



TRAFFIC BRIEF

Crescent Acres Residential Development

Town of Fort Erie, Ontario

Prepared for: Mountainview Homes Inc.

Prepared by: SLBC Inc.

2023-03-08

Executive Summary

SLBC Inc. was retained by Mountainview Homes Inc. to complete a Traffic Brief for the proposed Crescent Acres Residential Development, located on the east side of Crescent Road, opposite Orchard Avenue and Evelyn Street, in the Town of Fort Erie. The primary objectives of the Traffic Brief include: estimation of peak hour traffic generation from the proposed development, intersection capacity analyses for the study area intersections under existing and future conditions, the recommendation of intersections improvements where required, and an evaluation of the proposed public roadway connections to Crescent Road based on applicable design guidelines.

The proposed residential subdivision development will consist of 220 dwelling units (67 single-family dwelling units, 8 semi-detached dwelling units, 145 townhouses dwelling units) and two proposed public roadway connections to Crescent Road (one opposite Orchard Avenue and one just south of Evelyn Street).

Intersection capacity analysis was completed for the following study intersections:

- Crescent Road at Garrison Road
- Crescent Road at Orchard Avenue / proposed Street B
- Crescent Road at Evelyn Street
- Crescent Road at the proposed Street A

The analysis adopted future planning horizons of 2025 (representing the assumed build-out year of the subject development) and 2030 representing five years post build-out, and an annual growth rate of 2% per annum for Garrison Road and Crescent Road.

The proposed residential development is projected to generate approximately 124 two-way trips during the weekday a.m. peak hour (30 inbound and 94 outbound), and 156 two-way trips during the weekday p.m. peak hour (98 inbound and 58 outbound).

The industry standard Synchro macroscopic traffic analysis software was utilized to analyse the study intersections, and key performance measures such as Level of Service (LOS), volume-to-capacity ratio (v/c ratio), and 95th percentile queuing was reported. As per the results of the intersection analysis, there are no traffic operational concerns expected to be generated from the proposed development.

Auxiliary left-turn lanes and all-way stop controls are also not warranted at the future road connections to Crescent Road, as per applicable warrant guidelines.

Therefore, there are no improvements recommended at the study intersections in response to the subject development.

It is recommended both the future Street A and Street B intersections on Crescent Road be full movement accesses (no turn restrictions) with stop control for the minor street approaches (free flow for Crescent Road), and no auxiliary turn lanes.

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1 Introduction

1.1 Study Objectives

SLBC Inc. was retained by Mountainview Homes Inc. to complete a Traffic Brief for the proposed Crescent Acres Residential Development, located on the east side of Crescent Road, opposite Orchard Avenue and Evelyn Street, in the Town of Fort Erie.

The primary objectives of the Traffic Brief include:

- Estimation of peak hour traffic generation from the proposed development;
- Intersection capacity analyses for the study area intersections under existing and future conditions;
- Recommendation of intersections improvements, where required, in order to maintain an acceptable level of service; and
- An evaluation of proposed site access intersection locations on Crescent Road based on applicable design guidelines.

1.2 Proposed Development

The proposed residential subdivision development will consist of 220 dwelling units (67 single-family dwelling units, 8 semi-detached dwelling units, 145 townhouses dwelling units), driveway and garage parking for each unit, and site access points off Crescent Road (one opposite Orchard Avenue, and one south of Evelyn Street).

1.3 Development Location

The proposed development will be located on the east side of Crescent Road, opposite Orchard Avenue and Evelyn Street. Lands on the opposite side (west side) of Crescent Road consist of generally low-density residential development. Lands just north of the site consist of a variety of commercial and retail uses and there are existing Greenfields (vacant parcels) and forested lands east of the site.

Crescent Road is a north-south collector road providing access to the Garrison Road corridor (Regional Road 3), which is a major east-west arterial road servicing the surrounding area and providing access to the Queen Elizabeth Way (QEW), the Town of Fort Erie core, the Peace Bridge crossing, the City of Port Colborne, and other communities to the west. The location of the proposed development and its relation to the surrounding road network is shown in **Figure 1**.

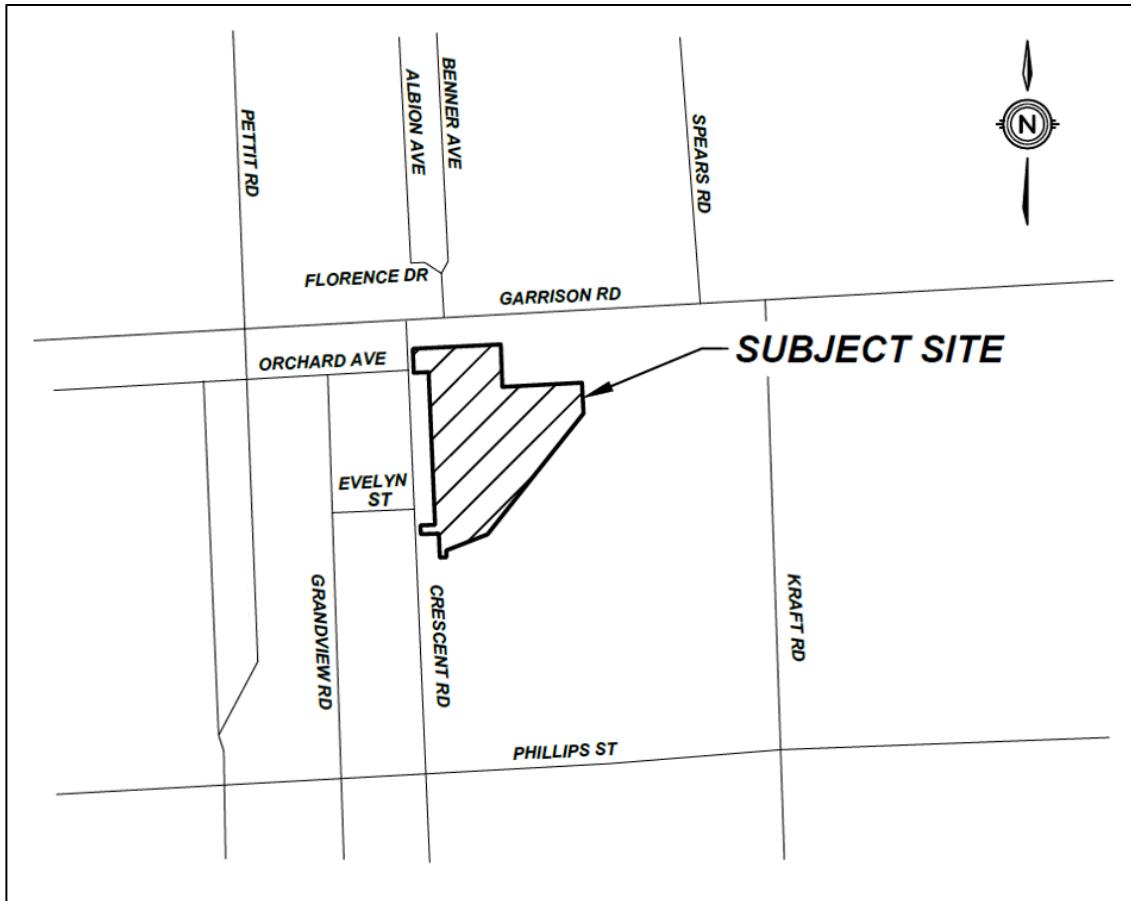


Figure 1: Site Area

1.4 Study Intersections

Capacity analysis was completed for the following study intersections:

- Crescent Road at Garrison Road (Regional Road 3)
- Crescent Road at Orchard Avenue / proposed Street B access
- Crescent Road at Evelyn Street
- Crescent Road at proposed Street A access

2 Existing Conditions

2.1 Existing Road Network

Garrison Road (Regional Road 3) is an east-west arterial roadway under the jurisdiction of Niagara Region with a five-lane urban cross-section and a posted speed limit of 60km/h. In the vicinity of the site, there are no identifiable horizontal or vertical curves in the road's alignment requiring review. At its stop-controlled T-intersection with Crescent Road (stop-controlled for Crescent Road, free flow for Garrison Road) it has a two-way left turn lane.

Crescent Road within the study area is a north-south collector roadway under the jurisdiction of the Town of Fort Erie, with a two-lane urban cross-section and a posted speed limit of 50km/h. In the vicinity of the site, there are no identifiable horizontal or vertical curves in the road's alignment requiring review. At its stop-controlled T-intersection with Garrison Road (stop-controlled for Crescent Road, free flow for Garrison Road), it has no auxiliary turn lanes. At its stop-controlled T-intersections with Orchard Avenue and with Evelyn Street (stop-controlled for Orchard Avenue and Evelyn Street, free flow for Crescent Road), it has no auxiliary turn lanes..

Orchard Avenue is an east-west local roadway under the jurisdiction of the Town of Fort Erie, with a two-lane rural cross-section and an assumed speed limit of 50km/h. In the vicinity of the site, there are no identifiable horizontal or vertical curves in the road's alignment requiring review. At its stop-controlled T-intersection with Crescent Road (stop-controlled for Orchard Avenue, free flow for Crescent Road), it has no auxiliary turn lanes.

Evelyn Street is an east-west local roadway under the jurisdiction of the Town of Fort Erie, with a two-lane rural cross-section and an assumed speed limit of 50km/h. In the vicinity of the site, there are no identifiable horizontal or vertical curves in the road's alignment requiring review. At its stop-controlled T-intersection with Crescent Road (stop-controlled for Evelyn Street, free flow for Crescent Road), it has no auxiliary turn lanes.

2.2 Existing Traffic Volumes

Intersection traffic volume counts were collected at the study area intersections in February 2023. The a.m. peak hour for the study area road network commenced at approximately 8:00 a.m., and the p.m. peak hour commenced at approximately 4:00 p.m. to 4:45 p.m. The traffic volume data is provided in **Appendix A**. The existing peak hour traffic volumes are shown in **Figure 2**.

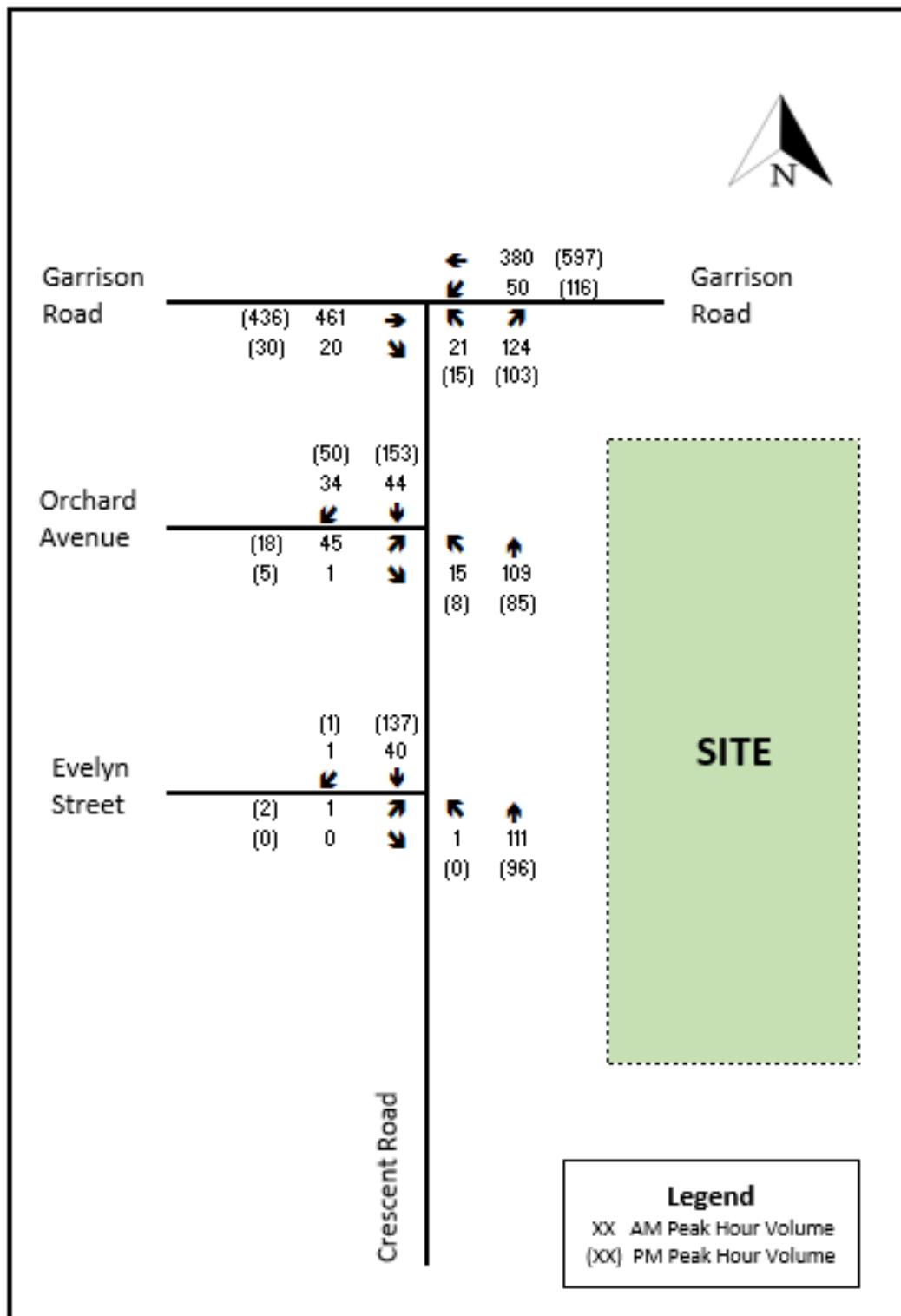


Figure 2: 2023 Existing Traffic Volumes

3 Future Background Conditions

3.1 Study Horizon Years

The analysis adopted future planning horizons of 2025 (representing the assumed build-out year of the subject development) and 2030 representing five years post build-out.

3.2 Future Background Growth

An annual growth rate of 2% per annum was assumed for Garrison Road and Crescent Road. This is expected to be a conservative (aggressive) annual growth rate for Crescent Road given the mature nature of the residential neighbourhood that it serves.

The 2025 and 2030 future background growth traffic volumes are shown in [Figure 3](#) and [Figure 4](#), respectively.

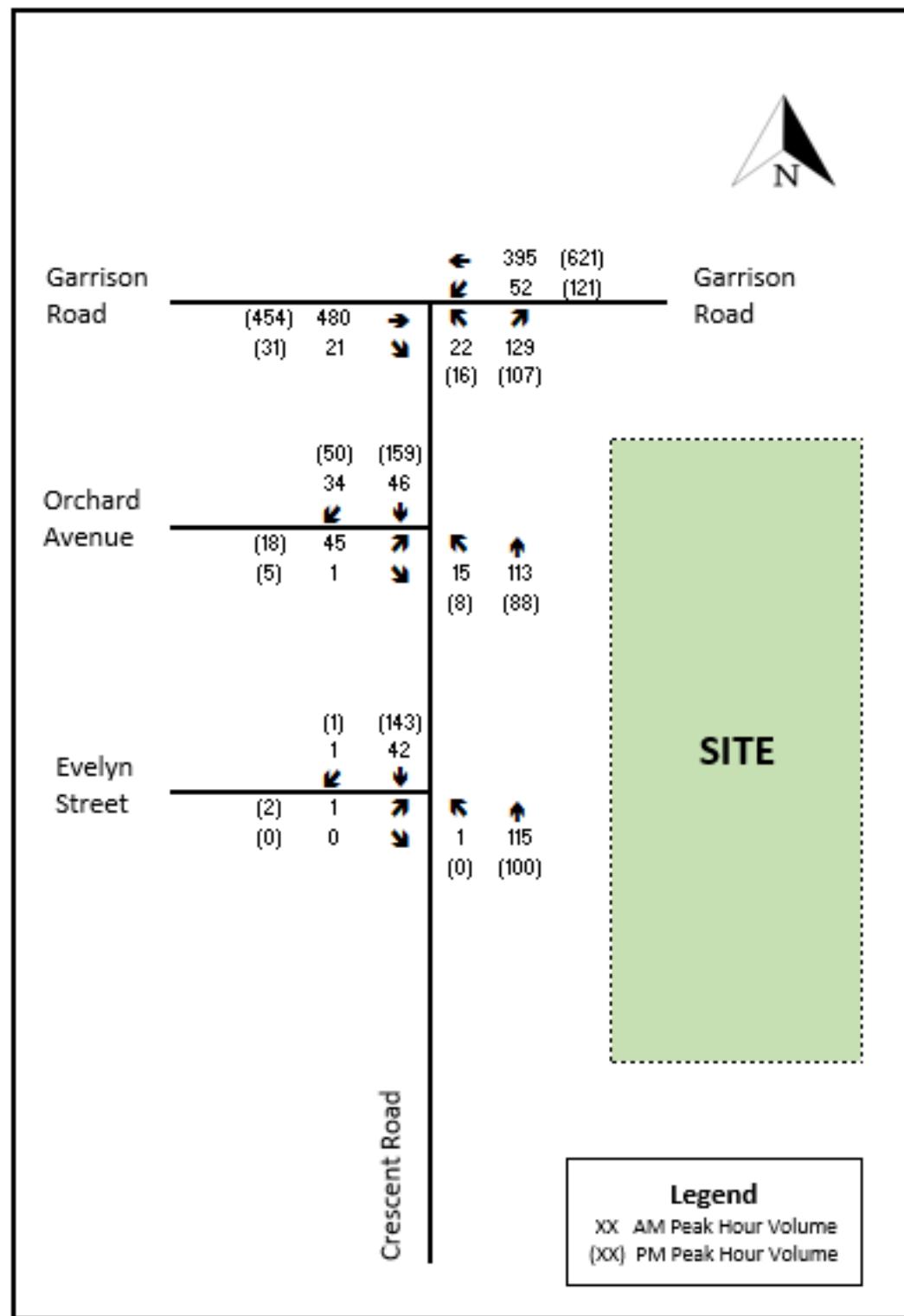


Figure 3: 2025 Background Growth

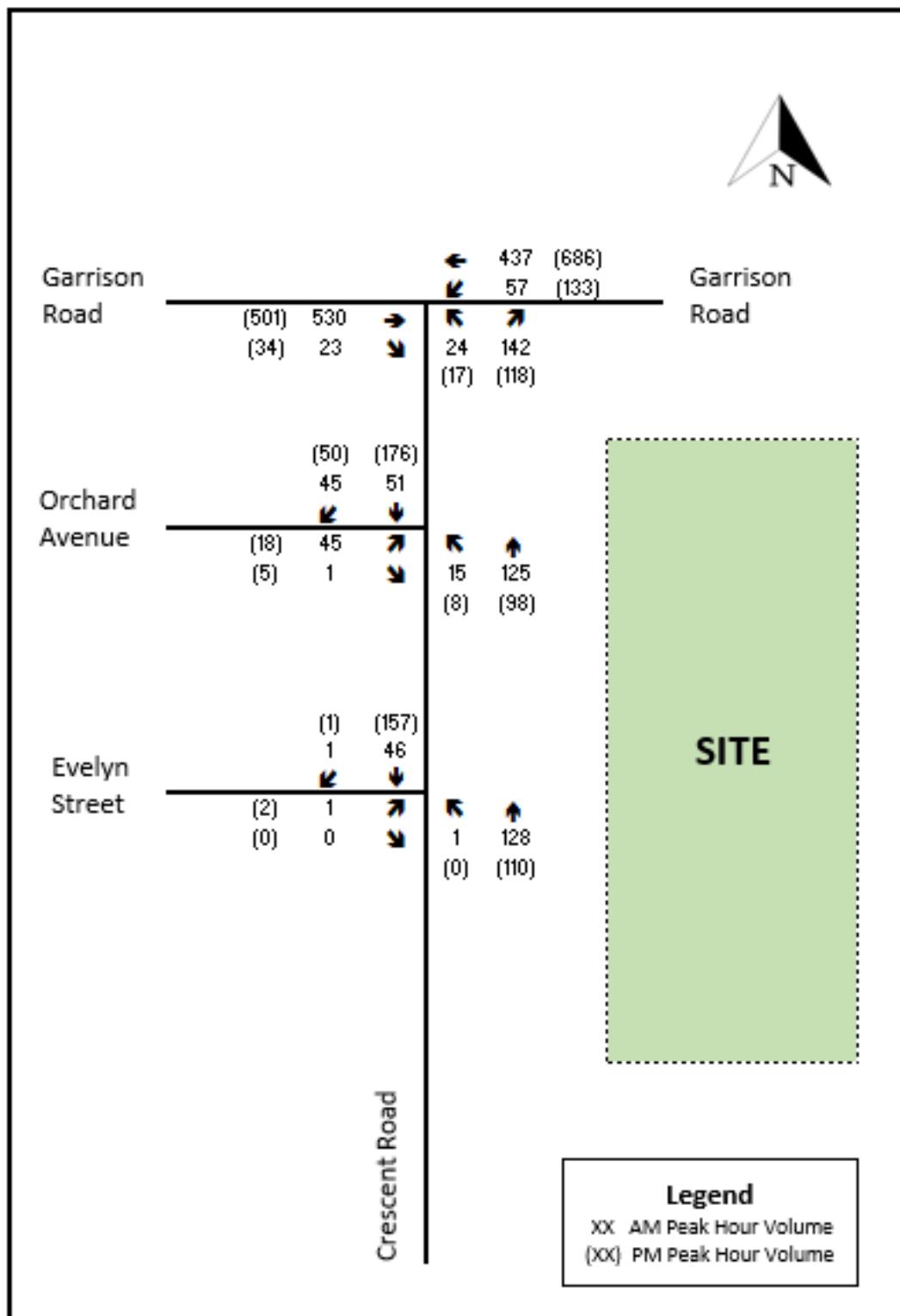


Figure 4: 2030 Background Growth

4 Proposed Development

4.1 Site Description

The proposed residential subdivision development consists of 220 dwelling units (67 single-family dwelling units, 8 semi-detached dwelling units, 145 townhouses dwelling units), and two vehicular access points (future public road connections) off Crescent Road. The draft plan is shown in **Appendix B**.

4.2 Access Configuration

Both proposed future roadway connections to the site on Crescent Road are planned to be full movement accesses (no turn restrictions) with stop control for the new local road approaches to Crescent Road, and no auxiliary turn lanes. Confirmation that auxiliary left-turn lanes are not needed are demonstrated in the results of the intersection capacity analysis and left-turn lane warrants as presented in this report. The horizontal and vertical alignments of Crescent Road in the vicinity of the site are generally straight and flat; therefore, no sightline concerns exist. As per the results of the intersection capacity analysis for the proposed driveways (Section 6.2.4), the intersections of both driveways and Crescent Road are expected to operate acceptably in the proposed configuration, with no operational issues requiring mitigation.

4.3 Vehicle Speed Considerations

Given the proximity of the northernmost site access point (Street B) on Crescent Road to the intersection at Garrison Road (measured approximately 80 metres stop-to-stop), it is expected that most vehicles travelling from Street B to Garrison Road (and vice versa) will not reach top operating speeds over the posted speed limit of 50 km/h. Therefore, with the majority of site generated traffic expected to be using the Street B access point rather than Street A, it is expected the traffic generated by the site will likely not be a noticeable contributor to speeding issues on Crescent Road. If the Town does confirm an existing speeding issue on Crescent Road (as typically confirmed by a speed study), the Town may work with local residents in identifying feasible and effective countermeasures. However, the matter is considered unrelated to the subject development.

4.4 Left-Turn Storage Lane Warrant

Left-turn Storage Lane warrants were completed for left-turn movements on Crescent Road turning into the site at both Street A and Street B using the MTO methodology. The results of the warrants are illustrated in **Appendix C** and confirm that auxiliary left-turn lanes are not warranted on Crescent Road at the proposed access locations up to the ultimate 2030 horizon year, due to insufficient traffic volumes. Although, the southbound left-turn movement into Street B is shown to be nearing warranting an auxiliary left-turn lane by 2030, the capacity analysis indicates the intersection will operate without operational concerns and with negligible queuing without a left-turn lane. Furthermore, 2030 volume projections on Crescent Road were based on an assumed 2% per annum growth rate, which is conservative given the area is a generally mature residential neighbourhood.

4.5 All-way Stop Minimum Volume Warrant

All-way Stop Minimum Volume Warrants was completed at Orchard Avenue at Crescent Road, Evelyn Street at Crescent Road, and Street A at Crescent Road using the OTM Book 5 methodology and projected volumes for the ultimate 2030 horizon year. As per the warrant guidelines, all-way stop control may be considered where the following conditions are met:

- **Warrant 1:** The total vehicle volume on all intersection approaches exceeds 375 vehicles per hour for each of the highest eight hours of the day; and,
- **Warrant 2:** The combined vehicle and pedestrian volume on the minor street exceeds 150 units per hour (all vehicles plus pedestrians wishing to enter the intersection) for each of the same eight hours as the total volume; OR the combined vehicle and pedestrian volume on the minor street exceeds 120 units per hour (all vehicles plus pedestrians wishing to enter the intersection) for each of the same eight hours as the total volume, with an average delay to all minor street traffic (vehicles and pedestrians) of greater than 30 seconds for the entire eight hour period; and,
- **Warrant 3:** The volume split does not exceed 70/30 (that is the minor street must not be less than 30% of the total volume entering the intersection) as measured over the entire eight-hour count period. Volume on the major street is defined as vehicles only. Volume on the minor street includes all vehicles plus any pedestrians wishing to cross the major roadway. For three-legged intersections a volume split of 75/25 is permissible.

The results of the warrants are shown in **Table 1**, indicating that all-way stop controls are not warranted at Orchard Avenue at Crescent Road, Evelyn Street at Crescent Road, and Street A at Crescent Road up to the ultimate 2030 horizon year.

Table 1: All-Way Stop Warrant Results

Intersection	Warrant Requirements		
	Warrant 1	Warrant 2	Warrant 3
Crescent Road at Orchard Avenue / Street B	Warrant met	Warrant not met	Warrant not met
Crescent Road at Evelyn Street	Warrant not met	Warrant not met	Warrant not met
Crescent Road at Street A	Warrant not met	Warrant not met	Warrant not met

4.6 Trip Generation

Automobile trip generation for the proposed development during the peak periods of the adjacent street traffic was estimated by using the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th edition) methodology for a Single-family Detached Housing (Land Use Code #210), Single-family Attached Housing (Land Use Code #215), Multi-family Housing Low-rise (Land Use Code #220). Trip Generation datasheets are provided in **Appendix D**. As presented in **Table 2**, the proposed residential development is projected to generate approximately 124 two-way trips during the weekday a.m. peak hour (30 inbound and 94 outbound), and 156 two-way trips during the weekday p.m. peak hour (98 inbound and 58 outbound).

These trip estimates are expected to be conservative given they don't account for the widely known traffic reducing impacts Covid-19 has had on commuter patterns (e.g., increase in telecommuting).

Table 2: Trip Generation Calculations

ITE Land Use	# of Units	Peak Hours	Total Site Trips	Directional Distribution		Directional Site Trips	
				In	Out	In	Out
Single-family Detached Housing (210)	67	AM	52	25%	75%	13	39
		PM	68	63%	37%	43	25
Single-family Attached Housing (215)	8	AM	4	25%	75%	1	3
		PM	5	59%	41%	3	2
Multi-family Housing Low-Rise (220)	145	AM	68	24%	76%	16	52
		PM	83	63%	37%	52	31
Total	220	AM	124	-	-	30	94
		PM	156	-	-	98	58

4.7 Trip Distribution

Given the majority of trips generated by the site during the weekday a.m. and p.m. peak hours will primarily be commuter trips, and given the residential nature of the development, 2016 Transportation Tomorrow Survey (TTS) commuter data was reviewed to estimate the distribution of the site generated traffic to the surrounding road network. **Table 3** outlines the estimated trip distribution assumptions for the site generated trips, which is based on the analyzed TTS data provided in **Appendix E**.

Table 3: Trip Distribution Assumptions

Direction	Proportion of Site Trips
Garrison Road (travelling to/from west of Crescent Road)	20%
Garrison Road (travelling to/from east of Crescent Road)	80%
TOTAL	100%

4.8 Trip Assignment

The site generated traffic has been assigned to individual turning movements at the study area intersections based on the aforementioned trip generation estimates and trip distribution assumptions. The assignment of the estimated peak hour site generated traffic for the proposed residential development is shown in **Figure 5**.

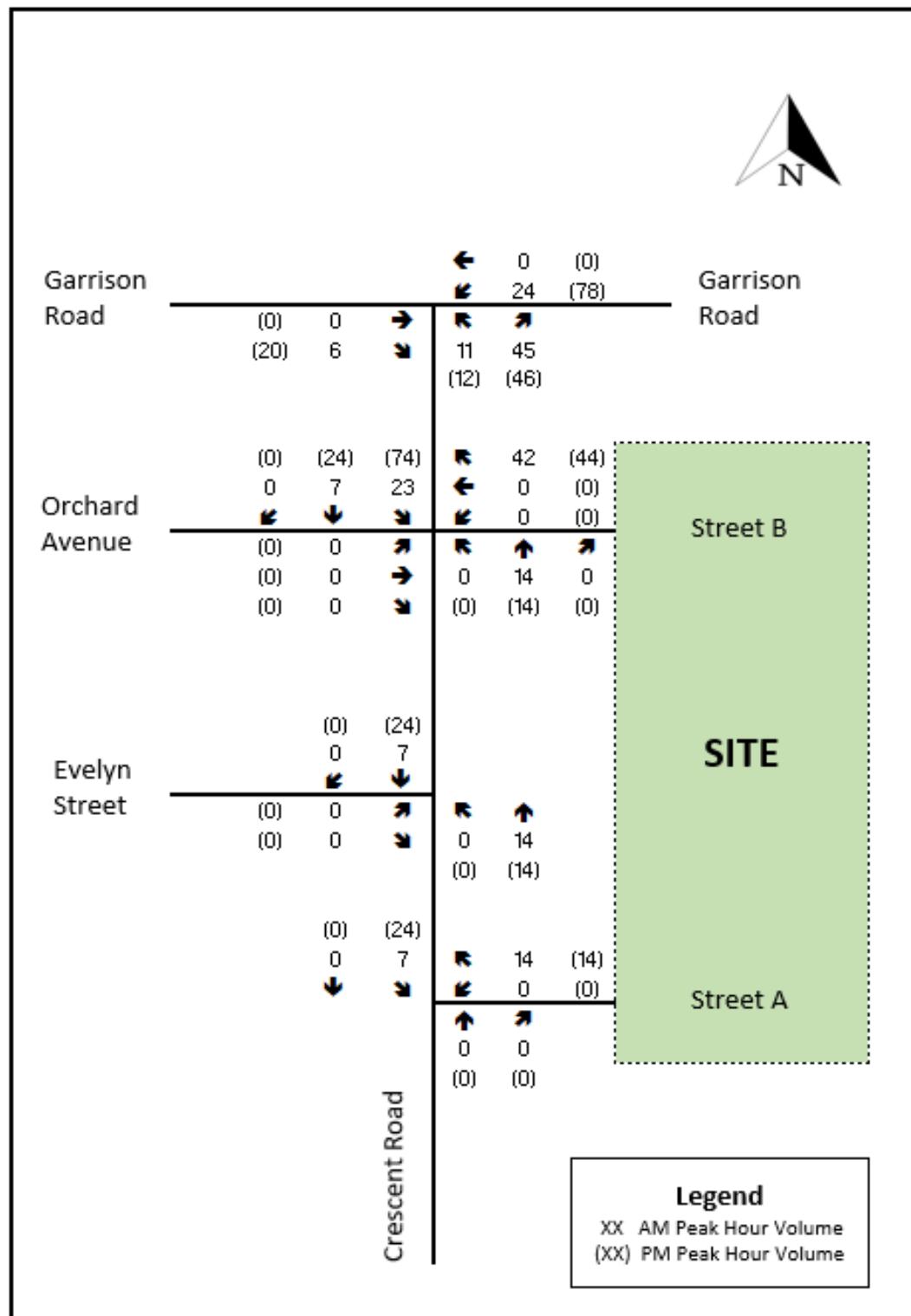


Figure 5: Site Trip Assignment

5 Future Total Conditions

5.1 Future Total Traffic Volumes

The future total traffic volumes for the 2025 and 2030 horizon years were developed by combining the estimated site generated traffic from the residential development with the future background traffic at each horizon year. The resulting 2025 and 2030 future total intersection volumes are show in **Figure 6** and **Figure 7**, respectively.

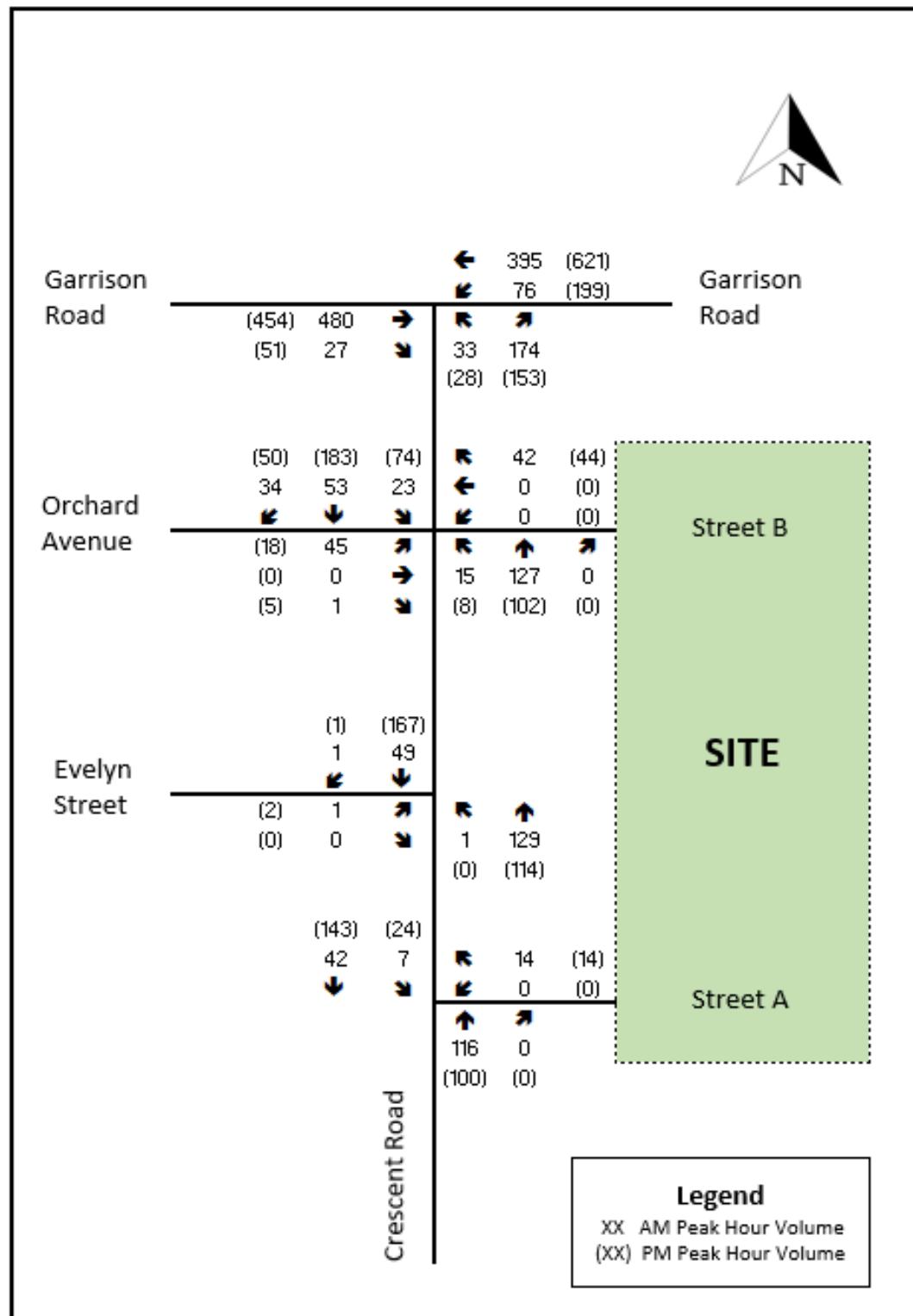


Figure 6: 2025 Future Total Traffic

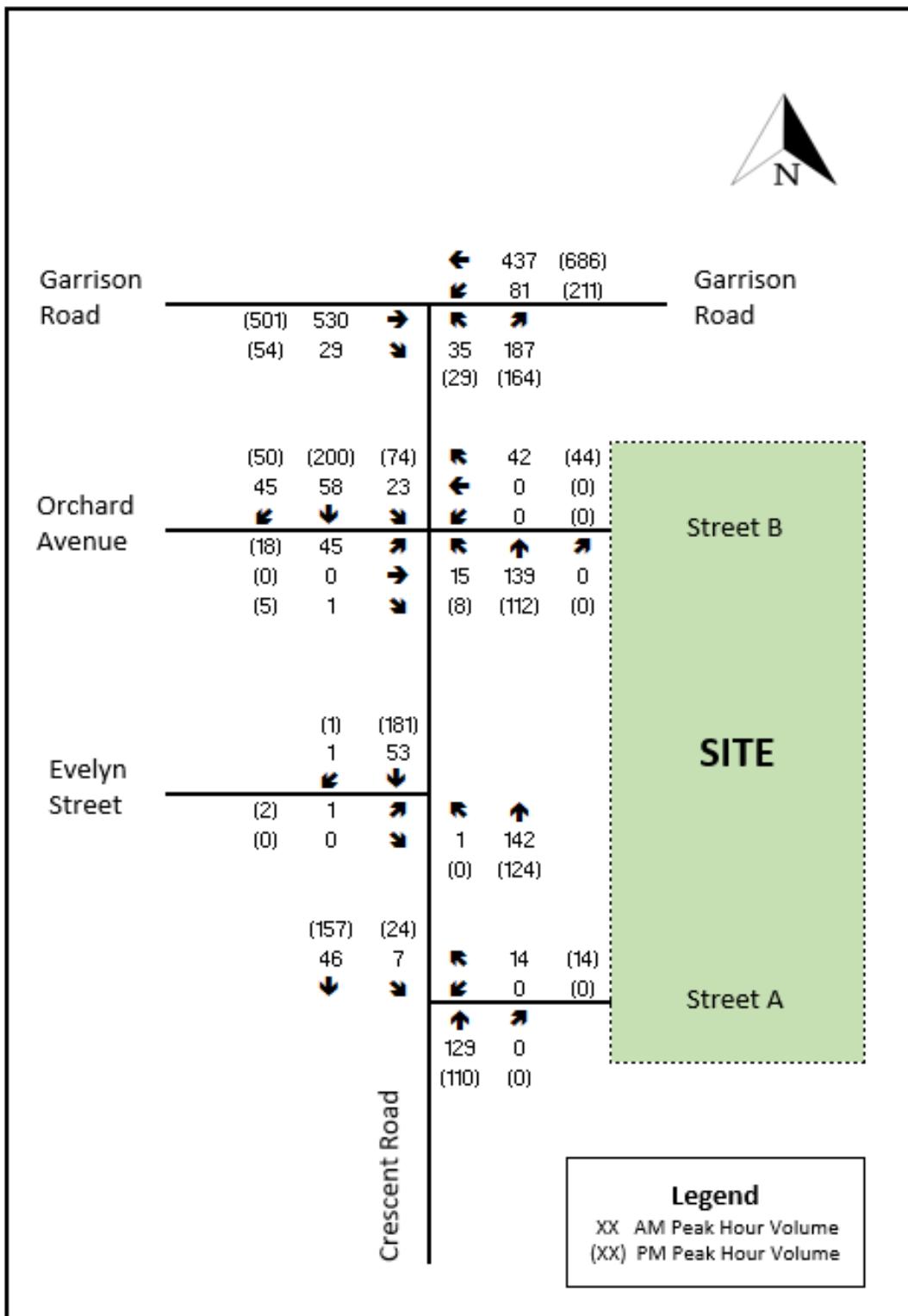


Figure 7: 2030 Future Total Traffic

6 Intersection Capacity Analysis

6.1 Methodology

The industry standard Synchro macroscopic traffic analysis software was utilized to analyse the intersections. Key performance measures such as Level of Service (LOS), volume-to-capacity ratio (v/c ratio), and 95th percentile queuing was reported, and are defined below:

- Average vehicle control delay is used to characterize LOS for the entire intersection, an approach, or movement. Delay quantifies the variations in travel time and is also a surrogate measure of driver discomfort and fuel consumption.
- V/c ratio quantifies the degree to which the capacity of a movement is utilized by traffic.
- 95th percentile queue is the queue length which is expected to be exceeded only 5% of the time.

Table 4 identifies the control delay thresholds (seconds of delay per vehicle) for each LOS based on Highway Capacity Manual (HCM) methodology.

Table 4: Characteristics of Level of Service at Unsignalized Intersections

Level of Service (LOS)	Control Delay (average seconds of delays / vehicle)
A	≤ 10 seconds
B	> 10 to 15 seconds
C	> 15 to 25 seconds
D	> 25 to 35 seconds
E	> 35 to 50 seconds
F	> 50 seconds

6.2 Capacity Analysis Results

The following sections present the findings from the capacity analysis for the study area intersections. Detailed output reports from the Synchro software are provided in **Appendix F**.

6.2.1 Crescent Road at Garrison Road

Table 5 presents the results from the capacity analysis for the intersection of Crescent Road at Garrison Road. There are no operational concerns to report, with LOS not exceeding "B" and 95% queuing not exceeding 1-2 vehicles for the northbound approach in 2030. There are no improvements recommended at this intersection in response to the subject development.

Table 5: Capacity Analysis Results for Crescent Road at Garrison Road

Scenario	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	LOS	95%Q	v/c	LOS	95%Q
2023 Existing	WBL	0.05	A	<1 veh	0.12	A	<1 veh
	NBLR	0.22	B	<1 veh	0.19	B	<1 veh
2025 Future Background	WBL	0.05	A	<1 veh	0.12	A	<1 veh
	NBLR	0.23	B	<1 veh	0.20	B	<1 veh
2025 Future Total	WBL	0.08	A	<1 veh	0.21	A	<1 veh
	NBLR	0.33	B	11m	0.33	B	11m
2030 Future Total	WBL	0.09	A	<1 veh	0.23	A	<1 veh
	NBLR	0.37	B	13m	0.47	B	13m

6.2.2 Crescent Road at Orchard Avenue / Street B

Table 6 presents the results from the capacity analysis for the intersection Crescent Road at Orchard Avenue. There are no operational concerns to report. Based on the results of the capacity analysis, it is expected any impact to operations associated with the subject development will not be identifiable from the driver's perspective. There are no improvements recommended at this intersection in response to the subject development.

Table 6: Capacity Analysis Results for Crescent Road at Orchard Avenue / Street B

Scenario	Movement	Weekday AM Peak Hour			Weekday AM Peak Hour		
		v/c	LOS	95%Q	v/c	LOS	95%Q
2023 Existing	EBLR	0.07	B	<1 veh	0.04	B	<1 veh
	WBLT	0.07	A	<1 veh	0.07	A	<1 veh
	NBLR	0.01	A	<1 veh	0.01	A	<1 veh
2025 Future Background	EBLR	0.07	B	<1 veh	0.04	B	<1 veh
	WBLT	0.07	A	<1 veh	0.07	A	<1 veh
	NBLR	0.01	A	<1 veh	0.01	A	<1 veh
2025 Future Total	EBLR	0.09	B	<1 veh	0.06	B	<1 veh
	WBLTR	0.05	A	<1 veh	0.05	A	<1 veh
	NBLR	0.01	A	<1 veh	0.01	A	<1 veh
	SBLTR	0.02	A	<1 veh	0.05	A	<1 veh
2030 Future Total	EBLR	0.09	B	<1 veh	0.06	B	<1 veh
	WBLTR	0.05	A	<1 veh	0.05	A	<1 veh
	NBLR	0.01	A	<1 veh	0.01	A	<1 veh
	SBLTR	0.02	A	<1 veh	0.05	A	<1 veh

6.2.3 Crescent Road at Evelyn Street

Table 7 presents the results from the capacity analysis for the intersection of Crescent Road at Evelyn Street. There are no operational concerns to report. Based on the results of the capacity analysis, it is expected any impact to operations associated with the subject development will not be identifiable from the driver's perspective. There are no improvements recommended at this intersection in response to the subject development.

Table 7: Capacity Analysis Results for Crescent Road at Evelyn Street

Scenario	Movement	Weekday AM Peak Hour			Weekday AM Peak Hour		
		v/c	LOS	95%Q	v/c	LOS	95%Q
2023 Existing	EBLR	0.00	A	<1 veh	0.00	A	<1 veh
	NBLT	0.00	A	<1 veh	-	-	-
2025 Future Background	EBLR	0.00	A	<1 veh	0.00	A	<1 veh
	NBLT	0.00	A	<1 veh	-	-	-
2025 Future Total	EBLR	0.00	A	<1 veh	0.00	B	<1 veh
	NBLT	0.00	A	<1 veh	-	-	-
2030 Future Total	EBLR	0.00	A	<1 veh	0.00	B	<1 veh
	NBLT	0.00	A	<1 veh	-	-	-

6.2.4 Crescent Road at Street A

Table 8 presents the results from the capacity analysis for the proposed Street A intersection on Crescent Road. There are no operational concerns to report at the proposed Street A public roadway connection to Crescent Road and it is expected to operate with no capacity or delay concerns.

Table 8: Capacity Analysis Results for Crescent Road at Street A

Scenario	Movement	Weekday AM Peak Hour			Weekday AM Peak Hour		
		v/c	LOS	95%Q	v/c	LOS	95%Q
2025 Future Total	WBLR	0.02	A	<1 veh	0.02	A	<1 veh
	SBLT	0.01	A	<1 veh	0.02	A	<1 veh
2030 Future Total	WBLR	0.02	A	<1 veh	0.02	A	<1 veh
	SBLT	0.01	A	<1 veh	0.02	A	<1 veh

7 Summary of Findings and Recommendations

7.1 Summary of Findings

The key findings from this study can be summarized as follows:

- The proposed residential development is projected to generate approximately 124 two-way trips during the weekday a.m. peak hour (30 inbound and 94 outbound), and 156 two-way trips during the weekday p.m. peak hour (98 inbound and 58 outbound).
- Both proposed vehicular accesses on Crescent Road (new public road connections) are planned to be full movement accesses (no turn restrictions) with stop control for Street A and Street B approaches, and no auxiliary turn lanes;
- As per the results of the intersection capacity analysis and MTO left-turn lane warrants, auxiliary left-turn lanes are not warranted on Crescent Road at the proposed Street A and Street B accesses up to the ultimate 2030 horizon year;
- As per the results of the intersection capacity analysis and OTM all-way stop minimum volume warrant, all-way stop controls are not warranted on Crescent Road at the proposed Street A and Street B accesses up to the ultimate 2030 horizon year;
- The study intersections are currently operating without operational concerns as per the results of the intersection capacity analysis, and the traffic generated from the subject development during peak hours is not expected to result in any new operational concerns at the study intersections up to the study's ultimate 2030 horizon year.

7.2 Recommendations

Based on the results of the capacity analysis, there are no improvements recommended at the study intersections in response to the subject development.

It is recommended the proposed Street A and Street B public roadway connections to Crescent Road be full movement accesses (no turn restrictions) with stop control for the minor street approaches (free flow for Crescent Road), and no auxiliary turn lanes.

Prepared by,

SLBC Inc.

Appendix A

Traffic Data

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 8:00:00

To: 9:00:00

Municipality: Fort Erie

Site #: 2303300001

Intersection: Garrison Rd & Crescent Rd

TFR File #: 1

Count date: 16-Feb-23

Weather conditions:

Person counted:

Person prepared:

Person checked:

**** Non-Signalized Intersection ****

Major Road: Garrison Rd runs W/E

East Leg Total: 1015

East Entering: 430

East Peds: 0

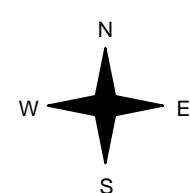
Peds Cross: X

Heavys	Trucks	Cars	Totals
20	2	379	401



Heavys	Trucks	Cars	Totals
18	4	439	461
2	4	14	20
20	8	453	

Peds Cross: X
West Peds: 0
West Entering: 481
West Leg Total: 882



Cars	Trucks	Heavys	Totals
------	--------	--------	--------

360	2	18	380
45	2	3	50
405	4	21	

Garrison Rd

Cars	Trucks	Heavys	Totals
------	--------	--------	--------

563	4	18	585
-----	---	----	-----

Crescent Rd

Cars	Trucks	Heavys	Totals
------	--------	--------	--------

19	124	143	
0	0	0	
2	0	2	
Totals	21	124	

Peds Cross: X
South Peds: 1
South Entering: 145
South Leg Total: 215

Comments

Afternoon Peak Diagram

Specified Period

From: 16:00:00

To: 18:00:00

One Hour Peak

From: 16:00:00

To: 17:00:00

Municipality: Fort Erie

Site #: 2303300001

Intersection: Garrison Rd & Crescent Rd

TFR File #: 1

Count date: 16-Feb-23

Weather conditions:

Person counted:

Person prepared:

Person checked:

**** Non-Signalized Intersection ****

Major Road: Garrison Rd runs W/E

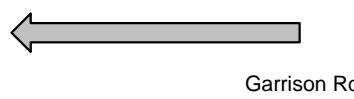
East Leg Total: 1252

East Entering: 713

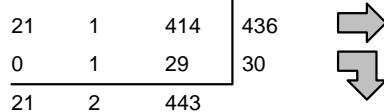
East Peds: 0

Peds Cross: X

Heavys	Trucks	Cars	Totals
7	3	602	612

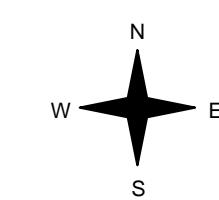


Heavys	Trucks	Cars	Totals
21	1	414	436



Peds Cross: X
West Peds: 0
West Entering: 466
West Leg Total: 1078

Cars	145
Trucks	1
Heavys	0
Totals	146



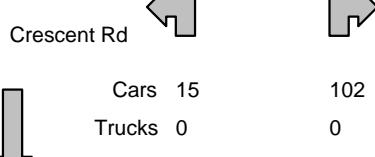
Garrison Rd

Cars	Trucks	Heavys	Totals
------	--------	--------	--------

587	3	7	597
116	0	0	116
<hr/>			
703	3	7	

Garrison Rd

Cars	Trucks	Heavys	Totals
516	1	22	539



Peds Cross: X
South Peds: 2
South Entering: 118
South Leg Total: 264

Comments

Total Count Diagram

Municipality: Fort Erie
Site #: 2303300001
Intersection: Garrison Rd & Crescent Rd
TFR File #: 1
Count date: 16-Feb-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Garrison Rd runs W/E

East Leg Total:	4047
East Entering:	2061
East Peds:	0
Peds Cross:	X

Heavys	Trucks	Cars	Totals
52	13	1748	1813

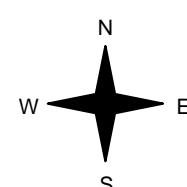
Garrison Rd



Heavys	Trucks	Cars	Totals
56	12	1529	1597
2	5	83	90
58	17	1612	

Peds Cross: X
 West Peds: 1
 West Entering: 1687
 West Leg Total: 3500

Cars	402
Trucks	7
Heavys	6
Totals	415



Cars	Trucks	Heavys	Totals
1676	12	48	1736

319	2	4	325
1995	14	52	

Garrison Rd



Cars	Trucks	Heavys	Totals
1917	12	57	1986

Cars	72	388	460
Trucks	1	0	1
Heavys	4	1	5
Totals	77	389	

Peds Cross: X
 South Peds: 3
 South Entering: 466
 South Leg Total: 881

Comments

Traffic Count Summary

Intersection: Garrison Rd & Crescent Rd				Count Date: 16-Feb-23			Municipality: Fort Erie						
North Approach Totals					North/South Total Approaches	South Approach Totals							
Hour Ending	Includes Cars, Trucks, & Heavys			Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys			Total Peds			
	Left	Thru	Right				Left	Thru	Right				
7:00:00	0	0	0	0	0	7:00:00	0	0	0	0	0		
8:00:00	0	0	0	0	0	8:00:00	20	0	81	101	0		
9:00:00	0	0	0	0	0	9:00:00	21	0	124	145	1		
16:00:00	0	0	0	0	0	16:00:00	0	0	0	0	0		
17:00:00	0	0	0	0	0	17:00:00	15	0	103	118	2		
18:00:00	0	0	0	0	0	18:00:00	21	0	81	102	0		
Totals:	0	0	0	0	0	466	S Totals:	77	0	389	466	3	
East Approach Totals					East/West Total Approaches	West Approach Totals							
Hour Ending	Includes Cars, Trucks, & Heavys			Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys			Total Peds			
	Left	Thru	Right				Left	Thru	Right				
7:00:00	0	0	0	0	0	7:00:00	0	0	0	0	0		
8:00:00	22	218	0	240	0	8:00:00	0	267	1	268	1		
9:00:00	50	380	0	430	0	9:00:00	0	461	20	481	0		
16:00:00	0	0	0	0	0	16:00:00	0	0	0	0	0		
17:00:00	116	597	0	713	0	17:00:00	0	436	30	466	0		
18:00:00	137	541	0	678	0	18:00:00	0	433	39	472	0		
Totals:	325	1736	0	2061	0	3748	W Totals:	0	1597	90	1687	1	
Calculated Values for Traffic Crossing Major Street													
Hours Ending:	7:00	8:00	9:00	16:00		17:00	18:00	0:00	0:00				
Crossing Values:	0	21	21	0		15	21	0	0				





Count Date: 16-Feb-23 Site #: 2303300001

Interval Time	Passenger Cars - East Approach				Trucks - East Approach				Heavys - East Approach				Pedestrians							
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	5	5	30	30	0	0	0	0	0	0	0	0	1	1	5	5	0	0	0	0
7:30:00	7	2	80	50	0	0	0	0	0	0	0	0	1	0	13	8	0	0	0	0
7:45:00	11	4	124	44	0	0	0	0	1	1	0	0	1	0	17	4	0	0	0	0
8:00:00	21	10	194	70	0	0	0	0	4	3	0	0	1	0	20	3	0	0	0	0
8:15:00	28	7	268	74	0	0	2	2	4	0	0	0	1	0	27	7	0	0	0	0
8:30:00	37	9	379	111	0	0	2	0	5	1	0	0	1	0	28	1	0	0	0	0
8:45:00	47	10	460	81	0	0	2	0	6	1	0	0	2	1	32	4	0	0	0	0
9:00:00	66	19	554	94	0	0	2	0	6	0	0	0	4	2	38	6	0	0	0	0
9:15:00	66	0	554	0	0	0	2	0	6	0	0	0	4	0	38	0	0	0	0	0
16:00:00	66	0	554	0	0	0	2	0	6	0	0	0	4	0	38	0	0	0	0	0
16:15:00	97	31	702	148	0	0	2	0	7	1	0	0	4	0	41	3	0	0	0	0
16:30:00	122	25	864	162	0	0	2	0	8	1	0	0	4	0	42	1	0	0	0	0
16:45:00	144	22	998	134	0	0	2	0	9	1	0	0	4	0	45	3	0	0	0	0
17:00:00	182	38	1141	143	0	0	2	0	9	0	0	0	4	0	45	0	0	0	0	0
17:15:00	211	29	1272	131	0	0	2	0	9	0	0	0	4	0	45	0	0	0	0	0
17:30:00	253	42	1417	145	0	0	2	0	9	0	0	0	4	0	45	0	0	0	0	0
17:45:00	286	33	1544	127	0	0	2	0	11	2	0	0	4	0	47	2	0	0	0	0
18:00:00	319	33	1676	132	0	0	2	0	12	1	0	0	4	0	48	1	0	0	0	0
18:15:00	319	0	1676	0	0	0	2	0	12	0	0	0	4	0	48	0	0	0	0	0
18:15:15	319	0	1676	0	0	0	2	0	12	0	0	0	4	0	48	0	0	0	0	0



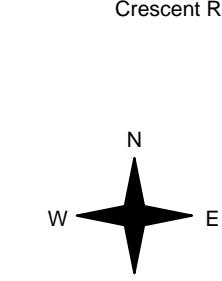
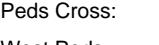
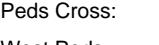
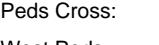
Count Date: 16-Feb-23 Site #: 2303300001

Interval Time	Passenger Cars - South Approach								Trucks - South Approach								Heavys - South Approach								Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross							
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr		
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:15:00	6	6	0	0	22	22	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0		
7:30:00	11	5	0	0	39	17	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0		
7:45:00	15	4	0	0	56	17	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0		
8:00:00	18	3	0	0	81	25	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0		
8:15:00	23	5	0	0	111	30	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0		
8:30:00	29	6	0	0	136	25	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0		
8:45:00	35	6	0	0	176	40	0	0	0	0	0	0	4	1	0	0	0	0	0	0	1	1	0	0		
9:00:00	37	2	0	0	205	29	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0		
9:15:00	37	0	0	0	205	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0		
16:00:00	37	0	0	0	205	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0		
16:15:00	40	3	0	0	233	28	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0		
16:30:00	44	4	0	0	254	21	0	0	0	0	0	0	4	0	0	0	0	0	1	1	2	1	0	0		
16:45:00	51	7	0	0	281	27	0	0	0	0	0	0	4	0	0	0	0	1	0	3	1	0	0	0		
17:00:00	52	1	0	0	307	26	0	0	0	0	0	0	4	0	0	0	0	1	0	3	0	0	0	0		
17:15:00	60	8	0	0	321	14	0	0	0	0	0	0	4	0	0	0	0	1	0	3	0	0	0	0		
17:30:00	65	5	0	0	342	21	1	1	0	0	0	0	4	0	0	0	0	1	0	3	0	0	0	0		
17:45:00	68	3	0	0	366	24	1	0	0	0	0	0	4	0	0	0	0	1	0	3	0	0	0	0		
18:00:00	72	4	0	0	388	22	1	0	0	0	0	0	4	0	0	0	0	1	0	3	0	0	0	0		
18:15:00	72	0	0	0	388	0	1	0	0	0	0	0	4	0	0	0	0	1	0	3	0	0	0	0		
18:15:15	72	0	0	0	388	0	1	0	0	0	0	0	4	0	0	0	0	1	0	3	0	0	0	0		



Count Date: 16-Feb-23 Site #: 2303300001

Interval Time	Passenger Cars - West Approach				Trucks - West Approach				Heavys - West Approach				Pedestrians							
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	46	46	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0
7:30:00	0	0	92	46	0	0	0	0	0	0	0	0	0	9	6	0	0	0	1	1
7:45:00	0	0	161	69	1	1	0	0	2	2	0	0	0	13	4	0	0	0	1	0
8:00:00	0	0	251	90	1	0	0	0	3	1	0	0	0	13	0	0	0	0	1	0
8:15:00	0	0	359	108	5	4	0	0	5	2	2	2	0	17	4	1	1	1	0	0
8:30:00	0	0	465	106	10	5	0	0	5	0	3	1	0	22	5	2	1	1	0	0
8:45:00	0	0	589	124	14	4	0	0	6	1	4	1	0	27	5	2	0	1	0	0
9:00:00	0	0	690	101	15	1	0	0	7	1	4	0	0	31	4	2	0	1	0	0
9:15:00	0	0	690	0	15	0	0	0	7	0	4	0	0	31	0	2	0	1	0	0
16:00:00	0	0	690	0	15	0	0	0	7	0	4	0	0	31	0	2	0	1	0	0
16:15:00	0	0	820	130	19	4	0	0	8	1	5	1	0	39	8	2	0	1	0	0
16:30:00	0	0	914	94	27	8	0	0	8	0	5	0	0	42	3	2	0	1	0	0
16:45:00	0	0	1002	88	34	7	0	0	8	0	5	0	0	48	6	2	0	1	0	0
17:00:00	0	0	1104	102	44	10	0	0	8	0	5	0	0	52	4	2	0	1	0	0
17:15:00	0	0	1233	129	48	4	0	0	9	1	5	0	0	53	1	2	0	1	0	0
17:30:00	0	0	1343	110	66	18	0	0	10	1	5	0	0	55	2	2	0	1	0	0
17:45:00	0	0	1440	97	75	9	0	0	12	2	5	0	0	55	0	2	0	1	0	0
18:00:00	0	0	1529	89	83	8	0	0	12	0	5	0	0	56	1	2	0	1	0	0
18:15:00	0	0	1529	0	83	0	0	0	12	0	5	0	0	56	0	2	0	1	0	0
18:15:15	0	0	1529	0	83	0	0	0	12	0	5	0	0	56	0	2	0	1	0	0

<h2>Morning Peak Diagram</h2>		Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 8:00:00 To: 9:00:00																		
Municipality: Fort Erie Site #: 2303300002 Intersection: Crescent Rd & Orchard Ave TFR File #: 1 Count date: 16-Feb-23		Weather conditions: Person counted: Person prepared: Person checked:																			
** Non-Signalized Intersection **		Major Road: Crescent Rd runs N/S																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">North Leg Total: 232</td> <td style="width: 70%;"> Heavys 2 4 Trucks 0 3 Cars 32 37 Peds Cross:  </td> </tr> <tr> <td>North Entering: 78</td> <td style="text-align: right;">6</td> </tr> <tr> <td>North Peds: 0</td> <td style="text-align: right;">3</td> </tr> <tr> <td>Peds Cross: </td> <td style="text-align: right;">69</td> </tr> <tr> <td></td> <td style="text-align: right;">Totals 34 44</td> </tr> </table>		North Leg Total: 232	Heavys 2 4 Trucks 0 3 Cars 32 37 Peds Cross: 	North Entering: 78	6	North Peds: 0	3	Peds Cross: 	69		Totals 34 44	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Heavys 2</td> <td style="width: 70%; text-align: right;">↑</td> </tr> <tr> <td>Trucks 0</td> <td style="text-align: right;">Heavys 2</td> </tr> <tr> <td>Cars 152</td> <td style="text-align: right;">Trucks 0</td> </tr> <tr> <td style="text-align: right;">Totals 154</td> <td style="text-align: right;">Cars 152</td> </tr> </table>		Heavys 2	↑	Trucks 0	Heavys 2	Cars 152	Trucks 0	Totals 154	Cars 152
North Leg Total: 232	Heavys 2 4 Trucks 0 3 Cars 32 37 Peds Cross: 																				
North Entering: 78	6																				
North Peds: 0	3																				
Peds Cross: 	69																				
	Totals 34 44																				
Heavys 2	↑																				
Trucks 0	Heavys 2																				
Cars 152	Trucks 0																				
Totals 154	Cars 152																				
																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Heavys Trucks Cars Totals</td> <td style="width: 70%; text-align: center;"> </td> </tr> <tr> <td>3 0 46 49</td> <td></td> </tr> </table>		Heavys Trucks Cars Totals	 	3 0 46 49		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Heavys Trucks Cars Totals</td> <td style="width: 70%; text-align: center;"> </td> </tr> <tr> <td>0 0 45 45</td> <td></td> </tr> <tr> <td style="text-align: right;">0 0 1 1</td> <td></td> </tr> <tr> <td style="text-align: right;">0 0 46 46</td> <td></td> </tr> </table>		Heavys Trucks Cars Totals		0 0 45 45		0 0 1 1		0 0 46 46							
Heavys Trucks Cars Totals	 																				
3 0 46 49																					
Heavys Trucks Cars Totals																					
0 0 45 45																					
0 0 1 1																					
0 0 46 46																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Peds Cross: </td> <td style="width: 70%; text-align: right;">Cars 38</td> </tr> <tr> <td>West Peds: 5</td> <td style="text-align: right;">Trucks 3</td> </tr> <tr> <td>West Entering: 46</td> <td style="text-align: right;">Heavys 4</td> </tr> <tr> <td>West Leg Total: 95</td> <td style="text-align: right;">Totals 45</td> </tr> </table>		Peds Cross: 	Cars 38	West Peds: 5	Trucks 3	West Entering: 46	Heavys 4	West Leg Total: 95	Totals 45	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Cars 14 107 121</td> <td style="width: 70%; text-align: right;">↓</td> </tr> <tr> <td>Trucks 0 0 0</td> <td style="text-align: right;">Cars 14 107 121</td> </tr> <tr> <td>Heavys 1 2 3</td> <td style="text-align: right;">Trucks 0 0 0</td> </tr> <tr> <td style="text-align: right;">Totals 15 109</td> <td style="text-align: right;">Heavys 1 2 3</td> </tr> </table>		Cars 14 107 121	↓	Trucks 0 0 0	Cars 14 107 121	Heavys 1 2 3	Trucks 0 0 0	Totals 15 109	Heavys 1 2 3		
Peds Cross: 	Cars 38																				
West Peds: 5	Trucks 3																				
West Entering: 46	Heavys 4																				
West Leg Total: 95	Totals 45																				
Cars 14 107 121	↓																				
Trucks 0 0 0	Cars 14 107 121																				
Heavys 1 2 3	Trucks 0 0 0																				
Totals 15 109	Heavys 1 2 3																				
Comments																					

Afternoon Peak Diagram

Specified Period

From: 16:00:00

To: 18:00:00

One Hour Peak

From: 16:45:00

To: 17:45:00

Municipality: Fort Erie
Site #: 2303300002
Intersection: Crescent Rd & Orchard Ave
TFR File #: 1
Count date: 16-Feb-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Crescent Rd runs N/S

North Leg Total: 306	Heavys 0 0 0
North Entering: 203	Trucks 0 0 0
North Peds: 0	Cars 50 153 203
Peds Cross:	Totals 50 153

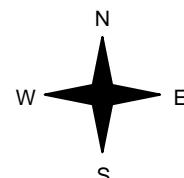
Heavys 0
Trucks 1
Cars 102
Totals 103

Heavys Trucks Cars Totals
0 0 58 58



Crescent Rd

Orchard Ave
Heavys Trucks Cars Totals
0 0 18 18
0 0 5 5
0 0 23



Crescent Rd

Peds Cross:
 West Peds: 2
 West Entering: 23
 West Leg Total: 81

Cars 158
Trucks 0
Heavys 0
Totals 158

Cars 8 84 92
Trucks 0 1 1
Heavys 0 0 0
Totals 8 85

Peds Cross:
 South Peds: 0
 South Entering: 93
 South Leg Total: 251

Comments

Total Count Diagram

Municipality: Fort Erie
Site #: 2303300002
Intersection: Crescent Rd & Orchard Ave
TFR File #: 1
Count date: 16-Feb-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Crescent Rd runs N/S

North Leg Total: 948	Heavys	3	6	9
North Entering: 466	Trucks	0	4	4
North Peds: 0	Cars	126	327	453
Peds Cross:	Totals	129	337	

Heavys	3	6	9
Trucks	0	4	4
Cars	126	327	453
Totals	129	337	

Heavys	4		
Trucks	1		
Cars	477		
Totals	482		

Heavys	5		
Trucks	0		
Cars	165		
Totals	170		

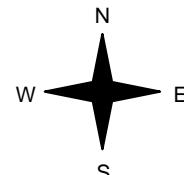


Crescent Rd

Heavys	0			
Trucks	0			
Cars	103			103
Totals	0			

Heavys	0			
Trucks	0			
Cars	10			10
Totals	0			

Heavys	0			
Trucks	0			
Cars	113			113
Totals	0			



Peds Cross:			
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Cars	337		
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Cars	39		
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Peds Cross:			
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Trucks	4		
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Trucks	0		
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South Peds:	0		
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Heavys	6		
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Heavys	2		
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South Entering:	420		
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Totals	347		
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Totals	41		
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South Leg Total:	767		
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Comments

Traffic Count Summary

Intersection: Crescent Rd & Orchard Ave				Count Date: 16-Feb-23			Municipality: Fort Erie					
North Approach Totals							South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	0	27	8	35	0	142	8:00:00	11	96	0	107	0
9:00:00	0	44	34	78	0	202	9:00:00	15	109	0	124	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	0	120	36	156	0	255	17:00:00	9	90	0	99	0
18:00:00	0	146	51	197	0	287	18:00:00	6	84	0	90	0
Totals:	0	337	129	466	0	886	S Totals:	41	379	0	420	0
East Approach Totals							West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0	19	8:00:00	18	0	1	19	5
9:00:00	0	0	0	0	0	46	9:00:00	45	0	1	46	5
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0	25	17:00:00	21	0	4	25	3
18:00:00	0	0	0	0	0	23	18:00:00	19	0	4	23	2
Totals:	0	0	0	0	0	113	W Totals:	103	0	10	113	15
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	7:00	8:00	9:00	16:00			17:00	18:00	0:00	0:00		
Crossing Values:	0	18	45	0			21	19	0	0		



Count Date: 16-Feb-23 Site #: 2303300002

Interval Time	Passenger Cars - North Approach				Trucks - North Approach				Heavys - North Approach				Pedestrians							
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	4	4	2	2	0	0	0	0	0	0	0	1	1	1	1	0	0	0
7:30:00	0	0	8	4	2	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
7:45:00	0	0	15	7	4	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0
8:00:00	0	0	24	9	7	3	0	0	1	1	0	0	0	2	1	1	0	0	0	0
8:15:00	0	0	33	9	11	4	0	0	3	2	0	0	0	3	1	1	0	0	0	0
8:30:00	0	0	42	9	17	6	0	0	3	0	0	0	0	4	1	2	1	0	0	0
8:45:00	0	0	49	7	27	10	0	0	4	1	0	0	0	5	1	3	1	0	0	0
9:00:00	0	0	61	12	39	12	0	0	4	0	0	0	0	6	1	3	0	0	0	0
9:15:00	0	0	61	0	39	0	0	0	4	0	0	0	0	6	0	3	0	0	0	0
16:00:00	0	0	61	0	39	0	0	0	4	0	0	0	0	6	0	3	0	0	0	0
16:15:00	0	0	88	27	46	7	0	0	4	0	0	0	0	6	0	3	0	0	0	0
16:30:00	0	0	121	33	53	7	0	0	4	0	0	0	0	6	0	3	0	0	0	0
16:45:00	0	0	147	26	63	10	0	0	4	0	0	0	0	6	0	3	0	0	0	0
17:00:00	0	0	181	34	75	12	0	0	4	0	0	0	0	6	0	3	0	0	0	0
17:15:00	0	0	226	45	90	15	0	0	4	0	0	0	0	6	0	3	0	0	0	0
17:30:00	0	0	264	38	104	14	0	0	4	0	0	0	0	6	0	3	0	0	0	0
17:45:00	0	0	300	36	113	9	0	0	4	0	0	0	0	6	0	3	0	0	0	0
18:00:00	0	0	327	27	126	13	0	0	4	0	0	0	0	6	0	3	0	0	0	0
18:15:00	0	0	327	0	126	0	0	0	4	0	0	0	0	6	0	3	0	0	0	0
18:15:15	0	0	327	0	126	0	0	0	4	0	0	0	0	6	0	3	0	0	0	0

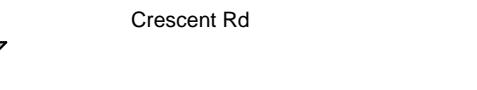
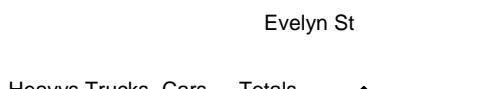
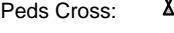
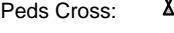
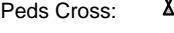




Count Date: 16-Feb-23 Site #: 2303300002

Interval Time	Passenger Cars - South Approach				Trucks - South Approach				Heavys - South Approach				Pedestrians								
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross		
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15:00	2	2	24	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	5	3	44	20	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
7:45:00	5	0	68	24	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8:00:00	10	5	95	27	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0
8:15:00	12	2	118	23	0	0	0	0	0	0	0	0	1	0	2	1	0	0	0	0	0
8:30:00	15	3	148	30	0	0	0	0	0	0	0	0	1	0	3	1	0	0	0	0	0
8:45:00	20	5	177	29	0	0	0	0	0	0	0	0	1	0	3	0	0	0	0	0	0
9:00:00	24	4	202	25	0	0	0	0	0	0	0	0	2	1	3	0	0	0	0	0	0
9:15:00	24	0	202	0	0	0	0	0	0	0	0	0	2	0	3	0	0	0	0	0	0
16:00:00	24	0	202	0	0	0	0	0	0	0	0	0	2	0	3	0	0	0	0	0	0
16:15:00	25	1	218	16	0	0	0	0	0	0	0	0	2	0	4	1	0	0	0	0	0
16:30:00	27	2	246	28	0	0	0	0	0	0	0	0	2	0	4	0	0	0	0	0	0
16:45:00	30	3	268	22	0	0	0	0	0	0	0	0	2	0	4	0	0	0	0	0	0
17:00:00	33	3	291	23	0	0	0	0	0	0	0	0	2	0	4	0	0	0	0	0	0
17:15:00	36	3	310	19	0	0	0	0	1	1	0	0	2	0	4	0	0	0	0	0	0
17:30:00	38	2	332	22	0	0	0	0	1	0	0	0	2	0	4	0	0	0	0	0	0
17:45:00	38	0	352	20	0	0	0	0	1	0	0	0	2	0	4	0	0	0	0	0	0
18:00:00	39	1	374	22	0	0	0	0	1	0	0	0	2	0	4	0	0	0	0	0	0
18:15:00	39	0	374	0	0	0	0	0	1	0	0	0	2	0	4	0	0	0	0	0	0
18:15:15	39	0	374	0	0	0	0	0	1	0	0	0	2	0	4	0	0	0	0	0	0



<h2>Morning Peak Diagram</h2>		Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 8:00:00 To: 9:00:00										
Municipality: Fort Erie Site #: 2303300003 Intersection: Crescent Rd & Evelyn St TFR File #: 1 Count date: 16-Feb-23		Weather conditions: Person counted: Person prepared: Person checked:											
** Non-Signalized Intersection **		Major Road: Crescent Rd runs N/S											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">North Leg Total: 153</td> <td style="width: 70%;"> Heavys 1 3 4 Trucks 0 1 1 Cars 0 36 36 Totals 1 40 </td> </tr> <tr> <td>North Entering: 41</td> <td></td> </tr> <tr> <td>North Peds: 1</td> <td></td> </tr> <tr> <td>Peds Cross: </td> <td></td> </tr> </table>		North Leg Total: 153	Heavys 1 3 4 Trucks 0 1 1 Cars 0 36 36 Totals 1 40	North Entering: 41		North Peds: 1		Peds Cross: 		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; text-align: right;">  </td> <td style="width: 70%;"> Heavys 3 Trucks 0 Cars 109 Totals 112 </td> </tr> </table>			Heavys 3 Trucks 0 Cars 109 Totals 112
North Leg Total: 153	Heavys 1 3 4 Trucks 0 1 1 Cars 0 36 36 Totals 1 40												
North Entering: 41													
North Peds: 1													
Peds Cross: 													
	Heavys 3 Trucks 0 Cars 109 Totals 112												
													
													
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Peds Cross: </td> <td style="width: 70%;"> Cars 36 Trucks 1 Heavys 3 Totals 40 </td> </tr> <tr> <td>West Peds: 2</td> <td></td> </tr> <tr> <td>West Entering: 1</td> <td></td> </tr> <tr> <td>West Leg Total: 3</td> <td></td> </tr> </table>		Peds Cross: 	Cars 36 Trucks 1 Heavys 3 Totals 40	West Peds: 2		West Entering: 1		West Leg Total: 3		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; text-align: right;">  </td> <td style="width: 70%;"> Cars 1 108 109 Trucks 0 0 0 Heavys 0 3 3 Totals 1 111 </td> </tr> </table>			Cars 1 108 109 Trucks 0 0 0 Heavys 0 3 3 Totals 1 111
Peds Cross: 	Cars 36 Trucks 1 Heavys 3 Totals 40												
West Peds: 2													
West Entering: 1													
West Leg Total: 3													
	Cars 1 108 109 Trucks 0 0 0 Heavys 0 3 3 Totals 1 111												
Comments													

Afternoon Peak Diagram

Specified Period

From: 16:00:00

To: 18:00:00

One Hour Peak

From: 16:15:00

To: 17:15:00

Municipality: Fort Erie

Site #: 2303300003

Intersection: Crescent Rd & Evelyn St

TFR File #: 1

Count date: 16-Feb-23

Weather conditions:

Person counted:

Person prepared:

Person checked:

**** Non-Signalized Intersection ****

Major Road: Crescent Rd runs N/S

North Leg Total: 236

North Entering: 138

North Peds:

Peds Cross: 

Heavys 0 0 0

Trucks 0 0 0

Cars 1 137 138

Totals 1 137

Heavys 0

Trucks 1

Cars 97

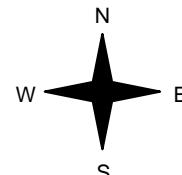
Totals 98

Heavys Trucks Cars Totals
0 0 1 1



Crescent Rd

Heavys Trucks Cars Totals
0 0 2 2
0 0 0 0
0 0 2



Peds Cross: 
West Peds: 3
West Entering: 2
West Leg Total: 3

Cars 137
Trucks 0
Heavys 0
Totals 137



Crescent Rd

Cars 0 95 95
Trucks 0 1 1
Heavys 0 0 0
Totals 0 96

Peds Cross: 
South Peds: 0
South Entering: 96
South Leg Total: 233

Comments

Total Count Diagram

Municipality: Fort Erie
Site #: 2303300003
Intersection: Crescent Rd & Evelyn St
TFR File #: 1
Count date: 16-Feb-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Crescent Rd runs N/S

North Leg Total: 707	Heavys	1	5	6
North Entering: 320	Trucks	0	2	2
North Peds: 4	Cars	3	309	312
Peds Cross:	Totals	4	316	

Heavys	1	5	6
Trucks	0	2	2
Cars	3	309	312
Totals	4	316	

Heavys	6	
Trucks	1	
Cars	380	
Totals	387	

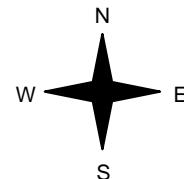
Heavys	1	5	6
Trucks	0	2	2
Cars	3	309	312
Totals	4	316	



Crescent Rd

Heavys	0	0	5	5
Trucks	0	0	1	1
Cars	0	0	6	6
Totals	0	0	6	6

Heavys	0	0	5	5
Trucks	0	0	1	1
Cars	0	0	6	6
Totals	0	0	6	6



Peds Cross:		Cars	310	375	377
West Peds:	9	Trucks	2	1	1
West Entering:	6	Heavys	5	6	6
West Leg Total:	12	Totals	317	382	701

Peds Cross:		Cars	310	375	377
West Peds:	9	Trucks	2	1	1
West Entering:	6	Heavys	5	6	6
West Leg Total:	12	Totals	317	382	701

Peds Cross:		Cars	2	375	377
South Peds:	0	Trucks	0	1	1
South Entering:	384	Heavys	0	6	6
South Leg Total:	701	Totals	2	382	701

Comments

Traffic Count Summary

Intersection: Crescent Rd & Evelyn St				Count Date: 16-Feb-23			Municipality: Fort Erie						
North Approach Totals					North/South Total Approaches	South Approach Totals							
Hour Ending	Includes Cars, Trucks, & Heavys			Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys			Total Peds			
	Left	Thru	Right				Left	Thru	Right				
7:00:00	0	0	0	0	0	7:00:00	0	0	0	0	0		
8:00:00	0	26	0	26	2	8:00:00	0	99	0	99	0		
9:00:00	0	40	1	41	1	9:00:00	1	111	0	112	0		
16:00:00	0	0	0	0	0	16:00:00	0	0	0	0	0		
17:00:00	0	115	0	115	1	17:00:00	0	95	0	95	0		
18:00:00	0	135	3	138	0	18:00:00	1	77	0	78	0		
Totals:	0	316	4	320	4	704	S Totals:	2	382	0	384	0	
East Approach Totals					East/West Total Approaches	West Approach Totals							
Hour Ending	Includes Cars, Trucks, & Heavys			Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys			Total Peds			
	Left	Thru	Right				Left	Thru	Right				
7:00:00	0	0	0	0	0	7:00:00	0	0	0	0	0		
8:00:00	0	0	0	0	0	8:00:00	2	0	0	2	2		
9:00:00	0	0	0	0	0	9:00:00	1	0	0	1	2		
16:00:00	0	0	0	0	0	16:00:00	0	0	0	0	0		
17:00:00	0	0	0	0	0	17:00:00	2	0	0	2	2		
18:00:00	0	0	0	0	0	18:00:00	0	0	1	1	3		
Totals:	0	0	0	0	0	6	W Totals:	5	0	1	6	9	
Calculated Values for Traffic Crossing Major Street													
Hours Ending:	7:00	8:00	9:00	16:00		17:00	18:00	0:00	0:00				
Crossing Values:	0	4	2	0		3	0	0	0				



Count Date: 16-Feb-23 Site #: 2303300003

Interval Time	Passenger Cars - North Approach				Trucks - North Approach				Heavys - North Approach				Pedestrians							
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	3	3	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
7:30:00	0	0	6	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
7:45:00	0	0	14	8	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
8:00:00	0	0	23	9	0	0	0	0	1	1	0	0	0	2	1	0	0	0	2	2
8:15:00	0	0	34	11	0	0	0	0	1	0	0	0	0	2	0	1	1	1	2	0
8:30:00	0	0	38	4	0	0	0	0	1	0	0	0	0	3	1	1	0	2	0	0
8:45:00	0	0	47	9	0	0	0	0	2	1	0	0	0	4	1	1	0	2	0	0
9:00:00	0	0	59	12	0	0	0	0	2	0	0	0	0	5	1	1	0	3	1	1
9:15:00	0	0	59	0	0	0	0	0	2	0	0	0	0	5	0	1	0	3	0	0
16:00:00	0	0	59	0	0	0	0	0	2	0	0	0	0	5	0	1	0	3	0	0
16:15:00	0	0	83	24	0	0	0	0	2	0	0	0	0	5	0	1	0	4	1	1
16:30:00	0	0	116	33	0	0	0	0	2	0	0	0	0	5	0	1	0	4	0	0
16:45:00	0	0	143	27	0	0	0	0	2	0	0	0	0	5	0	1	0	4	0	0
17:00:00	0	0	174	31	0	0	0	0	2	0	0	0	0	5	0	1	0	4	0	0
17:15:00	0	0	220	46	1	1	0	0	2	0	0	0	0	5	0	1	0	4	0	0
17:30:00	0	0	254	34	3	2	0	0	2	0	0	0	0	5	0	1	0	4	0	0
17:45:00	0	0	287	33	3	0	0	0	2	0	0	0	0	5	0	1	0	4	0	0
18:00:00	0	0	309	22	3	0	0	0	2	0	0	0	0	5	0	1	0	4	0	0
18:15:00	0	0	309	0	3	0	0	0	2	0	0	0	0	5	0	1	0	4	0	0
18:15:15	0	0	309	0	3	0	0	0	2	0	0	0	0	5	0	1	0	4	0	0





Count Date: 16-Feb-23 Site #: 2303300003

Interval Time	Passenger Cars - South Approach				Trucks - South Approach				Heavys - South Approach				Pedestrians								
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross		
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	26	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	46	20	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
7:45:00	0	0	70	24	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0
8:00:00	0	0	97	27	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
8:15:00	0	0	116	19	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0
8:30:00	0	0	158	42	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0
8:45:00	0	0	180	22	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0
9:00:00	1	1	205	25	0	0	0	0	0	0	0	0	0	0	5	1	0	0	0	0	0
9:15:00	1	0	205	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0
16:00:00	1	0	205	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0
16:15:00	1	0	220	15	0	0	0	0	0	0	0	0	0	0	6	1	0	0	0	0	0
16:30:00	1	0	251	31	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0
16:45:00	1	0	278	27	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0
17:00:00	1	0	299	21	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0
17:15:00	1	0	315	16	0	0	0	0	1	1	0	0	0	0	6	0	0	0	0	0	0
17:30:00	1	0	339	24	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0	0	0
17:45:00	1	0	356	17	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0	0	0
18:00:00	2	1	375	19	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0	0	0
18:15:00	2	0	375	0	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0	0	0
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Appendix B

Draft Site Plan

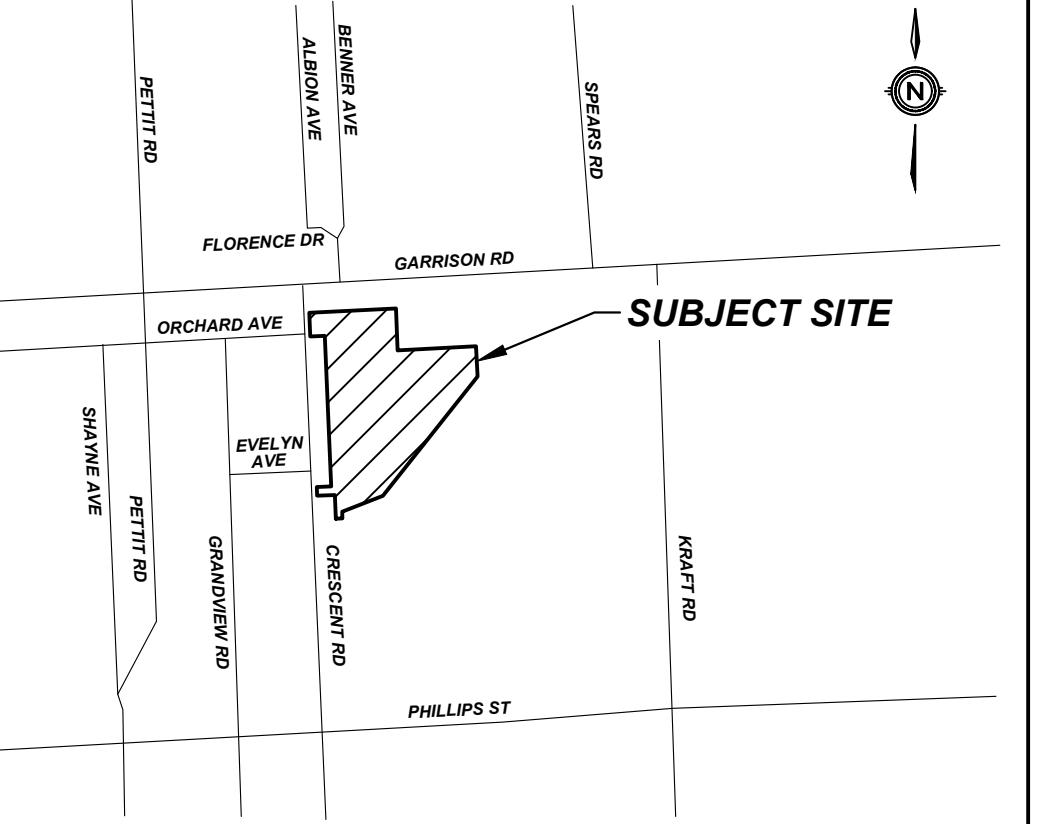
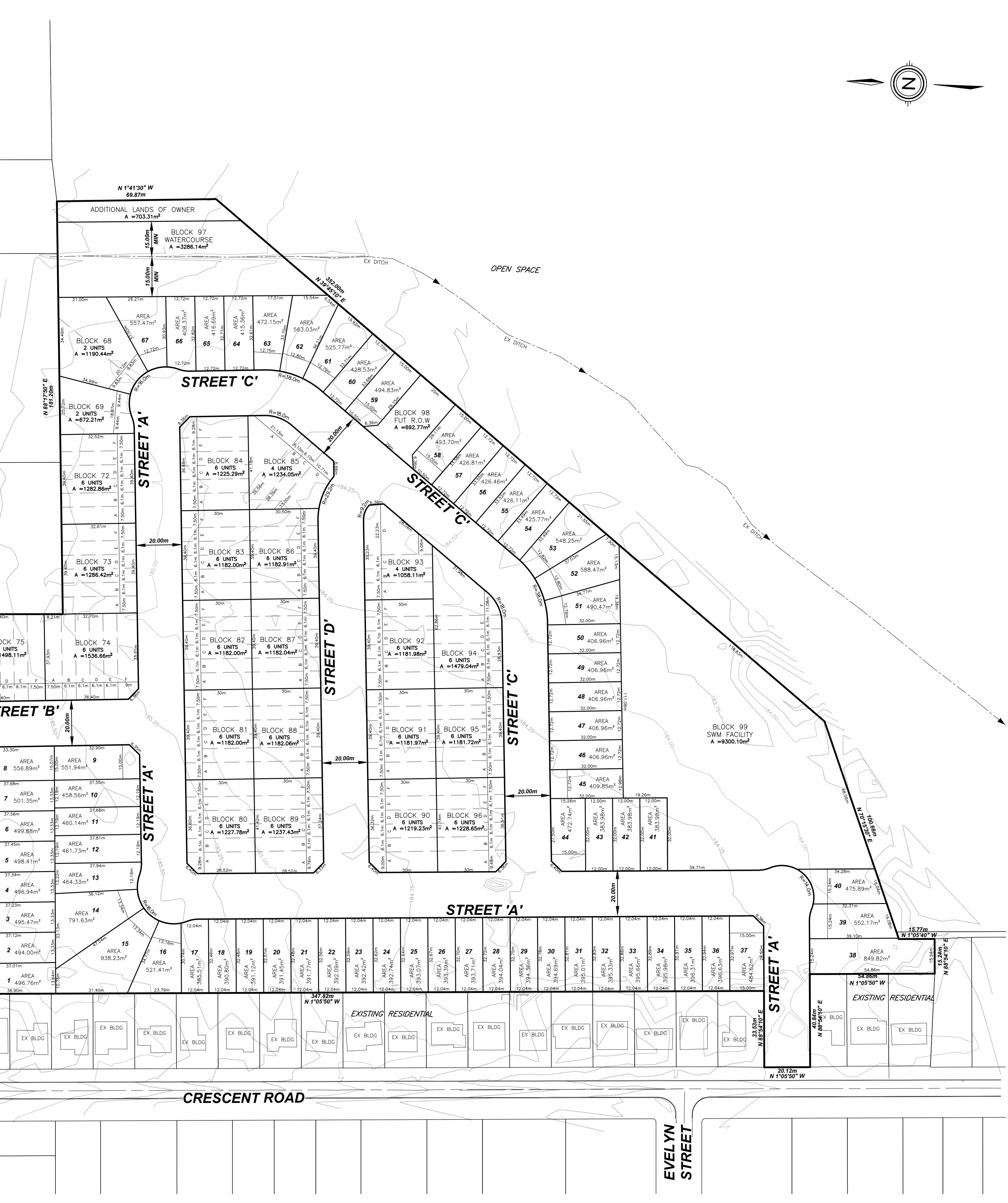
**STREET TOWNHOUSE
BLOCK UNIT AREA**

BLOCK 72 TOTAL AREA = 1282.862m ²	BLOCK 85 TOTAL AREA = 1234.052m ²	BLOCK 91 TOTAL AREA = 1181.972m ²
UNIT A 244.474m ²	UNIT A 465.755m ²	UNIT A 224.999m ²
B 198.744m ²	B 233.849m ²	B 182.995m ²
C 198.658m ²	C 217.738m ²	C 182.995m ²
D 198.573m ²	D 316.710m ²	D 182.996m ²
E 198.488m ²	E 182.996m ²	E 182.996m ²
F 243.926m ²	F 224.990m ²	F 224.990m ²
BLOCK 73 TOTAL AREA = 1286.417m ²	BLOCK 86 TOTAL AREA = 1182.907m ²	BLOCK 92 TOTAL AREA = 1181.983m ²
UNIT A 245.150m ²	UNIT A 225.005m ²	UNIT A 225.001m ²
B 199.294m ²	B 183.004m ²	B 182.997m ²
C 199.209m ²	C 183.003m ²	C 182.997m ²
D 199.123m ²	D 183.002m ²	D 182.998m ²
E 199.038m ²	E 225.890m ²	E 182.998m ²
F 244.602m ²	F 224.992m ²	F 224.992m ²
BLOCK 74 TOTAL AREA = 1536.658m ²	BLOCK 93 TOTAL AREA = 1058.112m ²	BLOCK 94 TOTAL AREA = 1479.040m ²
UNIT A 284.049m ²	UNIT A 225.009m ²	UNIT A 224.918m ²
B 230.602m ²	B 183.006m ²	B 182.933m ²
C 230.602m ²	C 183.006m ²	C 182.928m ²
D 230.607m ²	D 183.005m ²	D 182.923m ²
E 230.611m ²	E 225.006m ²	E 182.505m ²
F 330.187m ²	F 225.832m ²	F 224.832m ²
BLOCK 75 TOTAL AREA = 1498.111m ²	BLOCK 88 TOTAL AREA = 1182.061m ²	BLOCK 95 TOTAL AREA = 1181.717m ²
UNIT A 279.95m ²	UNIT A 225.013m ²	UNIT A 224.956m ²
B 234.089m ²	B 183.010m ²	B 182.953m ²
C 233.526m ²	C 183.010m ²	C 182.928m ²
D 233.026m ²	D 183.009m ²	D 182.923m ²
E 232.427m ²	E 183.009m ²	E 182.505m ²
F 284.949m ²	F 225.010m ²	F 224.832m ²
BLOCK 76 TOTAL AREA = 1148.283m ²	BLOCK 89 TOTAL AREA = 1237.433m ²	BLOCK 96 TOTAL AREA = 1228.646m ²
UNIT A 263.823m ²	UNIT A 280.368m ²	UNIT A 224.956m ²
B 214.584m ²	B 183.014m ²	B 182.963m ²
C 214.100m ²	C 183.013m ²	C 182.959m ²
D 206.178m ²	D 183.013m ²	D 182.954m ²
E 249.598m ²	E 183.012m ²	E 182.949m ²
F 225.014m ²	F 225.014m ²	F 224.936m ²
BLOCK 77 TOTAL AREA = 1385.771m ²	BLOCK 90 TOTAL AREA = 1219.237m ²	BLOCK 97 FUT R.O.W A = 692.77m ²
UNIT A 263.766m ²	UNIT A 262.268m ²	UNIT A 224.956m ²
B 214.537m ²	B 182.994m ²	B 182.963m ²
C 214.545m ²	C 182.994m ²	C 182.959m ²
D 214.552m ²	D 183.000m ²	D 182.984m ²
E 214.559m ²	E 182.994m ²	E 182.980m ²
F 263.812m ²	F 224.988m ²	F 224.974m ²
BLOCK 78 TOTAL AREA = 1385.545m ²		
UNIT A 263.743m ²		
B 214.511m ²		
C 214.511m ²		
D 214.511m ²		
E 214.513m ²		
F 263.755m ²		
BLOCK 79 TOTAL AREA = 1442.546m ²		
UNIT A 320.758m ²		
B 214.511m ²		
C 214.511m ²		
D 214.511m ²		
E 214.511m ²		
F 263.743m ²		
BLOCK 80 TOTAL AREA = 1227.776m ²		
UNIT A 270.776m ²		
B 183.000m ²		
C 183.000m ²		
D 183.000m ²		
E 183.000m ²		
F 225.000m ²		
BLOCK 81 TOTAL AREA = 1182.000m ²		
UNIT A 225.000m ²		
B 183.000m ²		
C 183.000m ²		
D 183.000m ²		
E 183.000m ²		
F 225.000m ²		
BLOCK 82 TOTAL AREA = 1182.000m ²		
UNIT A 225.000m ²		
B 183.000m ²		
C 183.000m ²		
D 183.000m ²		
E 183.000m ²		
F 225.000m ²		
BLOCK 83 TOTAL AREA = 1182.000m ²		
UNIT A 225.000m ²		
B 183.000m ²		
C 183.000m ²		
D 183.000m ²		
E 183.000m ²		
F 225.000m ²		
BLOCK 84 TOTAL AREA = 1225.293m ²		
UNIT A 225.000m ²		
B 183.000m ²		
C 183.000m ²		
D 183.000m ²		
E 183.000m ²		
F 268.293m ²		

CRESCENT ACRES TOWN OF FORT ERIE

ORCHARD AVENUE

CRESCE



LEGAL DESCRIPTION

OWNER'S CERTIFICATE

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED ARE CORRECTLY SHOWN.
NOVEMBER 4, 2022

DASHA PAGE, HON. B.Sc., O.L.S.

REQUIREMENTS OF SECTION 51(17) OF THE PLANNING ACT

- a) SEE PLAN
- b) SEE PLAN
- c) SEE PLAN
- d) SEE PLAN
- e) SEE PLAN
- f) SEE PLAN
- g) SEE PLAN
- h) MUNICIPAL WATER
- i) SILTY CLAY
- j) SEE PLAN
- k) FULL SERVICE
- l) SEE PLAN

LAND USE SCHEDULE

LAND USE	LOT/BLOCK	# OF UNITS	AREA(ha)	AREA(%)
SINGLE FAMILY RESIDENTIAL	LOT 1-67	67	3.116	29.17
SEMI DETACHED RESIDENTIAL	BLOCK 68-71	8	0.410	3.84
STREET TOWNS	BLOCK 72-96	145	3.151	29.50
WATERCOURSE	BLOCK 97		0.328	3.07
FUTURE R.O.W	BLOCK 98		0.069	0.65
STORMWATER MGMT FACILITY	BLOCK 99		0.930	8.71
ROADWAY			2.607	24.41
ADDITIONAL LANDS OF OWNER			0.070	0.65
TOTAL		220	10.681	100.00

DEVELOPABLE AREA = 10.378 ha
DEVELOPABLE DENSITY = 21.20 units/ha

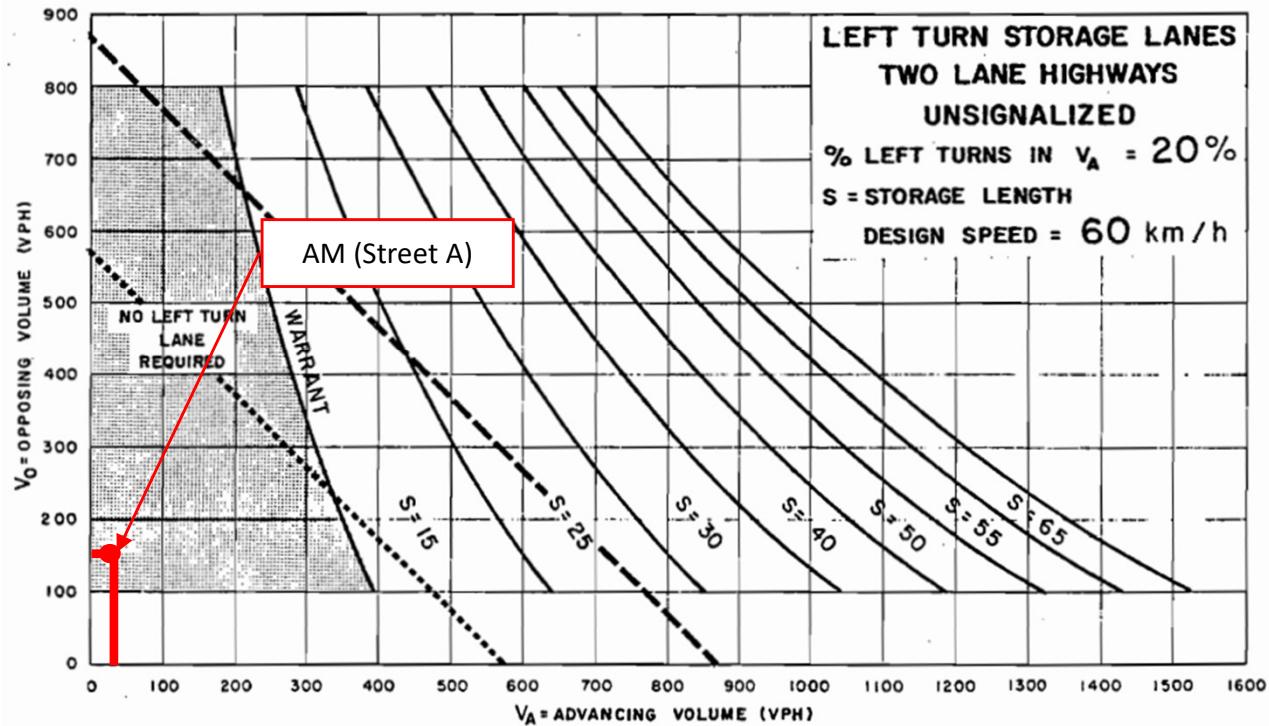
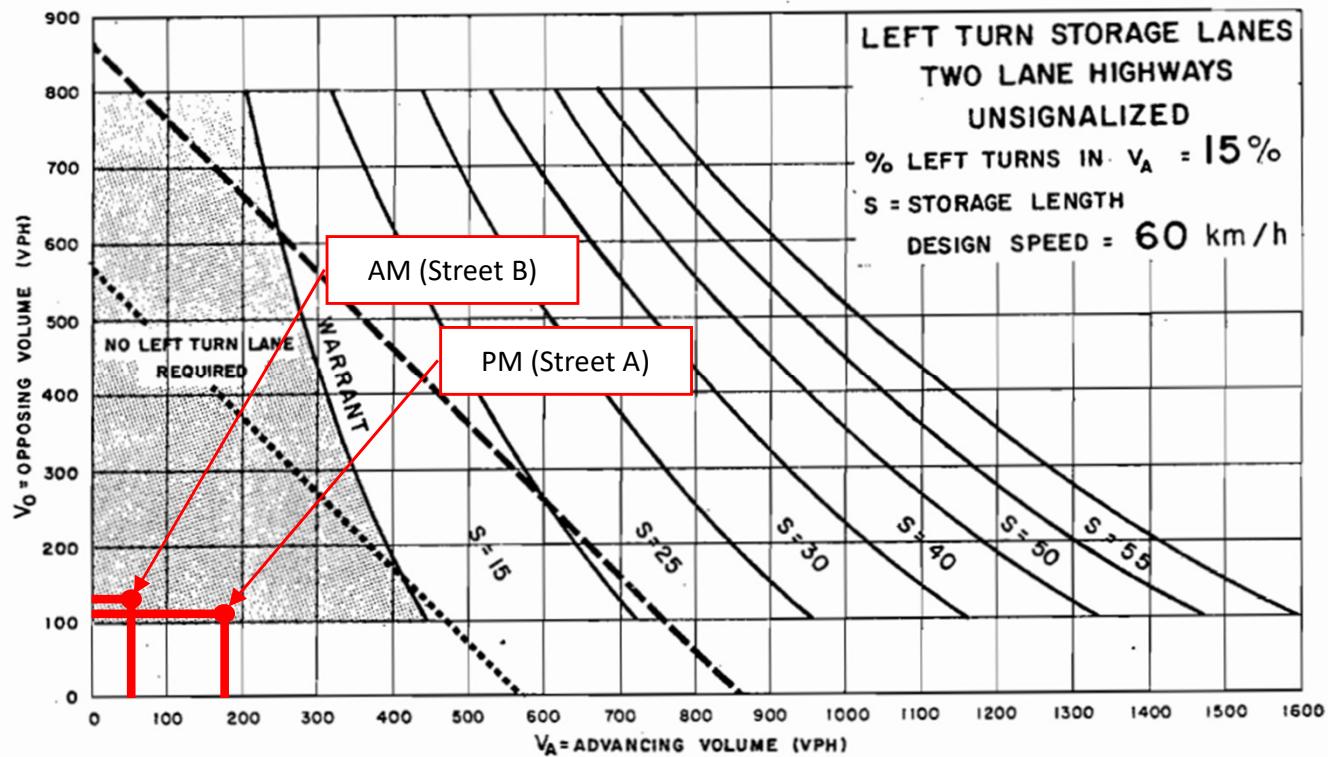
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UPPER CANADA CONSULTANTS
ENGINEERS / PLANNERS

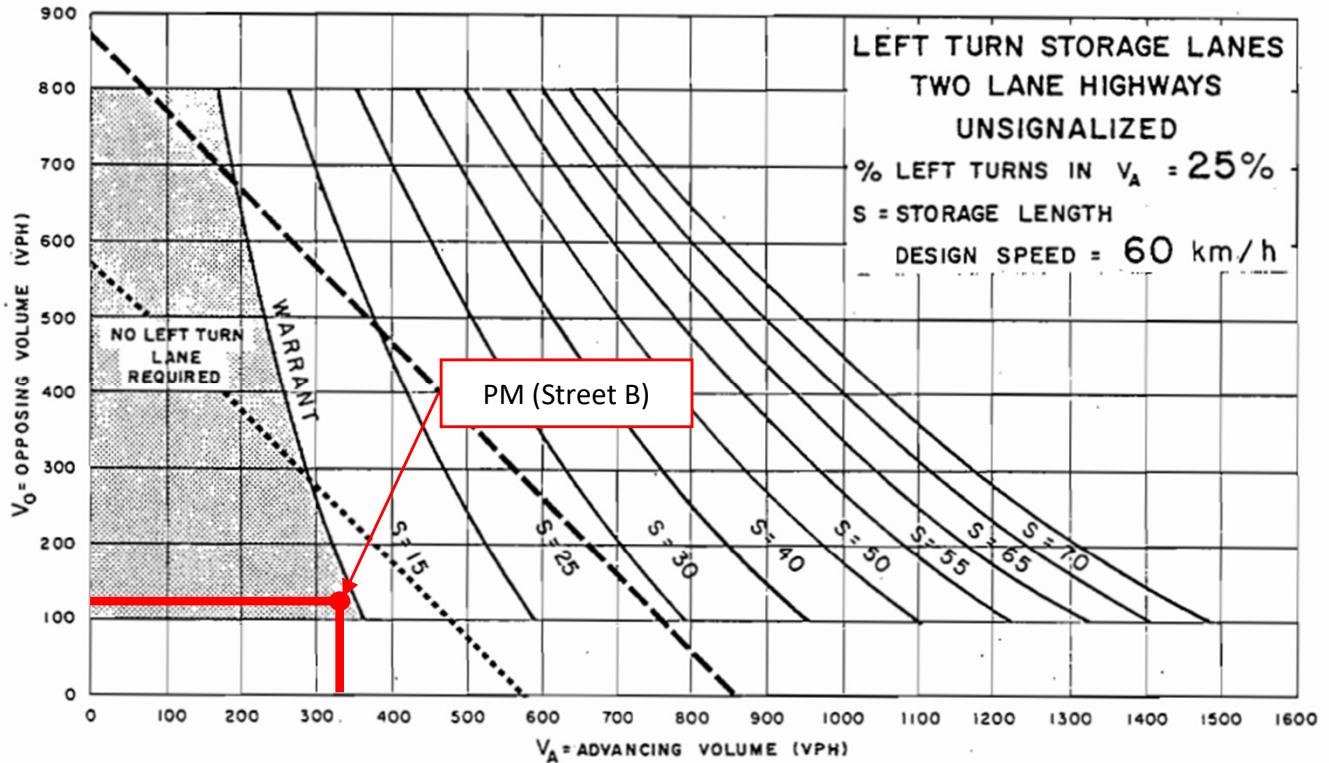
Appendix C

MTO Left-Turn Lane Warrants



TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

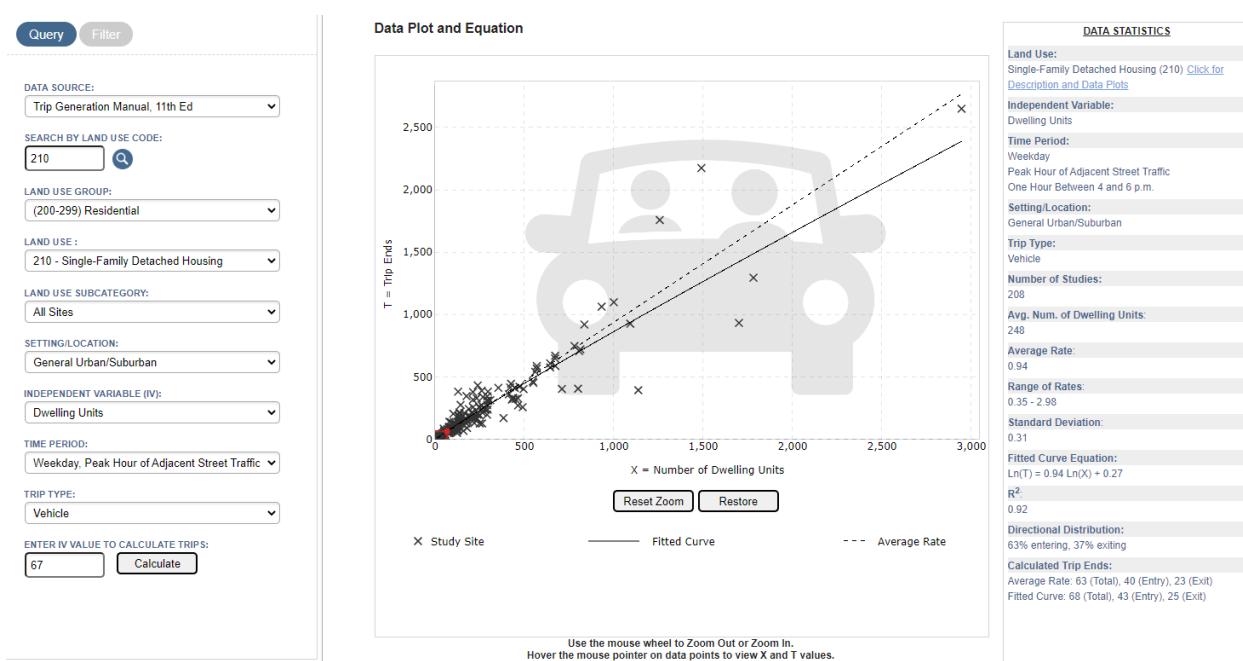
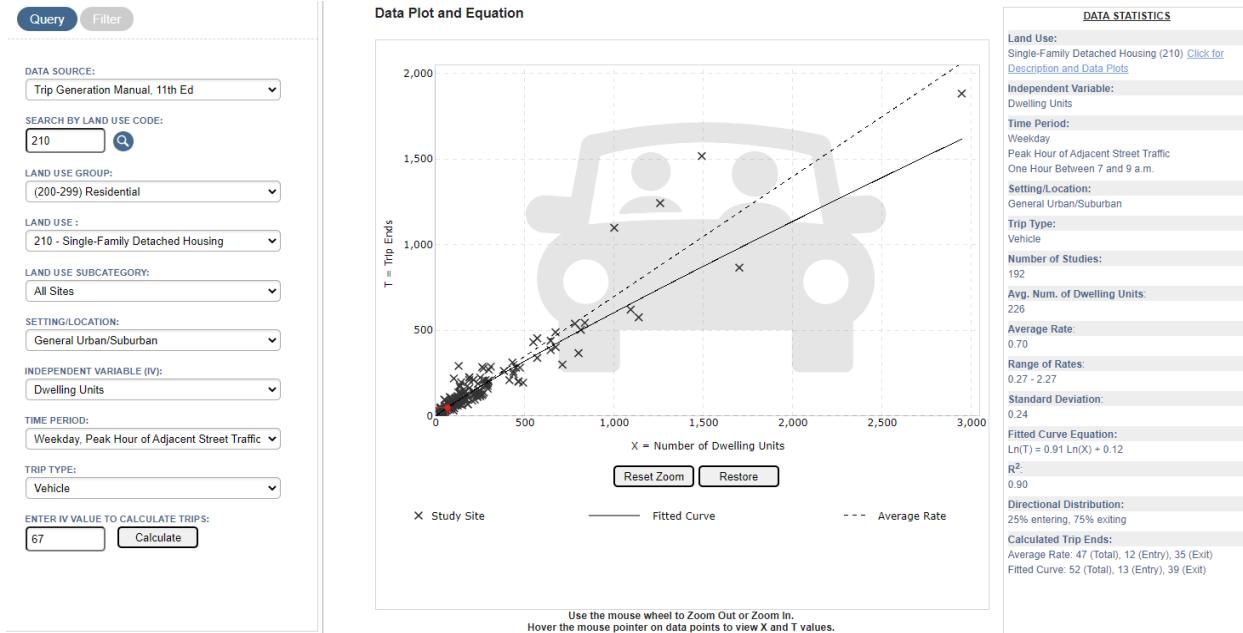


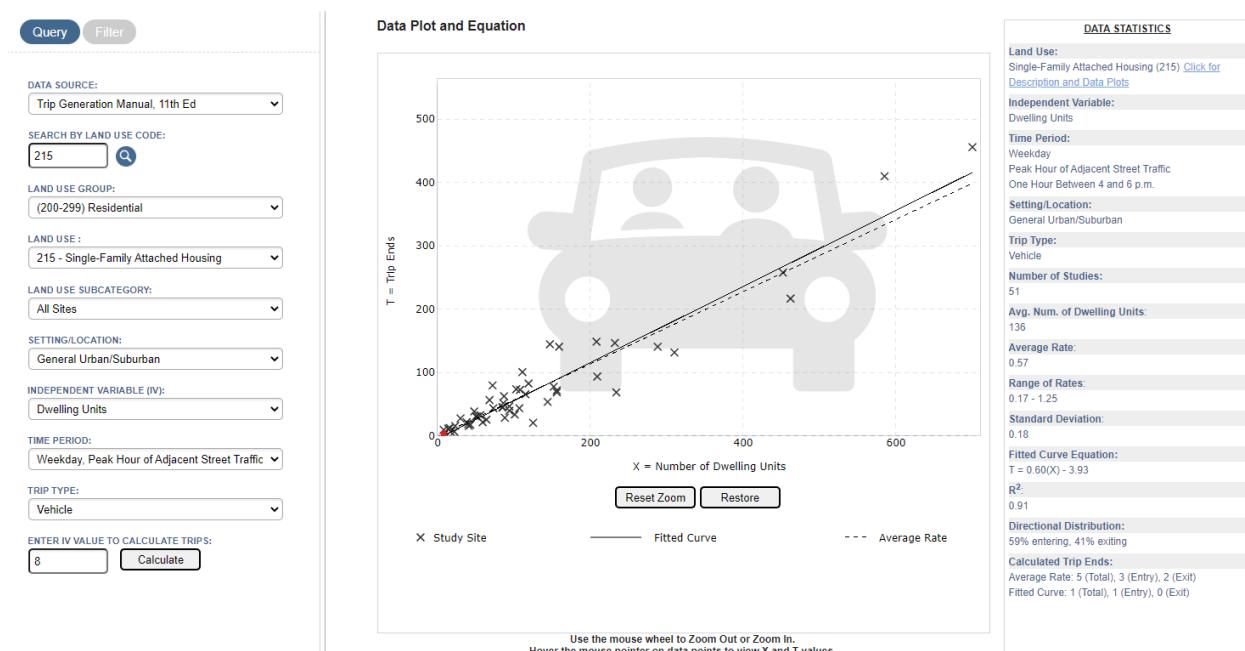
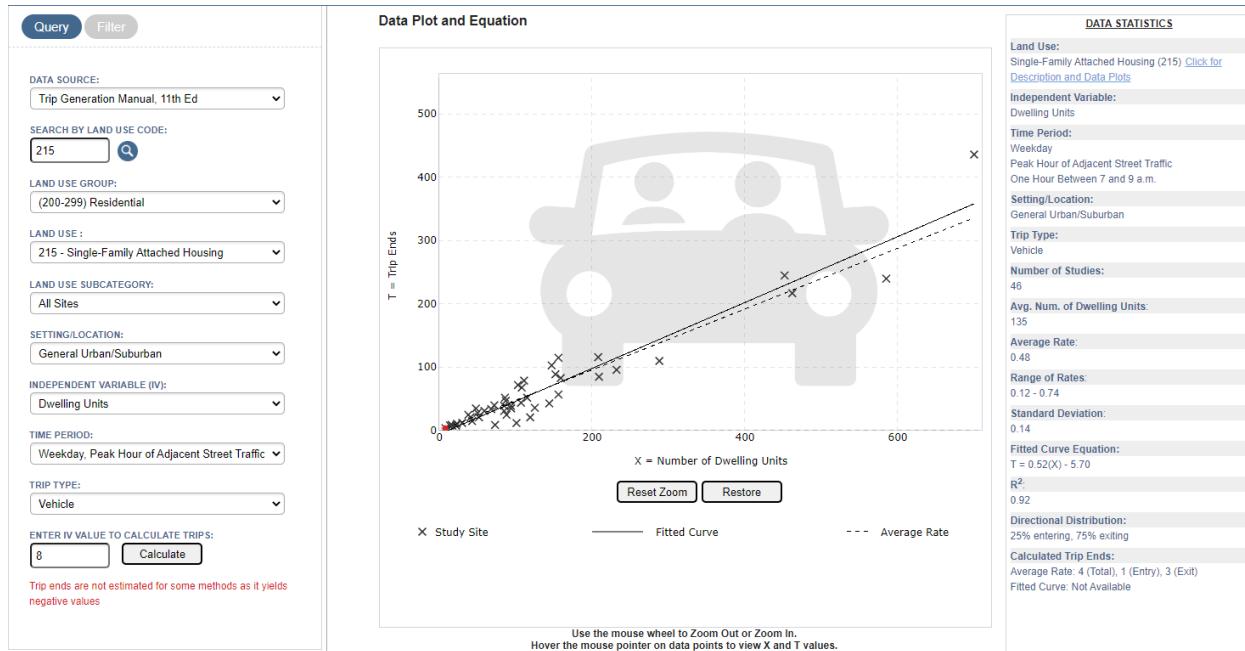
TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL
AREAS OR URBAN AREAS WITH RESTRICTED FLOW

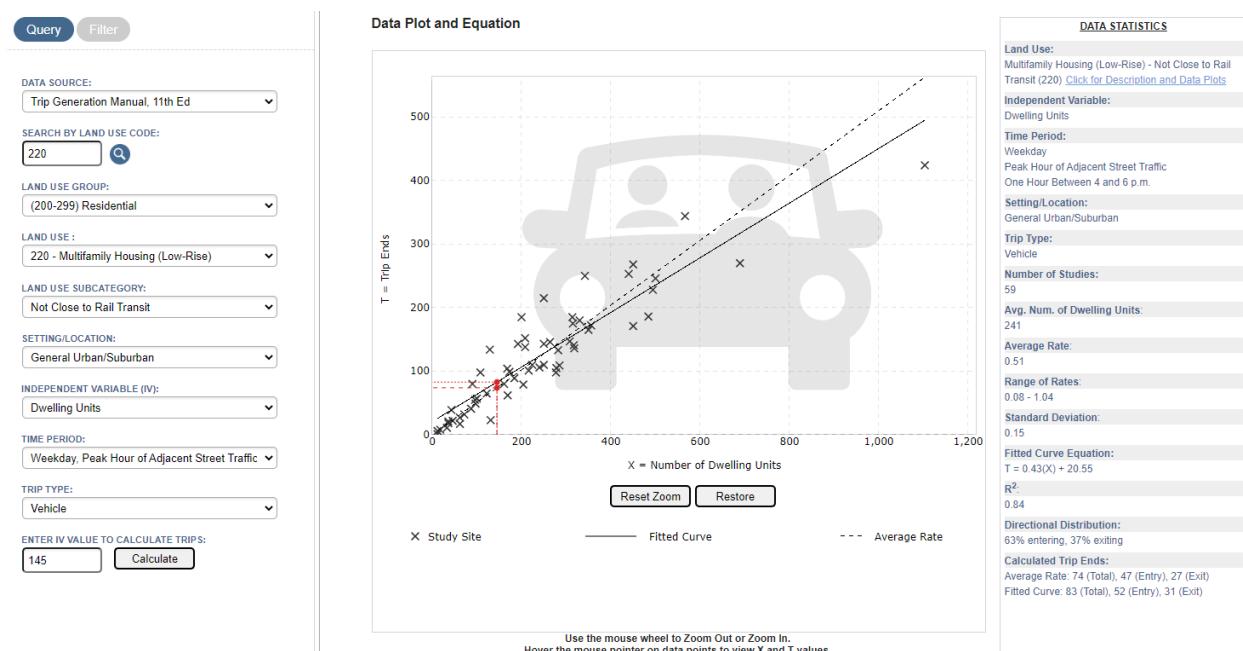
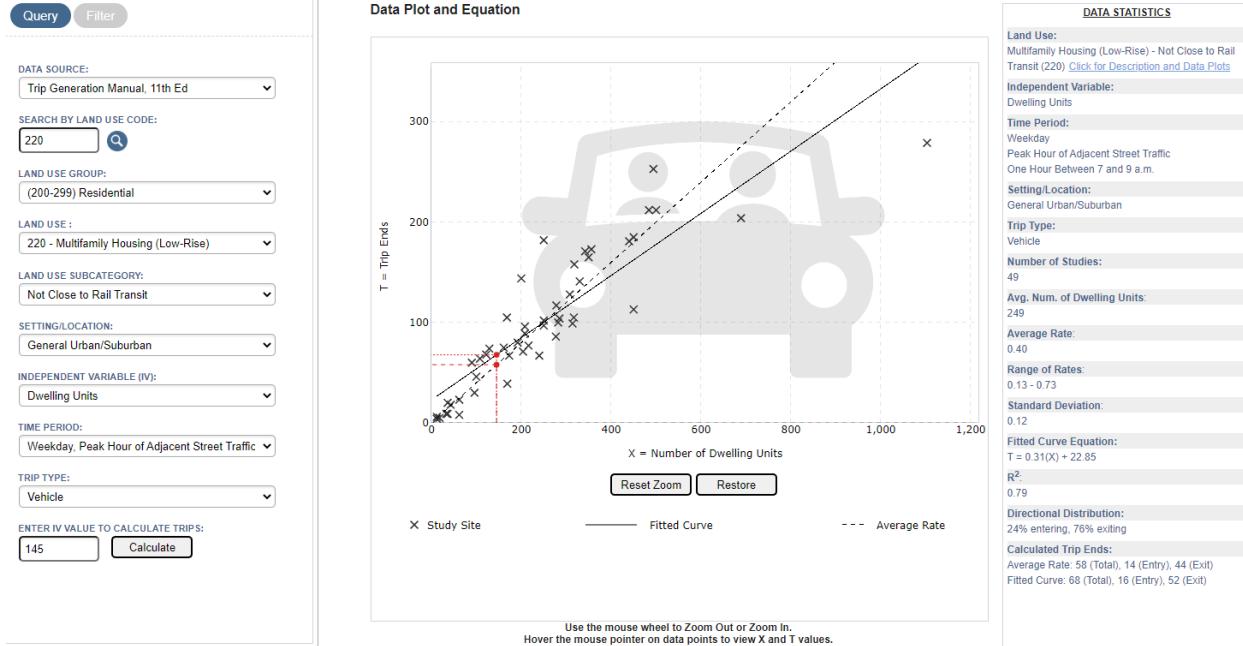
TRAFFIC SIGNALS MAY BE WARRANTED IN
"FREE FLOW" URBAN AREAS

Appendix D

Trip Generation Sheets







Appendix E

Transportation Tomorrow Survey Data

Thu Mar 02 2023 16:45:26 GMT-0500 (Eastern Standard Time) - Run Time: 1932ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig

Column: Planning district of employment - pd_emp

RowG:(60)

ColG:

TblG:

Filters:

(2006 GTA zone of household - gta06_hhld In 6340)

Trip 2016

Table:

	Burlington	Burlington	St. Catharines	Thorold	Niagara Falls	Welland	Fort Erie	West Lincoln	Wainfleet	Haldimand-Norfolk	
	20	202	16	293	25	2595	74	12	45	3282	
	1%	6%	0%	9%	1%	79%	2%	0%	1%	100%	

	IN(T)	OUT(T)	Total
AM	30	94	124
PM	98	58	156

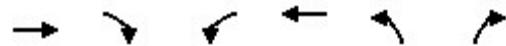
Site Total		AM		PM	
ROUTES	TRIP PROP.	IN	OUT	IN	OUT
A	Garrison E	80%	24	75	78
B	Garrison W	20%	6	19	20
	TOTAL	100%	30	94	98
		Check	30	94	98
					58

Appendix F

Capacity Analysis Reports

HCM Unsignalized Intersection Capacity Analysis
1: Crescent Rd & Garrison Rd

2023 Existing Conditions
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↓		↑	↑↓	↑↓	
Traffic Volume (veh/h)	461	20	50	380	21	124
Future Volume (Veh/h)	461	20	50	380	21	124
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	485	21	53	400	22	131
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume		506		802	253	
vC1, stage 1 conf vol				496		
vC2, stage 2 conf vol				306		
vCu, unblocked vol		506		802	253	
tC, single (s)		4.2		7.0	6.9	
tC, 2 stage (s)				6.0		
tF (s)		2.2		3.6	3.3	
p0 queue free %		95		95	83	
cM capacity (veh/h)		1041		483	753	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	323	183	53	200	200	153
Volume Left	0	0	53	0	0	22
Volume Right	0	21	0	0	0	131
cSH	1700	1700	1041	1700	1700	697
Volume to Capacity	0.19	0.11	0.05	0.12	0.12	0.22
Queue Length 95th (m)	0.0	0.0	1.2	0.0	0.0	6.3
Control Delay (s)	0.0	0.0	8.6	0.0	0.0	11.6
Lane LOS			A		B	
Approach Delay (s)	0.0		1.0		11.6	
Approach LOS					B	
Intersection Summary						
Average Delay		2.0				
Intersection Capacity Utilization		35.5%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 2: Orchard Ave/Street B & Crescent Rd

2023 Existing Conditions AM Peak Hour



HCM Unsignalized Intersection Capacity Analysis

3: Evelyn St

2023 Existing Conditions

AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	0	1	111	40	1
Future Volume (Veh/h)	1	0	1	111	40	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	1	0	1	139	50	1
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	192	50	51			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	192	50	51			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	802	1023	1568			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1	140	51			
Volume Left	1	1	0			
Volume Right	0	0	1			
cSH	802	1568	1700			
Volume to Capacity	0.00	0.00	0.03			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	9.5	0.1	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.5	0.1	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		0.1				
Intersection Capacity Utilization		16.6%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
1: Crescent Rd & Garrison Rd

2023 Existing Conditions
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↓		↑	↑↓	↑↓	
Traffic Volume (veh/h)	436	30	116	597	15	103
Future Volume (Veh/h)	436	30	116	597	15	103
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	469	32	125	642	16	111
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume		501		1056	250	
vC1, stage 1 conf vol				485		
vC2, stage 2 conf vol				571		
vCu, unblocked vol		501		1056	250	
tC, single (s)		4.1		6.8	6.9	
tC, 2 stage (s)				5.8		
tF (s)		2.2		3.5	3.3	
p0 queue free %		88		96	85	
cM capacity (veh/h)		1074		401	752	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	313	188	125	321	321	127
Volume Left	0	0	125	0	0	16
Volume Right	0	32	0	0	0	111
cSH	1700	1700	1074	1700	1700	678
Volume to Capacity	0.18	0.11	0.12	0.19	0.19	0.19
Queue Length 95th (m)	0.0	0.0	3.0	0.0	0.0	5.2
Control Delay (s)	0.0	0.0	8.8	0.0	0.0	11.5
Lane LOS			A			B
Approach Delay (s)	0.0		1.4		11.5	
Approach LOS					B	
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization		36.6%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 2: Orchard Ave/Street B & Crescent Rd

2023 Existing Conditions PM Peak Hour



HCM Unsignalized Intersection Capacity Analysis

3: Evelyn St

2023 Existing Conditions

PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	0	0	96	137	1
Future Volume (Veh/h)	2	0	0	96	137	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	0	104	149	1
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	254	150	150			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	254	150	150			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	739	902	1444			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	2	104	150			
Volume Left	2	0	0			
Volume Right	0	0	1			
cSH	739	1444	1700			
Volume to Capacity	0.00	0.00	0.09			
Queue Length 95th (m)	0.1	0.0	0.0			
Control Delay (s)	9.9	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.9	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		0.1				
Intersection Capacity Utilization		17.3%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
1: Crescent Rd & Garrison Rd

2025 Future Background
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↓		↑	↑↓	↑↓	
Traffic Volume (veh/h)	480	21	52	395	22	129
Future Volume (Veh/h)	480	21	52	395	22	129
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	505	22	55	416	23	136
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume		527		834	264	
vC1, stage 1 conf vol				516		
vC2, stage 2 conf vol				318		
vCu, unblocked vol		527		834	264	
tC, single (s)		4.2		7.0	6.9	
tC, 2 stage (s)				6.0		
tF (s)		2.2		3.6	3.3	
p0 queue free %		95		95	82	
cM capacity (veh/h)		1029		470	741	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	337	190	55	208	208	159
Volume Left	0	0	55	0	0	23
Volume Right	0	22	0	0	0	136
cSH	1700	1700	1029	1700	1700	684
Volume to Capacity	0.20	0.11	0.05	0.12	0.12	0.23
Queue Length 95th (m)	0.0	0.0	1.3	0.0	0.0	6.8
Control Delay (s)	0.0	0.0	8.7	0.0	0.0	11.9
Lane LOS			A			B
Approach Delay (s)	0.0		1.0		11.9	
Approach LOS					B	
Intersection Summary						
Average Delay		2.0				
Intersection Capacity Utilization		36.5%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 2: Orchard Ave/Street B & Crescent Rd

2025 Future Background AM Peak Hour



HCM Unsignalized Intersection Capacity Analysis

2025 Future Background

AM Peak Hour

3: Evelyn St



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	0	1	115	42	1
Future Volume (Veh/h)	1	0	1	115	42	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	1	0	1	144	52	1
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	198	52	53			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	198	52	53			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	794	1021	1553			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1	145	53			
Volume Left	1	1	0			
Volume Right	0	0	1			
cSH	794	1553	1700			
Volume to Capacity	0.00	0.00	0.03			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	9.5	0.1	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.5	0.1	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		0.1				
Intersection Capacity Utilization		16.8%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
1: Crescent Rd & Garrison Rd

2025 Future Background
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↓		↑	↑↓	↑↓	
Traffic Volume (veh/h)	454	31	121	621	16	107
Future Volume (Veh/h)	454	31	121	621	16	107
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	488	33	130	668	17	115
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume		521		1098	260	
vC1, stage 1 conf vol				504		
vC2, stage 2 conf vol				594		
vCu, unblocked vol		521		1098	260	
tC, single (s)		4.1		6.8	6.9	
tC, 2 stage (s)				5.8		
tF (s)		2.2		3.5	3.3	
p0 queue free %		88		96	84	
cM capacity (veh/h)		1056		387	741	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	325	196	130	334	334	132
Volume Left	0	0	130	0	0	17
Volume Right	0	33	0	0	0	115
cSH	1700	1700	1056	1700	1700	663
Volume to Capacity	0.19	0.12	0.12	0.20	0.20	0.20
Queue Length 95th (m)	0.0	0.0	3.2	0.0	0.0	5.6
Control Delay (s)	0.0	0.0	8.9	0.0	0.0	11.8
Lane LOS			A		B	
Approach Delay (s)	0.0		1.4		11.8	
Approach LOS					B	
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization		37.7%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 2: Orchard Ave/Street B & Crescent Rd

2025 Future Background PM Peak Hour



HCM Unsignalized Intersection Capacity Analysis

3: Evelyn St

2025 Future Background

PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	0	0	100	143	1
Future Volume (Veh/h)	2	0	0	100	143	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	0	109	155	1
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	264	156	156			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	264	156	156			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	729	896	1436			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	2	109	156			
Volume Left	2	0	0			
Volume Right	0	0	1			
cSH	729	1436	1700			
Volume to Capacity	0.00	0.00	0.09			
Queue Length 95th (m)	0.1	0.0	0.0			
Control Delay (s)	10.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	10.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		0.1				
Intersection Capacity Utilization		17.6%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
1: Crescent Rd & Garrison Rd

2025 Future Total
AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	480	27	76	395	33	174
Future Volume (Veh/h)	480	27	76	395	33	174
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	505	28	80	416	35	183
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume		533		887	266	
vC1, stage 1 conf vol				519		
vC2, stage 2 conf vol				368		
vCu, unblocked vol		533		887	266	
tC, single (s)		4.2		7.0	6.9	
tC, 2 stage (s)				6.0		
tF (s)		2.2		3.6	3.3	
p0 queue free %		92		92	75	
cM capacity (veh/h)		1024		448	738	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	337	196	80	208	208	218
Volume Left	0	0	80	0	0	35
Volume Right	0	28	0	0	0	183
cSH	1700	1700	1024	1700	1700	668
Volume to Capacity	0.20	0.12	0.08	0.12	0.12	0.33
Queue Length 95th (m)	0.0	0.0	1.9	0.0	0.0	10.8
Control Delay (s)	0.0	0.0	8.8	0.0	0.0	13.0
Lane LOS			A			B
Approach Delay (s)	0.0		1.4		13.0	
Approach LOS					B	
Intersection Summary						
Average Delay		2.8				
Intersection Capacity Utilization		40.9%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 2: Orchard Ave/Street B & Crescent Rd

2025 Future Total
AM Peak Hour



HCM Unsignalized Intersection Capacity Analysis

2025 Future Total

3: Evelyn St

AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	0	1	129	49	1
Future Volume (Veh/h)	1	0	1	129	49	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	1	0	1	161	61	1
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	224	62	62			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	224	62	62			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	768	1009	1554			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1	162	62			
Volume Left	1	1	0			
Volume Right	0	0	1			
cSH	768	1554	1700			
Volume to Capacity	0.00	0.00	0.04			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	9.7	0.1	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.7	0.1	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		0.1				
Intersection Capacity Utilization		17.6%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

2025 Future Total

4: Street A

AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (veh/h)	0	14	116	0	7	42
Future Volume (Veh/h)	0	14	116	0	7	42
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	126	0	8	46
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	188	126		126		
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	188	126		126		
tC, single (s)	6.4	6.2		4.1		
tC, 2 stage (s)						
tF (s)	3.5	3.3		2.2		
p0 queue free %	100	98		99		
cM capacity (veh/h)	797	924		1460		
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	15	126	54			
Volume Left	0	0	8			
Volume Right	15	0	0			
cSH	924	1700	1460			
Volume to Capacity	0.02	0.07	0.01			
Queue Length 95th (m)	0.4	0.0	0.1			
Control Delay (s)	9.0	0.0	1.1			
Lane LOS	A		A			
Approach Delay (s)	9.0	0.0	1.1			
Approach LOS	A					
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		18.2%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
1: Crescent Rd & Garrison Rd

2025 Future Total
PM Peak Hour

	→	↓	↖	←	↗	↙
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	454	51	199	621	28	153
Future Volume (Veh/h)	454	51	199	621	28	153
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	488	55	214	668	30	165
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume		543		1278	272	
vC1, stage 1 conf vol				516		
vC2, stage 2 conf vol				762		
vCu, unblocked vol		543		1278	272	
tC, single (s)		4.1		6.8	6.9	
tC, 2 stage (s)				5.8		
tF (s)		2.2		3.5	3.3	
p0 queue free %		79		90	77	
cM capacity (veh/h)		1036		303	729	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	325	218	214	334	334	195
Volume Left	0	0	214	0	0	30
Volume Right	0	55	0	0	0	165
cSH	1700	1700	1036	1700	1700	600
Volume to Capacity	0.19	0.13	0.21	0.20	0.20	0.33
Queue Length 95th (m)	0.0	0.0	5.9	0.0	0.0	10.7
Control Delay (s)	0.0	0.0	9.4	0.0	0.0	13.9
Lane LOS			A			B
Approach Delay (s)	0.0		2.3		13.9	
Approach LOS					B	
Intersection Summary						
Average Delay		2.9				
Intersection Capacity Utilization		46.2%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 2: Orchard Ave/Street B & Crescent Rd

2025 Future Total
PM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

2025 Future Total

PM Peak Hour

3: Evelyn St

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	0	0	114	167	1
Future Volume (Veh/h)	2	0	0	114	167	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	0	124	182	1
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	306	182	183			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	306	182	183			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	690	865	1404			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	2	124	183			
Volume Left	2	0	0			
Volume Right	0	0	1			
cSH	690	1404	1700			
Volume to Capacity	0.00	0.00	0.11			
Queue Length 95th (m)	0.1	0.0	0.0			
Control Delay (s)	10.2	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	10.2	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		0.1				
Intersection Capacity Utilization		18.9%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

2025 Future Total

4: Street A

PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	14	100	0	24	143
Future Volume (Veh/h)	0	14	100	0	24	143
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	109	0	26	155
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	316	109		109		
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	316	109		109		
tC, single (s)	6.4	6.2		4.1		
tC, 2 stage (s)						
tF (s)	3.5	3.3		2.2		
p0 queue free %	100	98		98		
cM capacity (veh/h)	665	945		1481		
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	15	109	181			
Volume Left	0	0	26			
Volume Right	15	0	0			
cSH	945	1700	1481			
Volume to Capacity	0.02	0.06	0.02			
Queue Length 95th (m)	0.4	0.0	0.4			
Control Delay (s)	8.9	0.0	1.2			
Lane LOS	A		A			
Approach Delay (s)	8.9	0.0	1.2			
Approach LOS	A					
Intersection Summary						
Average Delay		1.1				
Intersection Capacity Utilization		25.5%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
1: Crescent Rd & Garrison Rd

2030 Future Total
AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	530	29	81	437	35	187
Future Volume (Veh/h)	530	29	81	437	35	187
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	558	31	85	460	37	197
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume		589		974	294	
vC1, stage 1 conf vol				574		
vC2, stage 2 conf vol				400		
vCu, unblocked vol		589		974	294	
tC, single (s)		4.2		7.0	6.9	
tC, 2 stage (s)				6.0		
tF (s)		2.2		3.6	3.3	
p0 queue free %		91		91	72	
cM capacity (veh/h)		976		417	708	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	372	217	85	230	230	234
Volume Left	0	0	85	0	0	37
Volume Right	0	31	0	0	0	197
cSH	1700	1700	976	1700	1700	637
Volume to Capacity	0.22	0.13	0.09	0.14	0.14	0.37
Queue Length 95th (m)	0.0	0.0	2.2	0.0	0.0	12.8
Control Delay (s)	0.0	0.0	9.0	0.0	0.0	13.9
Lane LOS			A			B
Approach Delay (s)	0.0		1.4		13.9	
Approach LOS					B	
Intersection Summary						
Average Delay		2.9				
Intersection Capacity Utilization		43.5%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 2: Orchard Ave/Street B & Crescent Rd

2030 Future Total AM Peak Hour



HCM Unsignalized Intersection Capacity Analysis

2030 Future Total

AM Peak Hour

3: Evelyn St

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	0	1	142	53	1
Future Volume (Veh/h)	1	0	1	142	53	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	1	0	1	178	66	1
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	246	66	67			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	246	66	67			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	746	1003	1547			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1	179	67			
Volume Left	1	1	0			
Volume Right	0	0	1			
cSH	746	1547	1700			
Volume to Capacity	0.00	0.00	0.04			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	9.8	0.0	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.8	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		0.1				
Intersection Capacity Utilization		18.3%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

2030 Future Total

AM Peak Hour

4: Street A



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	14	129	0	7	46
Future Volume (Veh/h)	0	14	129	0	7	46
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	140	0	8	50
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	206	140		140		
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	206	140		140		
tC, single (s)	6.4	6.2		4.1		
tC, 2 stage (s)						
tF (s)	3.5	3.3		2.2		
p0 queue free %	100	98		99		
cM capacity (veh/h)	778	908		1443		
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	15	140	58			
Volume Left	0	0	8			
Volume Right	15	0	0			
cSH	908	1700	1443			
Volume to Capacity	0.02	0.08	0.01			
Queue Length 95th (m)	0.4	0.0	0.1			
Control Delay (s)	9.0	0.0	1.1			
Lane LOS	A		A			
Approach Delay (s)	9.0	0.0	1.1			
Approach LOS	A					
Intersection Summary						
Average Delay		0.9				
Intersection Capacity Utilization		18.3%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
1: Crescent Rd & Garrison Rd

2030 Future Total
PM Peak Hour

	→	↓	↖	←	↗	↙
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	501	54	211	686	29	164
Future Volume (Veh/h)	501	54	211	686	29	164
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	539	58	227	738	31	176
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume		597		1391	298	
vC1, stage 1 conf vol				568		
vC2, stage 2 conf vol				823		
vCu, unblocked vol		597		1391	298	
tC, single (s)		4.1		6.8	6.9	
tC, 2 stage (s)				5.8		
tF (s)		2.2		3.5	3.3	
p0 queue free %		77		89	75	
cM capacity (veh/h)		989		273	701	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	359	238	227	369	369	207
Volume Left	0	0	227	0	0	31
Volume Right	0	58	0	0	0	176
cSH	1700	1700	989	1700	1700	568
Volume to Capacity	0.21	0.14	0.23	0.22	0.22	0.36
Queue Length 95th (m)	0.0	0.0	6.7	0.0	0.0	12.6
Control Delay (s)	0.0	0.0	9.7	0.0	0.0	14.9
Lane LOS			A			B
Approach Delay (s)	0.0		2.3		14.9	
Approach LOS					B	
Intersection Summary						
Average Delay		3.0				
Intersection Capacity Utilization		49.0%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 2: Orchard Ave/Street B & Crescent Rd

2030 Future Total PM Peak Hour



HCM Unsignalized Intersection Capacity Analysis

2030 Future Total

PM Peak Hour

3: Evelyn St

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	0	0	129	190	1
Future Volume (Veh/h)	2	0	0	129	190	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	0	140	207	1
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	348	208	208			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	348	208	208			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	653	838	1369			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	2	140	208			
Volume Left	2	0	0			
Volume Right	0	0	1			
cSH	653	1369	1700			
Volume to Capacity	0.00	0.00	0.12			
Queue Length 95th (m)	0.1	0.0	0.0			
Control Delay (s)	10.5	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	10.5	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		0.1				
Intersection Capacity Utilization		20.1%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

2030 Future Total

PM Peak Hour

4: Street A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	19	0	0	33	0
Future Volume (Veh/h)	0	19	0	0	33	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	21	0	0	36	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	72	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	72	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			98	
cM capacity (veh/h)	911	1085			1623	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	21	0	36			
Volume Left	0	0	36			
Volume Right	21	0	0			
cSH	1085	1700	1623			
Volume to Capacity	0.02	0.08	0.02			
Queue Length 95th (m)	0.4	0.0	0.5			
Control Delay (s)	8.4	0.0	7.3			
Lane LOS	A		A			
Approach Delay (s)	8.4	0.0	7.3			
Approach LOS	A					
Intersection Summary						
Average Delay		7.7				
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)		15				