS		E			D		B	B		B	A	
Approach Delay		70.5			53.1			18.0			8.1	

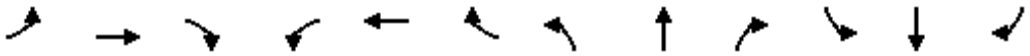
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		E			D			B			A	
Queue Length 50th (m)		56.3			48.4		16.5	143.5		6.3	41.6	
Queue Length 95th (m)		#96.9			78.2		31.0	174.1		11.8	53.2	
Internal Link Dist (m)		223.4			78.8			634.2			62.1	
Turn Bay Length (m)							45.0			45.0		
Base Capacity (vph)		332			373		412	2304		198	2544	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.75			0.63		0.33	0.69		0.43	0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 135.6			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 21.9		Intersection LOS: C	
Intersection Capacity Utilization 81.5%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

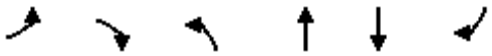




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	58	123	44	58	127	132	1525	27	83	783	32
Future Volume (vph)	63	58	123	44	58	127	132	1525	27	83	783	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		6.3	6.3		3.0	4.3	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.93		1.00	1.00		1.00	0.99	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1734			1718		1806	3596		1789	3524	
Flt Permitted		0.70			0.80		0.34	1.00		0.09	1.00	
Satd. Flow (perm)		1237			1387		643	3596		174	3524	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	64	59	126	45	59	130	135	1556	28	85	799	33
RTOR Reduction (vph)	0	28	0	0	33	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	221	0	0	201	0	135	1583	0	85	830	0
Confl. Peds. (#/hr)	8		2	2		8	1		8	8		1
Heavy Vehicles (%)	0%	0%	2%	3%	0%	1%	1%	1%	10%	2%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		25.8			25.8		86.9	86.9		97.9	97.9	
Effective Green, g (s)		28.8			28.8		86.9	86.9		97.9	97.9	
Actuated g/C Ratio		0.21			0.21		0.64	0.64		0.72	0.72	
Clearance Time (s)		7.6			7.6		6.3	6.3		3.0	4.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		262			294		412	2304		197	2544	
v/s Ratio Prot								c0.44		c0.02	0.24	
v/s Ratio Perm		c0.18			0.14		0.21			0.29		
v/c Ratio		0.85			0.68		0.33	0.69		0.43	0.33	
Uniform Delay, d1		51.3			49.2		11.1	15.6		13.2	6.9	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		21.4			6.4		2.1	1.7		1.5	0.3	
Delay (s)		72.6			55.6		13.2	17.3		14.7	7.2	
Level of Service		E			E		B	B		B	A	
Approach Delay (s)		72.6			55.6			17.0			7.9	
Approach LOS		E			E			B			A	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	135.6	Sum of lost time (s)	13.9
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

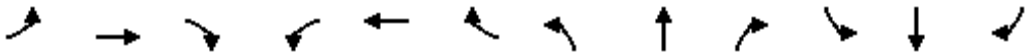
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	21	29	1623	883	15
Future Volume (Veh/h)	12	21	29	1623	883	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	12	22	30	1691	920	16
Pedestrians	4					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)				86		
pX, platoon unblocked	0.71					
vC, conflicting volume	1838	472	940			
vC1, stage 1 conf vol	932					
vC2, stage 2 conf vol	906					
vCu, unblocked vol	1363	472	940			
tC, single (s)	6.8	7.0	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.4	2.2			
p0 queue free %	96	96	96			
cM capacity (veh/h)	309	523	735			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	34	30	846	846	613	323
Volume Left	12	30	0	0	0	0
Volume Right	22	0	0	0	0	16
cSH	421	735	1700	1700	1700	1700
Volume to Capacity	0.08	0.04	0.50	0.50	0.36	0.19
Queue Length 95th (m)	2.0	1.0	0.0	0.0	0.0	0.0
Control Delay (s)	14.3	10.1	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	14.3	0.2			0.0	
Approach LOS	B					

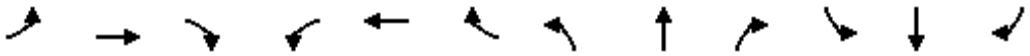
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	13	1	5	18	3	1	0	2	1	0	0
Future Volume (Veh/h)	0	13	1	5	18	3	1	0	2	1	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	21	2	8	29	5	2	0	3	2	0	0
Pedestrians								2				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	34			25			72	74	24	72	72	32
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	34			25			72	74	24	72	72	32
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	100	100	100
cM capacity (veh/h)	1578			1599			918	811	1056	911	812	1043

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	23	42	5	2
Volume Left	0	8	2	2
Volume Right	2	5	3	0
cSH	1578	1599	996	911
Volume to Capacity	0.00	0.01	0.01	0.00
Queue Length 95th (m)	0.0	0.1	0.1	0.1
Control Delay (s)	0.0	1.4	8.6	9.0
Lane LOS		A	A	A
Approach Delay (s)	0.0	1.4	8.6	9.0
Approach LOS			A	A

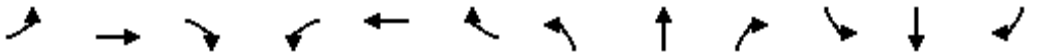
Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	15.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	7	0	5	15	2	0	0	5	2	0	0
Future Volume (Veh/h)	0	7	0	5	15	2	0	0	5	2	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	0	11	0	8	23	3	0	0	8	3	0	0
Pedestrians								2				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	26			13			54	55	13	60	54	24
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	26			13			54	55	13	60	54	24
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	100
cM capacity (veh/h)	1588			1616			943	830	1071	925	832	1052

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	34	8	3
Volume Left	0	8	0	3
Volume Right	0	3	8	0
cSH	1588	1616	1071	925
Volume to Capacity	0.00	0.00	0.01	0.00
Queue Length 95th (m)	0.0	0.1	0.2	0.1
Control Delay (s)	0.0	1.7	8.4	8.9
Lane LOS		A	A	A
Approach Delay (s)	0.0	1.7	8.4	8.9
Approach LOS			A	A

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	15.3%	ICU Level of Service	A	
Analysis Period (min)	15			



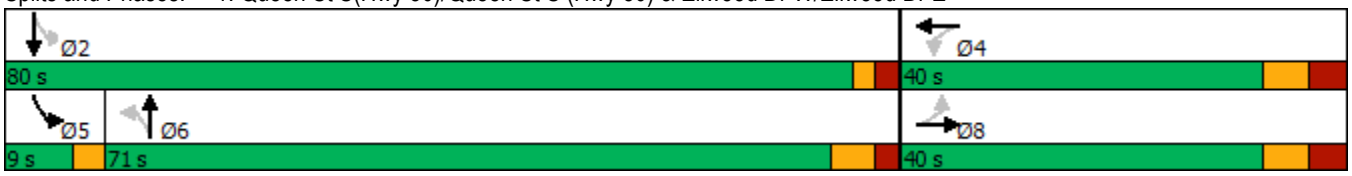
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	91	118	76	43	99	77	639	38	147	1220	147
Future Volume (vph)	27	91	118	76	43	99	77	639	38	147	1220	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	45.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.98		1.00	1.00		1.00	0.99	
Frt		0.932			0.939			0.992			0.984	
Flt Protected		0.994			0.983		0.950			0.950		
Satd. Flow (prot)	0	1697	0	0	1617	0	1630	3484	0	1738	3480	0
Flt Permitted		0.910			0.652		0.146			0.329		
Satd. Flow (perm)	0	1550	0	0	1072	0	250	3484	0	599	3480	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			35			8			21	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		247.4			102.8			658.2			86.1	
Travel Time (s)		22.3			9.3			47.4			6.2	
Confl. Peds. (#/hr)	33		1	1		33	12		7	7		12
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	5%	3%	8%	4%	8%	12%	3%	16%	5%	3%	0%
Adj. Flow (vph)	29	97	126	81	46	105	82	680	40	156	1298	156
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	252	0	0	232	0	82	720	0	156	1454	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	39.6	39.6		39.6	39.6		32.3	32.3		8.0	32.3	
Total Split (s)	40.0	40.0		40.0	40.0		71.0	71.0		9.0	80.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		59.2%	59.2%		7.5%	66.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	2.0	
All-Red Time (s)	3.6	3.6		3.6	3.6		2.3	2.3		0.0	2.3	
Lost Time Adjust (s)		0.0			-2.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.6			5.6		6.3	6.3		3.0	4.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		Max	Max		None	Max	
Act Effct Green (s)		23.5			25.5		65.0	65.0		77.3	76.0	
Actuated g/C Ratio		0.21			0.23		0.58	0.58		0.69	0.68	
v/c Ratio		0.70			0.85		0.57	0.35		0.33	0.61	
Control Delay		44.5			62.3		36.1	13.5		8.8	11.9	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		44.5			62.3		36.1	13.5		8.8	11.9	
LOS		D			E		D	B		A	B	

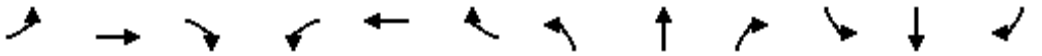
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		44.5			62.3			15.8			11.6	
Approach LOS		D			E			B			B	
Queue Length 50th (m)		42.8			41.7		10.6	41.0		10.5	82.4	
Queue Length 95th (m)		69.8			71.7		#39.5	62.5		22.0	126.6	
Internal Link Dist (m)		223.4			78.8			634.2			62.1	
Turn Bay Length (m)							45.0			45.0		
Base Capacity (vph)		481			356		145	2034		477	2381	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.52			0.65		0.57	0.35		0.33	0.61	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 111.4			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 19.7		Intersection LOS: B	
Intersection Capacity Utilization 90.2%		ICU Level of Service E	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

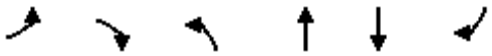
Splits and Phases: 1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	91	118	76	43	99	77	639	38	147	1220	147
Future Volume (vph)	27	91	118	76	43	99	77	639	38	147	1220	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.6			5.6		6.3	6.3		3.0	4.3	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.94		1.00	0.99		1.00	0.98	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1695			1618		1625	3483		1736	3481	
Flt Permitted		0.91			0.65		0.15	1.00		0.33	1.00	
Satd. Flow (perm)		1550			1074		249	3483		601	3481	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	29	97	126	81	46	105	82	680	40	156	1298	156
RTOR Reduction (vph)	0	32	0	0	27	0	0	3	0	0	7	0
Lane Group Flow (vph)	0	220	0	0	205	0	82	717	0	156	1447	0
Confl. Peds. (#/hr)	33		1	1		33	12		7	7		12
Confl. Bikes (#/hr)			1			1						
Heavy Vehicles (%)	6%	5%	3%	8%	4%	8%	12%	3%	16%	5%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		23.5			23.5		65.0	65.0		76.0	76.0	
Effective Green, g (s)		23.5			25.5		65.0	65.0		76.0	76.0	
Actuated g/C Ratio		0.21			0.23		0.58	0.58		0.68	0.68	
Clearance Time (s)		7.6			7.6		6.3	6.3		3.0	4.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		326			245		145	2032		471	2374	
v/s Ratio Prot								0.21		0.02	c0.42	
v/s Ratio Perm		0.14			c0.19		0.33			0.21		
v/c Ratio		0.67			0.84		0.57	0.35		0.33	0.61	
Uniform Delay, d1		40.4			41.0		14.4	12.2		6.7	9.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.4			21.3		15.0	0.5		0.4	1.2	
Delay (s)		45.8			62.2		29.4	12.6		7.1	10.8	
Level of Service		D			E		C	B		A	B	
Approach Delay (s)		45.8			62.2			14.4			10.4	
Approach LOS		D			E			B			B	

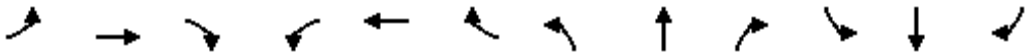
Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	111.4	Sum of lost time (s)	16.9
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	13	9	712	1459	15
Future Volume (Veh/h)	3	13	9	712	1459	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	3	14	10	757	1552	16
Pedestrians	7					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	1					
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)				86		
pX, platoon unblocked	0.90					
vC, conflicting volume	1966	791	1575			
vC1, stage 1 conf vol	1567					
vC2, stage 2 conf vol	398					
vCu, unblocked vol	1851	791	1575			
tC, single (s)	6.8	7.3	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.5	2.2			
p0 queue free %	98	95	98			
cM capacity (veh/h)	154	294	421			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	17	10	378	378	1035	533
Volume Left	3	10	0	0	0	0
Volume Right	14	0	0	0	0	16
cSH	254	421	1700	1700	1700	1700
Volume to Capacity	0.07	0.02	0.22	0.22	0.61	0.31
Queue Length 95th (m)	1.6	0.6	0.0	0.0	0.0	0.0
Control Delay (s)	20.2	13.8	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	20.2	0.2			0.0	
Approach LOS	C					

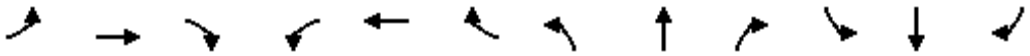
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	11	0	0	15	1	0	0	0	2	0	0
Future Volume (Veh/h)	0	11	0	0	15	1	0	0	0	2	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Hourly flow rate (vph)	0	19	0	0	26	2	0	0	0	3	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	28			19			46	47	19	46	46	27
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	28			19			46	47	19	46	46	27
tC, single (s)	4.1			4.1			7.1	6.5	6.4	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.5	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1585			1611			961	845	1009	955	846	1048

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	19	28	0	3
Volume Left	0	0	0	3
Volume Right	0	2	0	0
cSH	1585	1611	1700	955
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	0.0	8.8
Lane LOS			A	A
Approach Delay (s)	0.0	0.0	0.0	8.8
Approach LOS			A	A

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	8	0	5	6	1	0	0	0	3	0	0
Future Volume (Veh/h)	0	8	0	5	6	1	0	0	0	3	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Hourly flow rate (vph)	0	13	0	8	10	2	0	0	0	5	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	12			13			40	41	13	40	40	11
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	12			13			40	41	13	40	40	11
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	99	100	100
cM capacity (veh/h)	1607			1619			965	847	1073	960	848	1070

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	20	0	5
Volume Left	0	8	0	5
Volume Right	0	2	0	0
cSH	1607	1619	1700	960
Volume to Capacity	0.00	0.00	0.00	0.01
Queue Length 95th (m)	0.0	0.1	0.0	0.1
Control Delay (s)	0.0	2.9	0.0	8.8
Lane LOS		A	A	A
Approach Delay (s)	0.0	2.9	0.0	8.8
Approach LOS			A	A

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	14.9%	ICU Level of Service	A	
Analysis Period (min)	15			

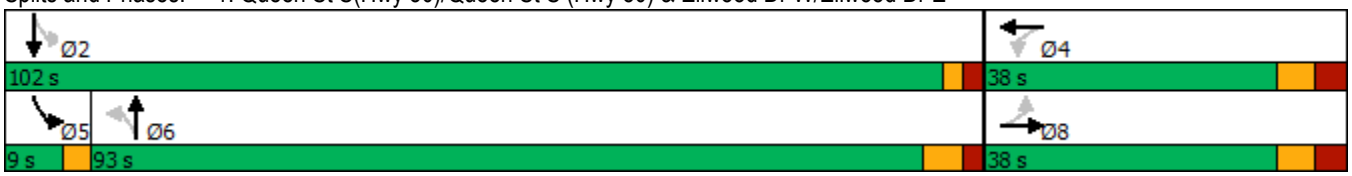
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	71	152	55	71	156	163	1874	33	102	961	39
Future Volume (vph)	77	71	152	55	71	156	163	1874	33	102	961	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	45.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.99		1.00	1.00			1.00	
Frt		0.932			0.925			0.997			0.994	
Flt Protected		0.987			0.990		0.950			0.950		
Satd. Flow (prot)	0	1736	0	0	1717	0	1807	3595	0	1789	3523	0
Flt Permitted		0.677			0.775		0.273			0.044		
Satd. Flow (perm)	0	1189	0	0	1344	0	519	3595	0	83	3523	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			42			2			7	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		247.4			102.8			658.2			86.1	
Travel Time (s)		22.3			9.3			47.4			6.2	
Confl. Peds. (#/hr)	8		2	2		8	1		8	8		1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	2%	3%	0%	1%	1%	1%	10%	2%	3%	0%
Adj. Flow (vph)	77	71	152	55	71	156	163	1874	33	102	961	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	300	0	0	282	0	163	1907	0	102	1000	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	37.6	37.6		37.6	37.6		32.3	32.3		8.0	30.3	
Total Split (s)	38.0	38.0		38.0	38.0		93.0	93.0		9.0	102.0	
Total Split (%)	27.1%	27.1%		27.1%	27.1%		66.4%	66.4%		6.4%	72.9%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	2.0	
All-Red Time (s)	3.6	3.6		3.6	3.6		2.3	2.3		0.0	2.3	
Lost Time Adjust (s)		-3.0			-3.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.6			4.6		6.3	6.3		3.0	4.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		Max	Max		None	Max	
Act Effct Green (s)		33.4			33.4		86.7	86.7		99.0	97.7	
Actuated g/C Ratio		0.24			0.24		0.62	0.62		0.71	0.70	
v/c Ratio		0.97			0.80		0.51	0.86		0.78	0.41	
Control Delay		90.0			60.4		21.7	26.6		59.4	9.4	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		90.0			60.4		21.7	26.6		59.4	9.4	
LOS		F			E		C	C		E	A	
Approach Delay		90.0			60.4			26.2			14.1	

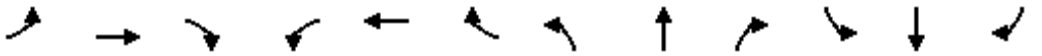
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		F			E			C			B	
Queue Length 50th (m)		74.7			63.8		23.8	213.3		12.0	55.8	
Queue Length 95th (m)		#133.5			#107.8		45.3	248.8		#42.1	67.3	
Internal Link Dist (m)		223.4			78.8			634.2			62.1	
Turn Bay Length (m)							45.0			45.0		
Base Capacity (vph)		310			352		321	2227		131	2460	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.97			0.80		0.51	0.86		0.78	0.41	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 30.3		Intersection LOS: C	
Intersection Capacity Utilization 96.8%		ICU Level of Service F	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

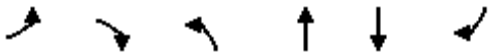




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	71	152	55	71	156	163	1874	33	102	961	39
Future Volume (vph)	77	71	152	55	71	156	163	1874	33	102	961	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		6.3	6.3		3.0	4.3	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.93		1.00	1.00		1.00	0.99	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1734			1718		1806	3596		1789	3524	
Flt Permitted		0.68			0.77		0.27	1.00		0.04	1.00	
Satd. Flow (perm)		1189			1344		519	3596		82	3524	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	77	71	152	55	71	156	163	1874	33	102	961	39
RTOR Reduction (vph)	0	27	0	0	32	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	273	0	0	250	0	163	1906	0	102	998	0
Confl. Peds. (#/hr)	8		2	2		8	1		8	8		1
Heavy Vehicles (%)	0%	0%	2%	3%	0%	1%	1%	1%	10%	2%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		30.4			30.4		86.7	86.7		97.7	97.7	
Effective Green, g (s)		33.4			33.4		86.7	86.7		97.7	97.7	
Actuated g/C Ratio		0.24			0.24		0.62	0.62		0.70	0.70	
Clearance Time (s)		7.6			7.6		6.3	6.3		3.0	4.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		283			320		321	2226		130	2459	
v/s Ratio Prot								c0.53		c0.03	0.28	
v/s Ratio Perm		c0.23			0.19		0.31			0.51		
v/c Ratio		0.97			0.78		0.51	0.86		0.78	0.41	
Uniform Delay, d1		52.7			49.9		14.8	21.6		35.3	8.9	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		43.8			11.7		5.6	4.5		25.9	0.5	
Delay (s)		96.5			61.6		20.4	26.1		61.2	9.4	
Level of Service		F			E		C	C		E	A	
Approach Delay (s)		96.5			61.6			25.7			14.2	
Approach LOS		F			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.9
Intersection Capacity Utilization	96.8%	ICU Level of Service	F
Analysis Period (min)	15		

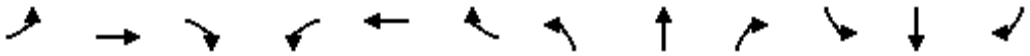
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	25	34	1995	1085	18
Future Volume (Veh/h)	14	25	34	1995	1085	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	15	26	35	2078	1130	19
Pedestrians	4					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)				86		
pX, platoon unblocked	0.55					
vC, conflicting volume	2252	578	1153			
vC1, stage 1 conf vol	1144					
vC2, stage 2 conf vol	1109					
vCu, unblocked vol	1636	578	1153			
tC, single (s)	6.8	7.0	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.4	2.2			
p0 queue free %	94	94	94			
cM capacity (veh/h)	236	445	611			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	41	35	1039	1039	753	396
Volume Left	15	35	0	0	0	0
Volume Right	26	0	0	0	0	19
cSH	336	611	1700	1700	1700	1700
Volume to Capacity	0.12	0.06	0.61	0.61	0.44	0.23
Queue Length 95th (m)	3.1	1.4	0.0	0.0	0.0	0.0
Control Delay (s)	17.2	11.3	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	17.2	0.2			0.0	
Approach LOS	C					

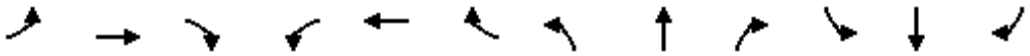
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	16	2	6	22	3	2	0	3	1	0	0
Future Volume (Veh/h)	0	16	2	6	22	3	2	0	3	1	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	25	3	10	35	5	3	0	5	2	0	0
Pedestrians								2				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	40			30			86	88	28	89	88	38
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	40			30			86	88	28	89	88	38
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	100	100	100
cM capacity (veh/h)	1570			1593			897	795	1050	886	796	1035

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	28	50	8	2
Volume Left	0	10	3	2
Volume Right	3	5	5	0
cSH	1570	1593	987	886
Volume to Capacity	0.00	0.01	0.01	0.00
Queue Length 95th (m)	0.0	0.1	0.2	0.1
Control Delay (s)	0.0	1.5	8.7	9.1
Lane LOS		A	A	A
Approach Delay (s)	0.0	1.5	8.7	9.1
Approach LOS			A	A

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	16.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	9	0	6	18	2	0	0	6	2	0	0
Future Volume (Veh/h)	0	9	0	6	18	2	0	0	6	2	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	0	14	0	9	28	3	0	0	9	3	0	0
Pedestrians								2				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	31			16			64	65	16	70	64	30
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	31			16			64	65	16	70	64	30
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	99	100	100	100
cM capacity (veh/h)	1582			1612			929	819	1067	908	821	1045

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	14	40	9	3
Volume Left	0	9	0	3
Volume Right	0	3	9	0
cSH	1582	1612	1067	908
Volume to Capacity	0.00	0.01	0.01	0.00
Queue Length 95th (m)	0.0	0.1	0.2	0.1
Control Delay (s)	0.0	1.7	8.4	9.0
Lane LOS		A	A	A
Approach Delay (s)	0.0	1.7	8.4	9.0
Approach LOS			A	A

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	16.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Appendix G:

Parking Generation Graphs

Query | Filter

DATA SOURCE:
Parking Generation Manual, 5th Ed

New data edition is available. Click here to upgrade.

SEARCH BY LAND USE CODE:
220

LAND USE GROUP:
(200-299) Residential

LAND USE:
220 - Multifamily Housing (Low-Rise)

LAND USE SUBCATEGORY:
All Sites

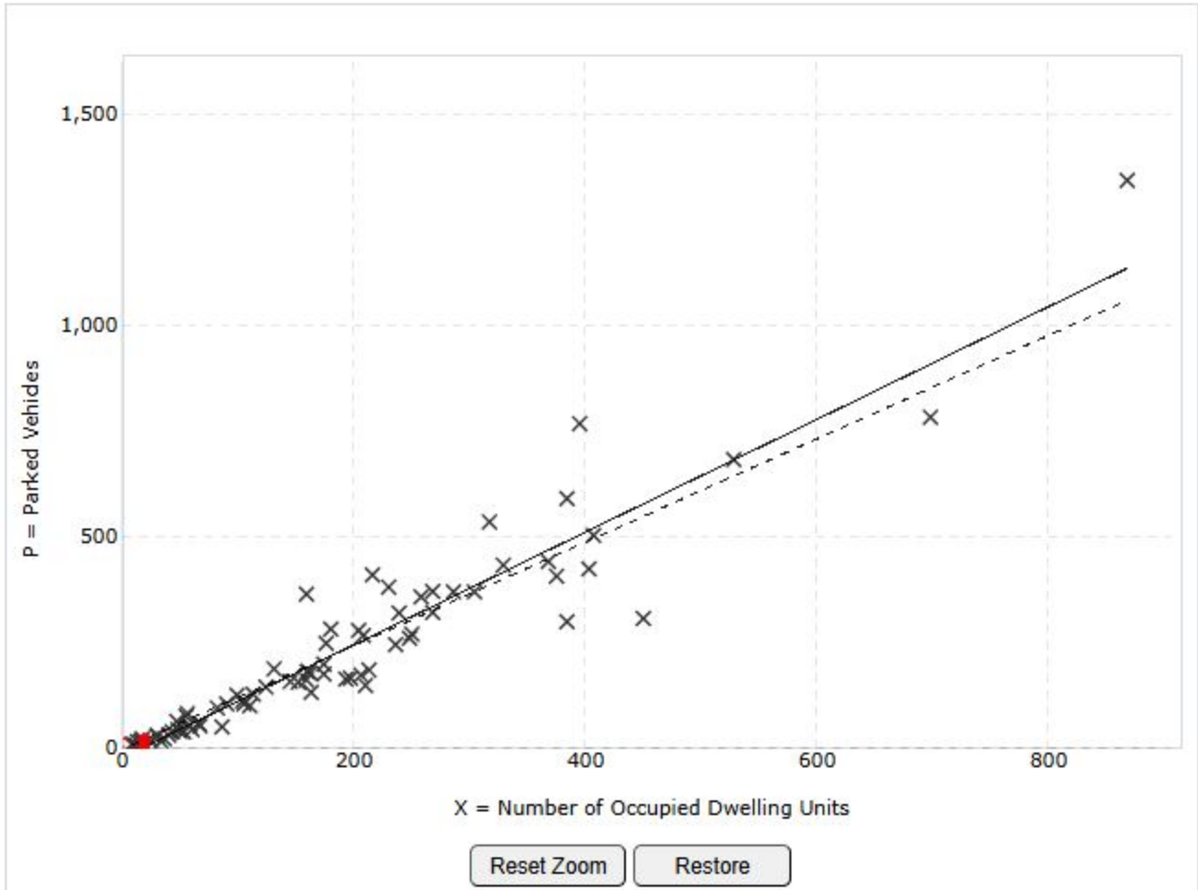
SETTING/LOCATION:
General Urban/Suburban (no nearby rail transi

INDEPENDENT VARIABLE (IV):
Occupied Dwelling Units

TIME PERIOD:
Weekday (Monday - Friday)

ENTER IV VALUE TO CALCULATE PARKING DEMAND:
19 Calculate

Data Plot and Equation



DATA STATISTICS

Land Use:
Multifamily Housing (Low-Rise) (220)

Independent Variable:
Occupied Dwelling Units

Time Period:
Weekday (Monday - Friday)

Setting/Location:
General Urban/Suburban (no nearby rail transit)

Number of Studies:
77

Avg. Num. of Occupied Dwelling Units:
182

Average Rate:
1.22

Range of Rates:
0.58 - 2.30

33rd / 85th Percentile:
1.02 / 1.41

95% Confidence Interval:
1.15 - 1.29

Standard Deviation:
0.32

Coefficient of Variation:
26%

Fitted Curve Equation:
P = 1.33(X) - 20.15

R^2:
0.89

Calculated Parking Demand:
Weighted Average: 23
Fitted Curve: 5

Query | Filter

DATA SOURCE:
Parking Generation Manual, 5th Ed

New data edition is available. Click here to upgrade.

SEARCH BY LAND USE CODE:
220

LAND USE GROUP:
(200-299) Residential

LAND USE:
220 - Multifamily Housing (Low-Rise)

LAND USE SUBCATEGORY:
All Sites

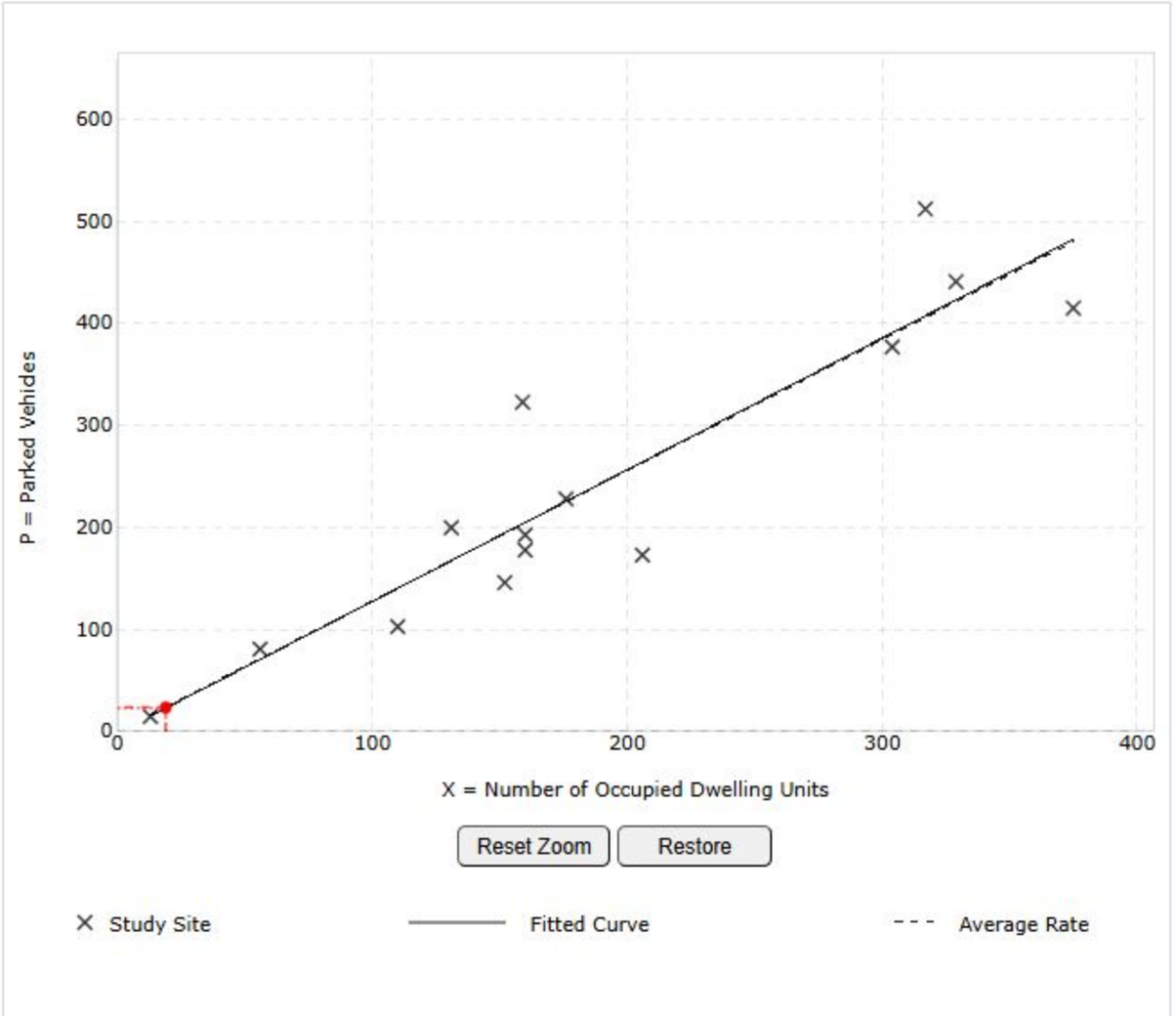
SETTING/LOCATION:
General Urban/Suburban (no nearby rail transi

INDEPENDENT VARIABLE (IV):
Occupied Dwelling Units

TIME PERIOD:
Saturday

ENTER IV VALUE TO CALCULATE PARKING DEMAND:
19 Calculate

Data Plot and Equation



DATA STATISTICS

Land Use:
Multifamily Housing (Low-Rise) (220)

Independent Variable:
Occupied Dwelling Units

Time Period:
Saturday

Setting/Location:
General Urban/Suburban (no nearby rail transit)

Number of Studies:
14

Avg. Num. of Occupied Dwelling Units:
189

Average Rate:
1.28

Range of Rates:
0.84 - 2.03

33rd / 85th Percentile:
1.11 / 1.59

95% Confidence Interval:
***

Standard Deviation:
0.30

Coefficient of Variation:
23%

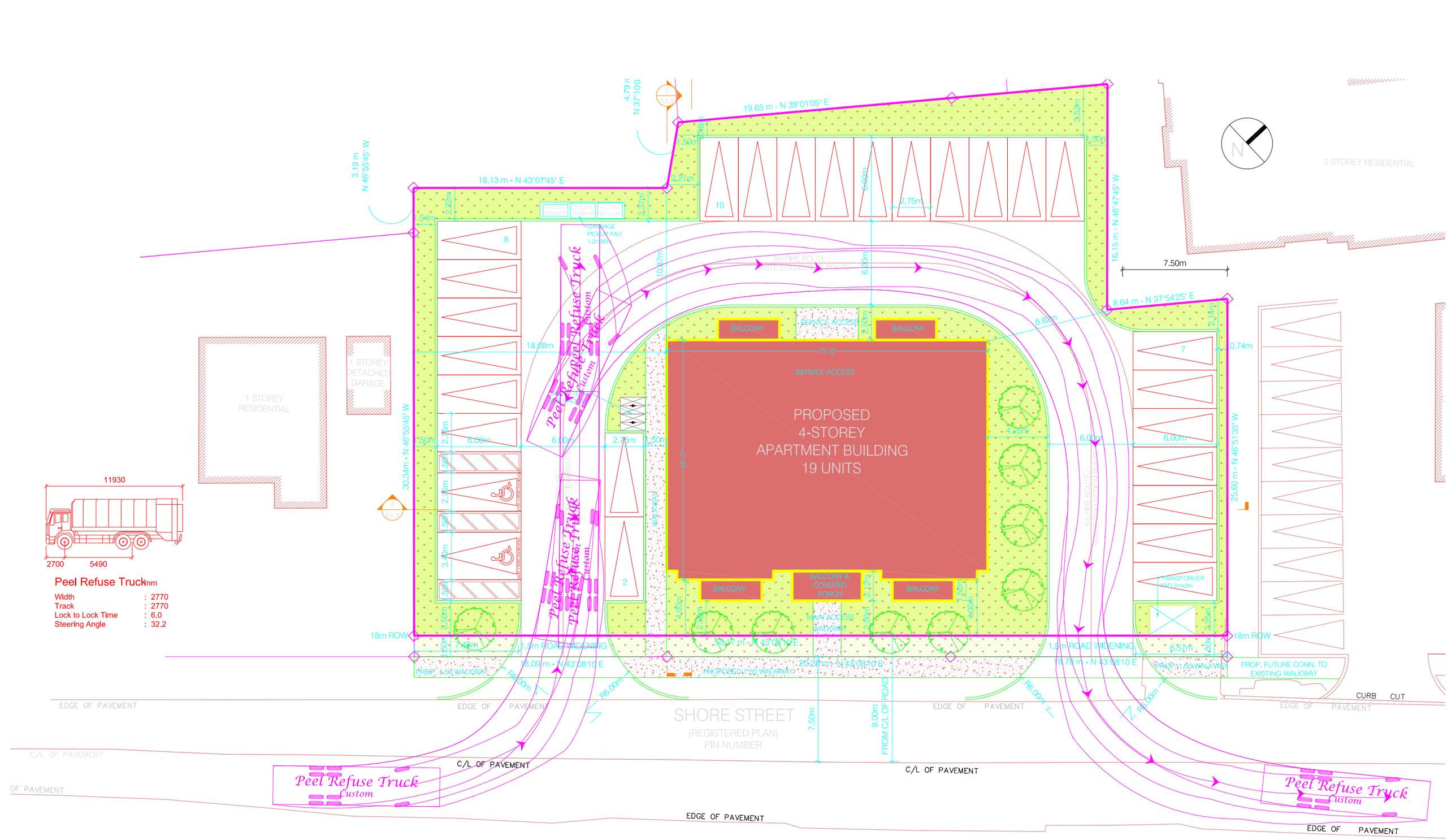
Fitted Curve Equation:
P = 1.29(X) - 1.37

R^2:
0.85

Calculated Parking Demand:
Weighted Average: 24
Fitted Curve: 23

Appendix H:

Auto-Turn Analysis


PROPOSED
4-STOREY
APARTMENT BUILDING
19 UNITS
SHORE STREET
(REGISTERED PLAN)
PIN NUMBER
1 STOREY RESIDENTIAL
1 STOREY DETACHED GARAGE
3 STOREY RESIDENTIAL
BALCONY
SERVICE ACCESS
BALCONY & COVERED PORCH
MAIN ACCESS WALKWAY
GARAGE PICKUP PAD 1.2mX6m
6m FIRE ROUTE / WASTE COLLECTION ROUTE
TRANSFORMER PAD 2mx3m
PROP. 1.50 WALKWAY
PROP. FUTURE CONN. TO EXISTING WALKWAY
1.5m ROAD WIDENING
18m ROW
EDGE OF PAVEMENT
C/L OF PAVEMENT
CURB CUT
Peel Refuse Truck
Custom
19.65 m - N 38°01'05" E
18.13 m - N 43°07'45" E
8.64 m - N 37°54'25" E
19.79 m - N 43°08'10" E
18.09 m - N 43°08'10" E
20.28 m - N 43°08'10" E
3.19 m N 46°55'45" W
30.34m - N 46°55'45" W
16.15 m - N 46°47'45" W
25.60 m - N 46°51'35" W
4.79 m N 37°11'00"
7.50m
9.00m FROM C/L OF ROAD
11930
2700
5490
Peel Refuse Truck mm
Width : 2770
Track : 2770
Lock to Lock Time : 6.0
Steering Angle : 32.2