

Alton Residential

Town of Caledon

TOWN OF CALEDON
PLANNING
RECEIVED

May 27, 2026

Traffic Impact Study for 1029629 Ontario Inc.

Type of Document:
Final Report

Project Number:
JDE – 1728

Date Submitted:
October 29th, 2017
Revised: August 22nd, 2023
Revised: April 3rd, 2026



John Northcote, P.Eng.
Professional License #: 100124071



ENGINEERING

JD Northcote Engineering Inc.
86 Cumberland Street
Barrie, ON
705.725.4035
www.JDEngineering.ca

Legal Notification

This report was prepared by **JD Northcote Engineering Inc.** for the account of **1029629 Ontario Inc.**

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. **JD Northcote Engineering Inc.** accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this project.

Executive Summary

This report summarizes the traffic impact study prepared for the proposed residential development located on the west side of Main Street, north of Queen Street in the Community of Alton, Town of Caledon [Town], Regional Municipality of Peel [Region]. The report assesses the impact of traffic related to the development on the adjacent roadway and provides recommendations to accommodate this traffic in a safe and efficient manner.

The proposed residential development includes 15 single-detached residential units.

The proposed development will have access to Main Street via Nicholas Street and access to Queen Street West via Amelia Street. The proposed development also includes one future connection to Main Street via the future Spring Street; however, as the timing of this connection is dependent on the redevelopment of the adjacent lands, this future connection has not been considered for the purpose of this study.

The scope of this analysis includes a review of the following intersections:

- Main Street / Queen Street;
- Amelia Street & Victoria Street / Queen Street West; and
- Nicholas Street / Main Street.

Conclusions

1. The proposed development is expected to generate a total of 16 AM and 17 PM peak hour trips.
2. Detailed turning movement counts were conducted for the study intersection, completed on Tuesday March 24, 2026.
3. An intersection operation analysis was completed at the study area intersections, using the existing (2026) and background (2031) traffic volumes without the proposed development traffic. This enabled a review of existing and future traffic deficiencies that would be present without the influence of the proposed development. No infrastructure improvements were required as a result of the analysis.
4. An estimate of the amount of traffic that would be generated by the Subject Site was prepared and assigned to the study area streets and intersections.
5. An intersection operation analysis was completed under total (2031) traffic volumes with the proposed development operational at the study area intersections. No infrastructure improvements were required as a result of the analysis.
6. The sight distance available at the intersection of Amelia Street / Queen Street and Nicholas Street / Main Street meet the minimum stopping sight distance requirements.
7. In summary, the proposed development will not cause any operational issues and will not add significant delay or congestion to the local roadway network.

Table of Contents

1	Introduction.....	1
1.1	Background.....	1
1.2	Study Area	1
1.3	Study Scope and Objectives	2
1.4	Horizon Year and Analysis Periods	3
2	Information Gathering.....	3
2.1	Street and Intersection Characteristics	3
2.2	Local Transportation Infrastructure Improvements.....	4
2.3	Transit Access	5
2.4	Other Developments within the Study Area	5
2.4.1	Traffic Generation for Adjacent Developments	5
2.4.2	Thomas Farms.....	5
2.4.3	Osprey Valley Golf Course	6
2.4.4	1 Victoria Street	6
2.4.5	0 Agnes Street	6
2.4.6	Total Adjacent Development Traffic	7
2.5	Traffic Counts	12
2.6	Horizon Year Traffic Volumes.....	14
3	Intersection Operation without Proposed Development.....	16
3.1	Introduction	16
3.2	Existing (2026) Intersection Operation	17
3.3	Background (2031) Intersection Operation	18
4	Proposed Development Traffic Generation and Assignment	19
4.1	Traffic Generation	19
4.2	Traffic Assignment	19
4.3	Total Horizon Year Traffic Volumes with the Proposed Development	21
5	Intersection Operation with Proposed Development	22
5.1	Total (2031) Intersection Operation	22
5.2	Sight Distance Review.....	22
5.3	Nicholas Street / Amelia Street Intersection	23
5.4	Amelia Street – 90 degree bends	23
6	Summary	23

List of Tables

Table 1 – Estimated Traffic Generation – Thomas Farms	5
Table 2 – Estimated Traffic Generation – 1 Victoria Street	6
Table 3 – Estimated Traffic Generation – 0 Agnes Street	7
Table 4 – Traffic Count Data	13
Table 5 – Estimated Traffic Generation on Nicholas Street	13
Table 6 – Level of Service Criteria for Intersections	17
Table 7 – Existing (2026) LOS	17
Table 8 – Background (2031) LOS	18
Table 9 – Estimated Traffic Generation of Proposed Development	19
Table 10 – Distribution of Traffic from the Proposed Development	19
Table 11 – Total (2031) LOS	22

List of Figures

Figure 1 – Proposed Site Location and Study Area	2
Figure 2 – Existing (2026) Intersection Spacing and Lane Configuration in Study Area	4
Figure 3 – Thomas Farms Traffic Volumes within Study Area	8
Figure 4 – Osprey Valley Golf Course Expansion Traffic Volumes within Study Area	9
Figure 5 – 1 Victoria Street Traffic Volumes within Study Area	10
Figure 6 – 0 Agnes Street Traffic Volumes within Study Area	11
Figure 7 – Total Adjacent Development Traffic Volumes within Study Area	12
Figure 8 – Existing (2026) Traffic Volumes	14
Figure 9 – Background (2031) Traffic Volumes	15
Figure 10 – Site Traffic Assignment	20
Figure 11 – Total (2031) Traffic Volumes	21

List of Appendices

APPENDIX A – Site Plan
APPENDIX B – Traffic Count Data
APPENDIX C – Synchro Analysis Output – Existing Traffic Volumes
APPENDIX D – OTM Signal Justification Sheets
APPENDIX E – Synchro Analysis Output – Background Traffic Volumes
APPENDIX F – Transportation Tomorrow Survey – Internet Data Retrieval System Excerpt
APPENDIX G – Synchro Analysis Output – Total Traffic Volumes
APPENDIX H – Adjacent Development Excerpts
APPENDIX I – MTO Left Turn Warrant Analysis

1 Introduction

1.1 Background

1029629 Ontario Inc. [The Developer] is proposing a residential development on a site located on the west side of Main Street, north of Queen Street in the Community of Alton, Town of Caledon [Town], Regional Municipality of Peel [Region]. The proposed residential development includes 15 single-detached residential units.

The proposed development will have access to Main Street via Nicholas Street and access to Queen Street West via Amelia Street. The proposed development also includes one future connection to Main Street via the future Spring Street; however, as the timing of this connection is dependent on the redevelopment of the adjacent lands, this future connection has not been considered for the purpose of this study.

The Developer has retained **JD Northcote Engineering Inc.** [JD Engineering] to prepare this traffic impact study in support of the proposed development.

1.2 Study Area

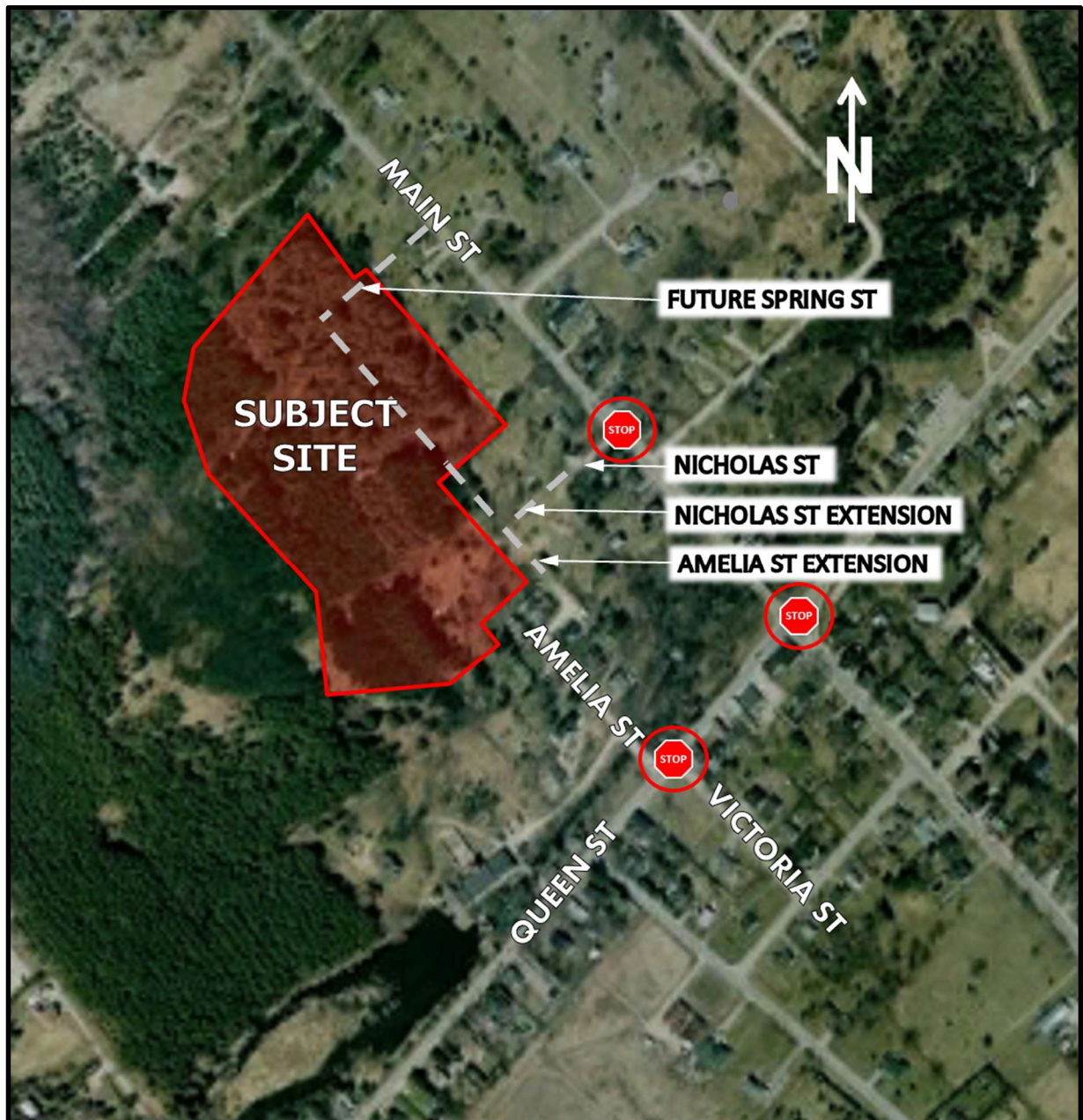
Figure 1 shows the location of the subject site and study area intersections in relation to the surrounding area. The Conceptual Site Plan by The Biglieri Group Limited is shown in **Appendix A**.

The subject site is bound by existing residential lands to the east and north, undeveloped lands to the west and existing residential and commercial lands to the south.

Through consultation with the Town, the following intersections are included in the Traffic Impact Analysis:

- Queen Street / Main Street;
- Queen Street West / Amelia Street & Victoria Street; and
- Nicholas Street / Main Street.

Figure 1 – Proposed Site Location and Study Area



1.3 Study Scope and Objectives

The purpose of this study is to identify the potential impacts to traffic flow at the site access and on the surrounding roadway network. The study analysis includes the following tasks:

- Consult with the Town and Region to address any traffic-related issues or concerns they have with the proposed development;
- Determine existing traffic volumes and circulation patterns;

- Estimate future traffic volumes if the proposed development was not constructed, including the impact of additional proposed developments in the area;
- Complete level-of-service [LOS] analysis of horizon year (without the proposed development) traffic conditions and identify operational deficiencies;
- Estimate the amount of traffic that would be generated by the proposed development and assign to the roadway network;
- Complete LOS analysis of horizon year (with the proposed development) traffic conditions and identify additional operational deficiencies;
- Identify improvement options to address operational deficiencies;
- Review the available sight distance at the proposed site access driveways onto Queen Street and Main Street; and
- Document findings and recommendations in a final report.

1.4 Horizon Year and Analysis Periods

For the purpose of this report, it is assumed that the proposed development will be fully built-out and occupied by 2029. Traffic scenarios for the existing year (2026) and the future horizon year (2031) were selected for analysis of traffic operations in the study area. The weekday morning [AM] and weekday afternoon [PM] peak hours have been selected as the analysis periods for this study.

2 Information Gathering

2.1 Street and Intersection Characteristics

Queen Street is a two-lane road with an urban cross section. Queen Street, east of Main Street, is high capacity arterial road under the jurisdiction of the Region with a sidewalk on the south side of the road, a narrow asphalt kill strip on the north side of the road and a posted speed limit of 50km/h. Queen Street, west of Main Street, is a collector road under the jurisdiction of the Town with a sidewalk on the south side of the road and a posted speed limit of 40km/h.

Main Street, south of Queen Street, is a high capacity two-lane arterial road with an urban cross-section under the jurisdiction of the Region with a sidewalk on the east side of the road, a narrow asphalt kill strip on the west side of the road and a posted speed limit of 50km/h. Main Street, north of Queen Street, is a two-lane collector road under the jurisdiction of the Town with an urban cross-section and a sidewalk on the east side of the road, a rural cross-section on the west side of the road and a posted speed limit of 40km/h.

Amelia Street is a two-lane local road with a rural cross section. Amelia Street has no sidewalks and an unposted (assumed) speed limit of 40km/h. Amelia Street is under the jurisdiction of the Town.

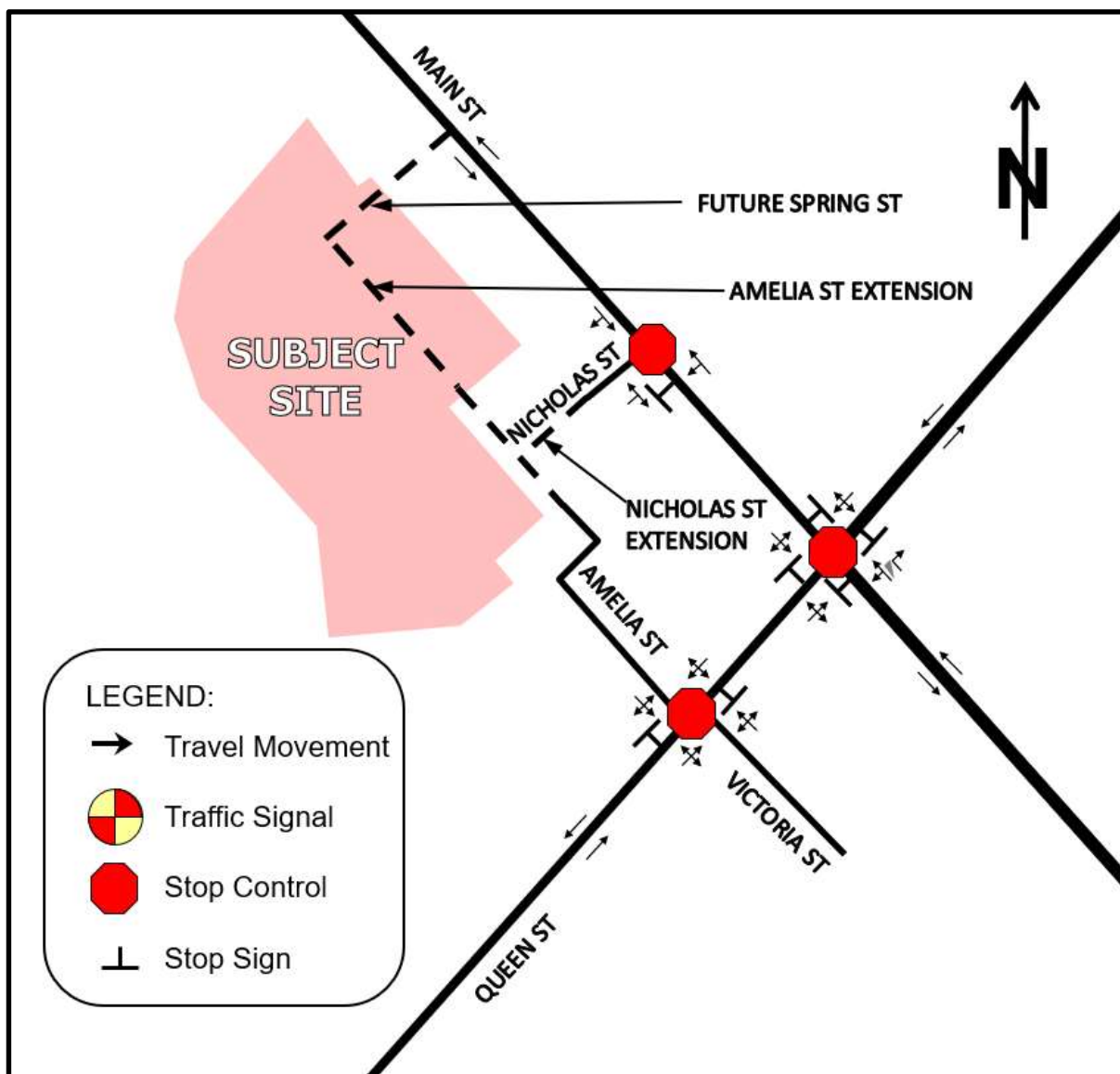
Victoria Street is a two-lane local road with a rural cross section. Victoria Street has no sidewalks and an unposted (assumed) speed limit of 40km/h. Victoria Street is under the jurisdiction of the Town.

Nicholas Street is a two-lane local road with a rural cross section. Nicholas Street has no sidewalks and an unposted (assumed) speed limit of 40km/h. Nicholas Street is under the jurisdiction of the Town.

The existing intersection spacing and lane configuration within the study area is illustrated in **Figure 2**.

The existing intersection of Queen Street West / Amelia Street and Queen Street West / Victoria Street are offset by approximately 15 metres (measured centre of intersection to centre of intersection). For the purpose of this analysis, we have assumed that the Queen Street West / Victoria Street & Amelia Street will operate like a single intersection.

Figure 2 – Existing (2026) Intersection Spacing and Lane Configuration in Study Area



2.2 Local Transportation Infrastructure Improvements

Based on our review of the Peel Long Range Transportation Plan and discussions with Town staff, there are no infrastructure improvements anticipated within the study area.

2.3 Transit Access

There is no municipal transit service currently available within the study area.

2.4 Other Developments within the Study Area

Based on correspondence with the Town and a review of the Town's current applications webpage, there are four adjacent developments nearby the study area that will impact the traffic generation rates, specifically:

- Thomas Farms;
- Osprey Valley Golf Course expansion;
- 1 Victoria Street; and
- 0 Agnes Street.

For the purposes of this study, it has been assumed that all traffic generated by the adjacent developments within the study area will be new traffic and would not be in the study area if the developments were not constructed.

2.4.1 Traffic Generation for Adjacent Developments

Traffic generation for the adjacent developments, where a traffic impact study is not available, has been calculated based on the data provided in the Institute of Transportation Engineers [ITE] *Trip Generation Manual* (12th Edition) [ITE Trip Generation Manual]. The following ITE land uses have been applied to estimate the traffic from the adjacent developments:

- ITE land use 210 (Single Family Detached Housing) – General Urban / Suburban Setting;

The AM and PM peak hour traffic generation for the adjacent developments do not exactly align with the AM and PM peak hour in the traffic counts; consequently, we have applied the peak hour of adjacent street traffic values provided in the ITE Trip Generation Manual.

2.4.2 Thomas Farms

The Thomas Farms development is located in the southeast corner of the Queen Street / Mississauga Road intersection. Based on the information available, the Thomas Farms development is anticipated to be fully occupied by the 2031 horizon year and is anticipated to consist of 119 single family detached residential units. At the time of this study, an estimated 40 units are occupied.

The estimated trip generation of the Thomas Farms development is illustrated below in **Table 1**.

Table 1 – Estimated Traffic Generation – Thomas Farms

Land Use	Size	AM Peak Hour			PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Single Family Detached Housing ITE Land Use: 210	79 of 119 units remaining	16	43	59	48	29	77

Using the traffic distribution pattern noted in Section 4.2, the Thomas Farms development traffic assignment was calculated for the AM and PM peak hour and is illustrated in **Figure 3**.

2.4.3 Osprey Valley Golf Course

The Osprey Valley Golf Course is generally located on the east side of Main Street, south of the Village of Alton and is anticipated to include an expansion of the existing development including the following:

- 2-storey main clubhouse – 3,396 sq.m.;
- Golf Academy / Training Centre – 508 sq.m.;
- Secondary clubhouse – 1,553 sq.m.;
- Banquet Facility expansion to 1,345 sq.m.; and
- Maintenance building expansion to 629 sq.m.

It is anticipated that the Osprey Valley Golf Course expansion will be fully occupied by the 2031 horizon year.

Traffic generated by the Osprey Valley Golf Course expansion has been estimated based on the August 2021 Osprey Valley Golf Course Expansion traffic impact study by C.F. Crozier Associates Inc. [Osprey TIS] (excerpts provided in **Appendix H**).

Figure 5 illustrates the Osprey Valley Golf Course expansion traffic within the study area.

2.4.4 1 Victoria Street

The 1 Victoria Street development is located in the northwest corner of the King Street / Victoria Street intersection and is anticipated to include three single family detached residential units. It is anticipated that the 1 Victoria Street development will be fully occupied by the 2031 horizon year.

The estimated trip generation of the 1 Victoria Street development is illustrated below in **Table 2**.

Table 2 – Estimated Traffic Generation – 1 Victoria Street

Land Use	Size	AM Peak Hour			PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Single Family Detached Housing ITE Land Use: 210	3 units	1	1	2	2	1	3

Using the traffic distribution pattern noted in Section 4.2, the 1 Victoria Street development traffic assignment was calculated for the AM and PM peak hour and is illustrated in **Figure 6**.

2.4.5 0 Agnes Street

The 0 Street development is located on the south side of Queen Street W, opposite King Street and is anticipated to include 65 townhouse units

three single family detached residential units. It is anticipated that the 1 Victoria Street development will be fully occupied by the 2031 horizon year. The estimated trip generation of the 1 Victoria Street development is illustrated below in **Table 3**.

Table 3 – Estimated Traffic Generation – 0 Agnes Street

Land Use	Size	AM Peak Hour			PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Multifamily Housing (Low-Rise) ITE Land Use: 220	65 units	9	27	36	24	15	39

Using the traffic distribution pattern noted in Section 4.2, the 0 Agnes Street development traffic assignment was calculated for the AM and PM peak hour and is illustrated in **Figure 6**.

2.4.6 Total Adjacent Development Traffic

The total traffic assignment for all adjacent developments within the study area was calculated for the AM and PM peak hour and is illustrated in **Figure 7**.

Figure 3 – Thomas Farms Traffic Volumes within Study Area

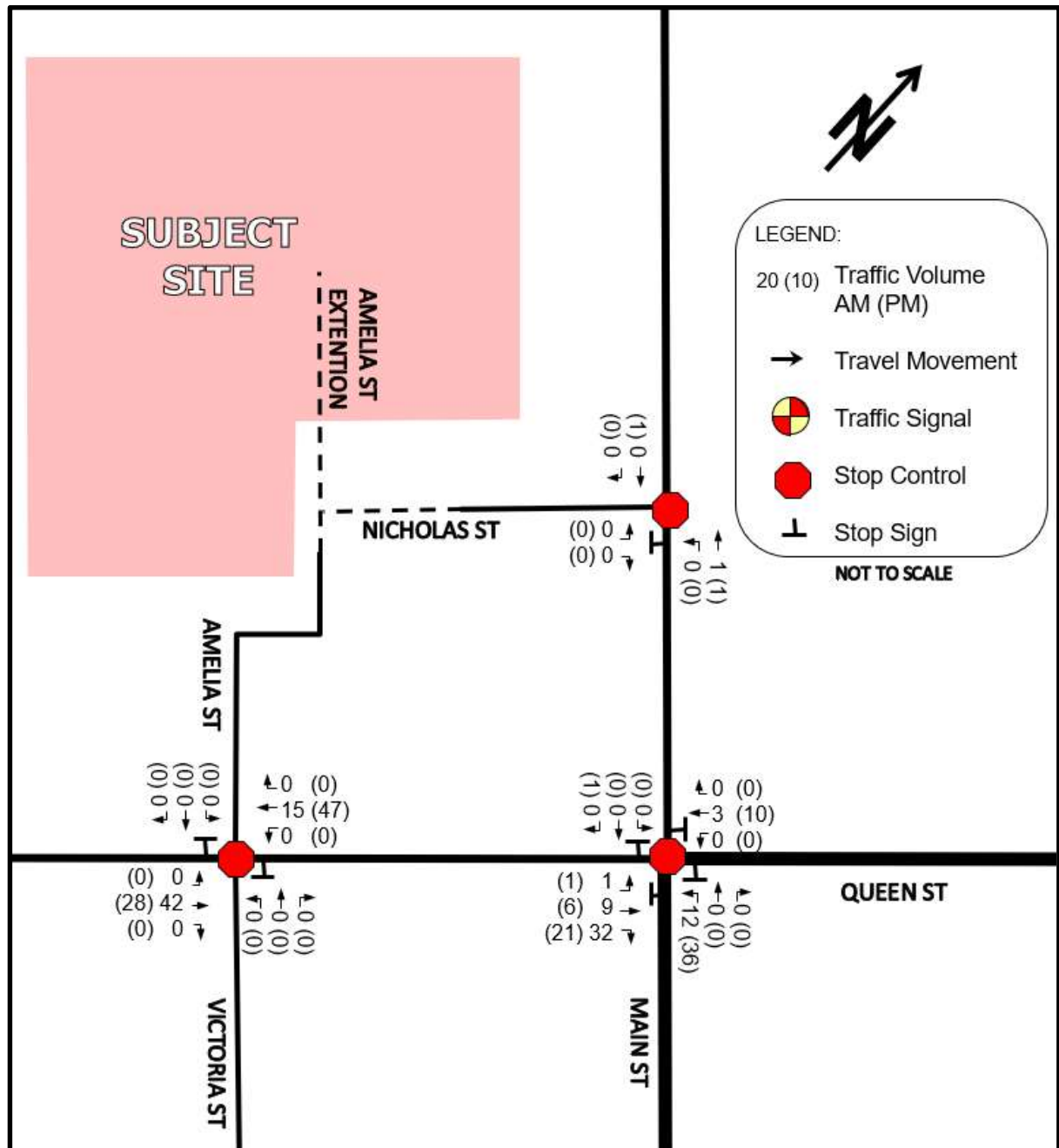


Figure 4 – Osprey Valley Golf Course Expansion Traffic Volumes within Study Area

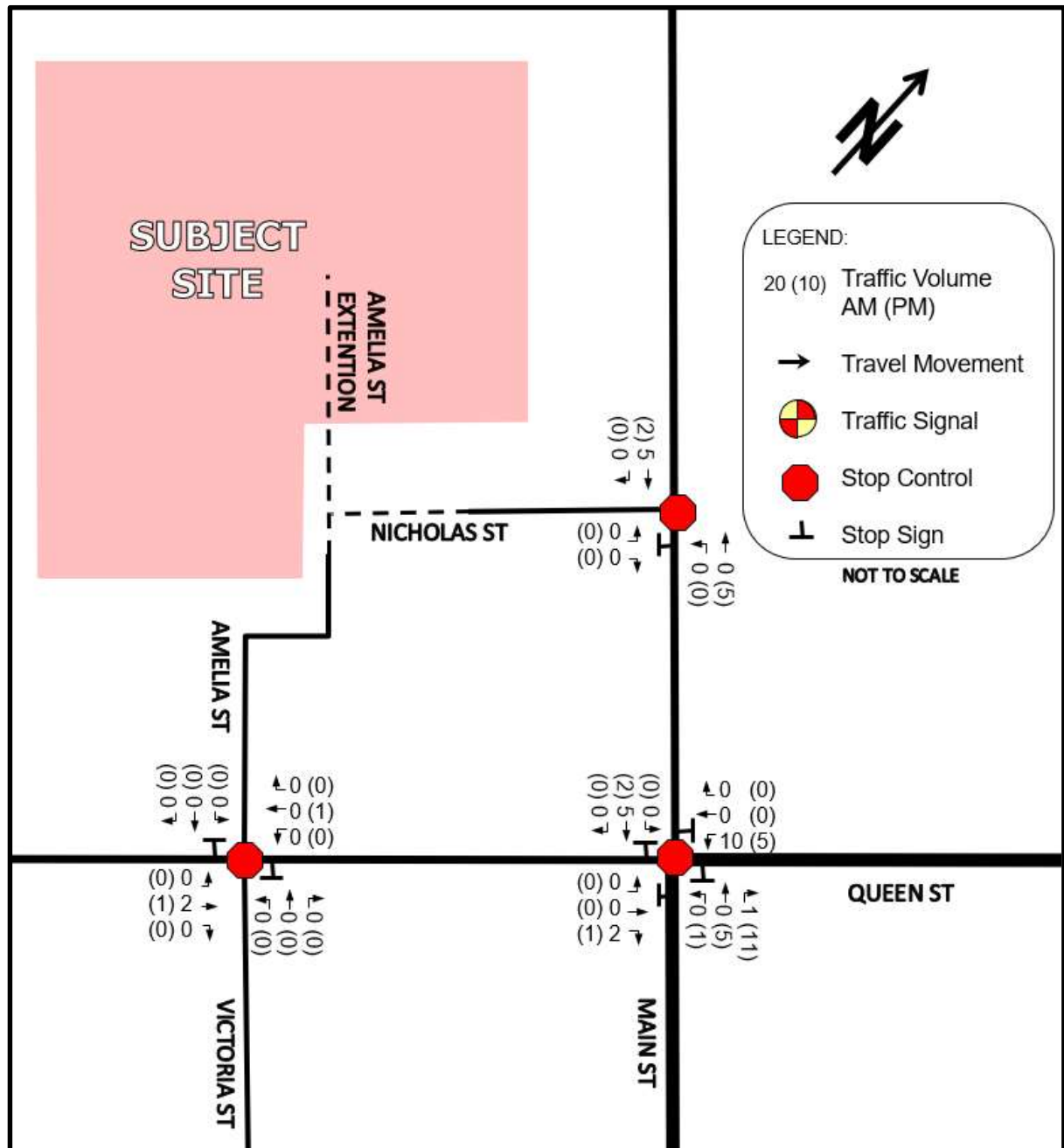


Figure 5 – 1 Victoria Street Traffic Volumes within Study Area

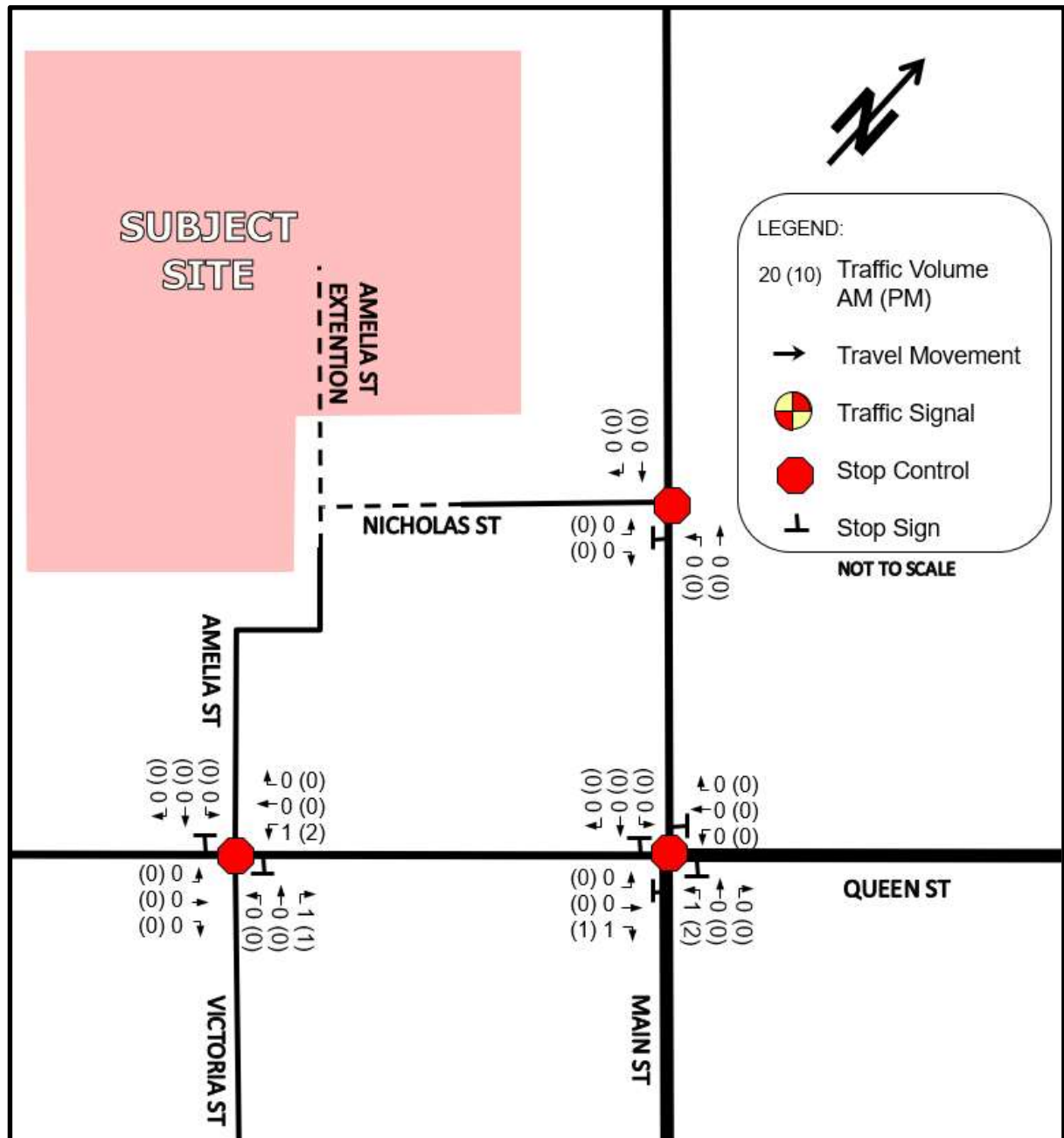


Figure 6 – 0 Agnes Street Traffic Volumes within Study Area

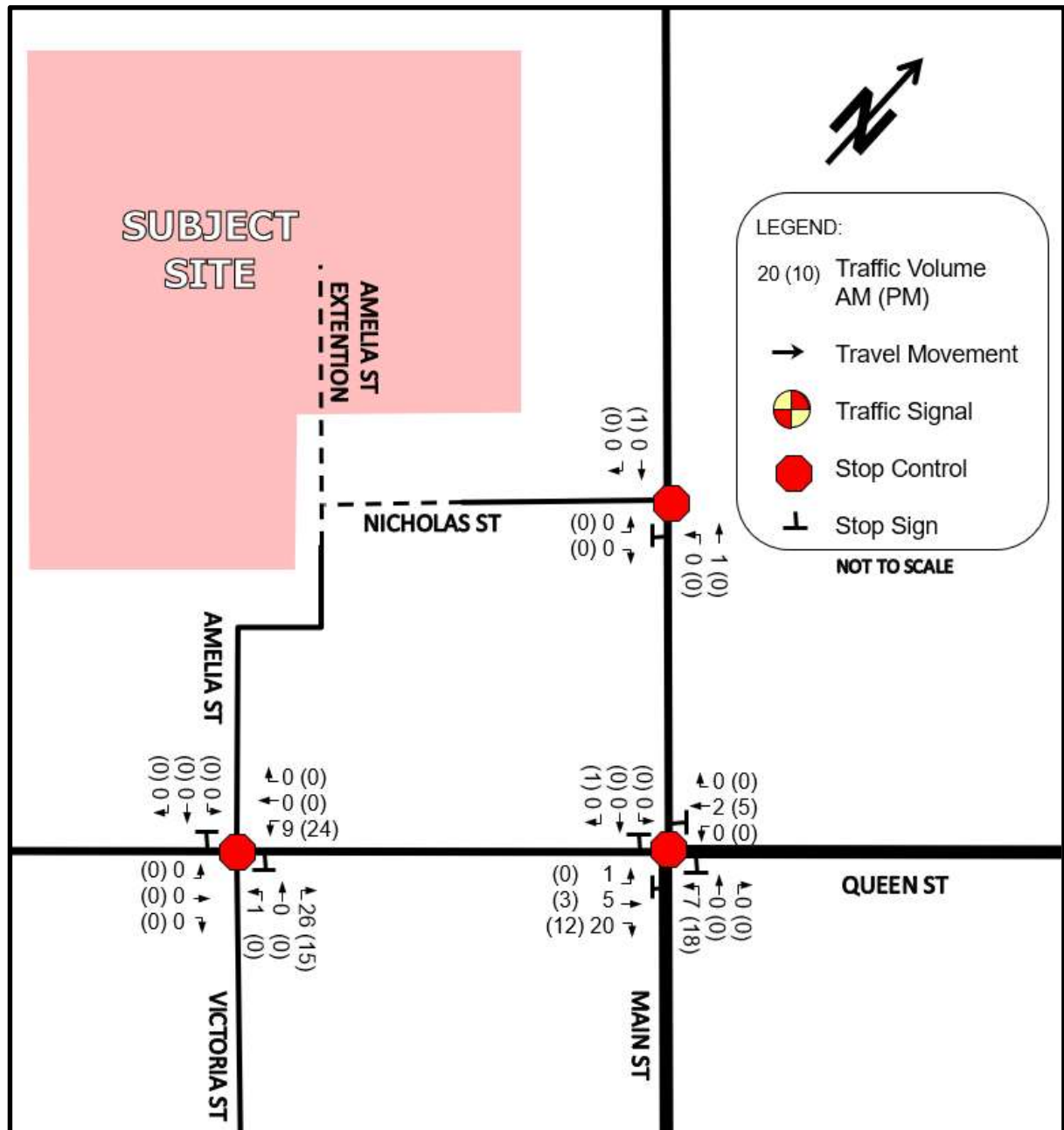
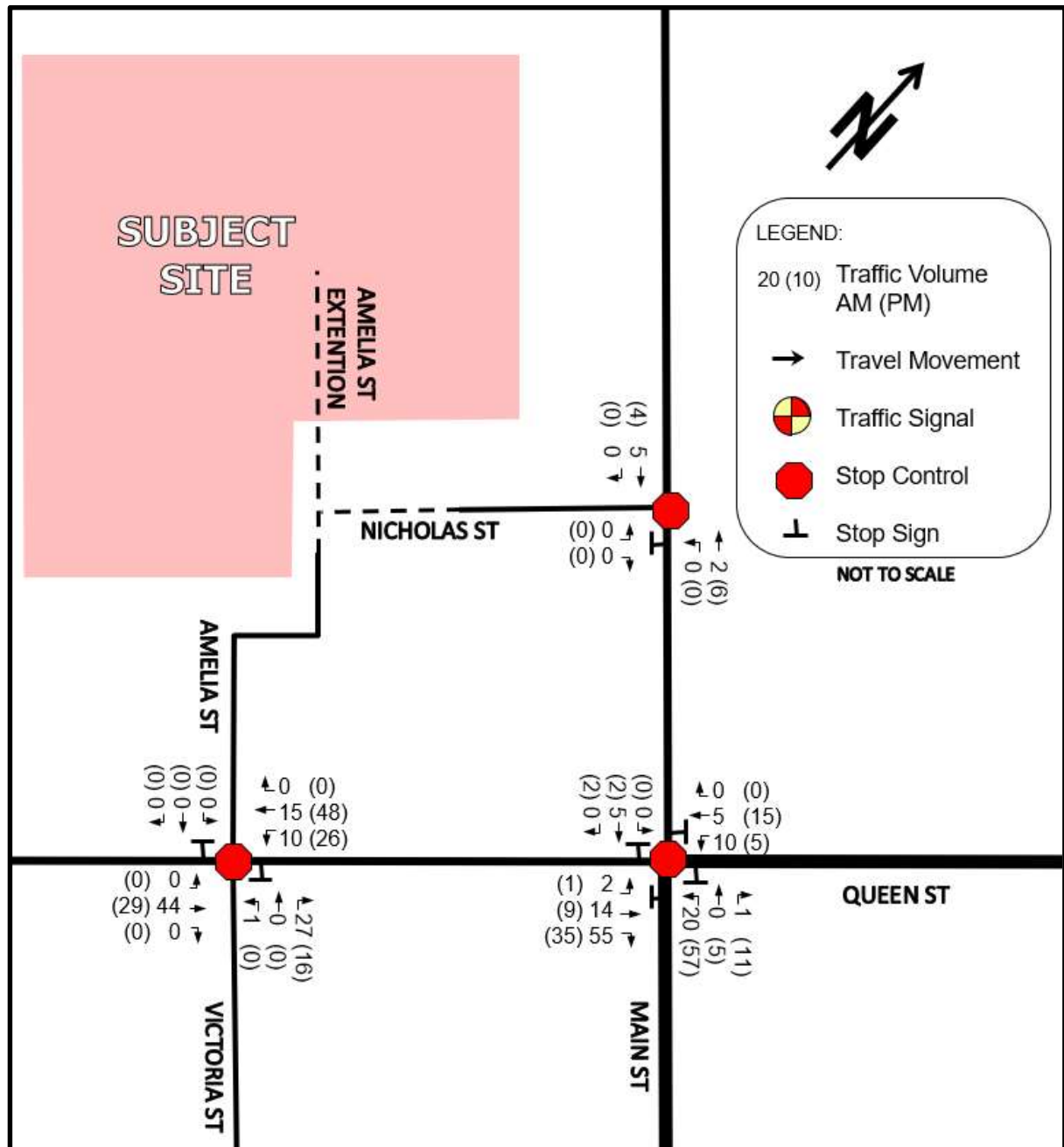


Figure 7 – Total Adjacent Development Traffic Volumes within Study Area



2.5 Traffic Counts

Detailed turning movement traffic and pedestrian counts were commissioned by JD Engineering at the study intersections. **Table 3** summarizes the traffic count data collection information.

Table 4 – Traffic Count Data

Intersection (E-W Street / N-S Street)	Count Date	AM Peak Hour	PM Peak Hour	Source
Queen Street / Main Street	Tuesday, March 24 th , 2026	07:45 – 08:45	16:00 – 17:00	JD Eng.*
Queen Street West / Amelia Street & Victoria Street		07:45 – 08:45	16:15 – 17:15	

* Traffic counts were completed by Accu-Traffic Inc. on behalf of JD Engineering

Detailed traffic count data can be found in **Appendix B**. The peak hours of traffic generation for the study area intersections generally aligned with the anticipated peak hour of traffic generation by the proposed development. Although the AM and PM peak periods at all study area intersections did not exactly align, for the purpose of this report, we have assumed that the AM and PM peak hours are concurrent.

Heavy vehicle percentages from the traffic count data have also been included in the Synchro analysis.

It is noted that traffic counts were not completed at the Nicholas Street / Main Street intersection. The traffic generation at this intersection for the two existing residential units on Nicholas Street has been calculated based on the data provided in the ITE Trip Generation Manual. The following ITE land uses have been applied to estimate the traffic from the two existing residential units on Nicholas Street:

- ITE land use 210 (Single-Family Detached Housing)

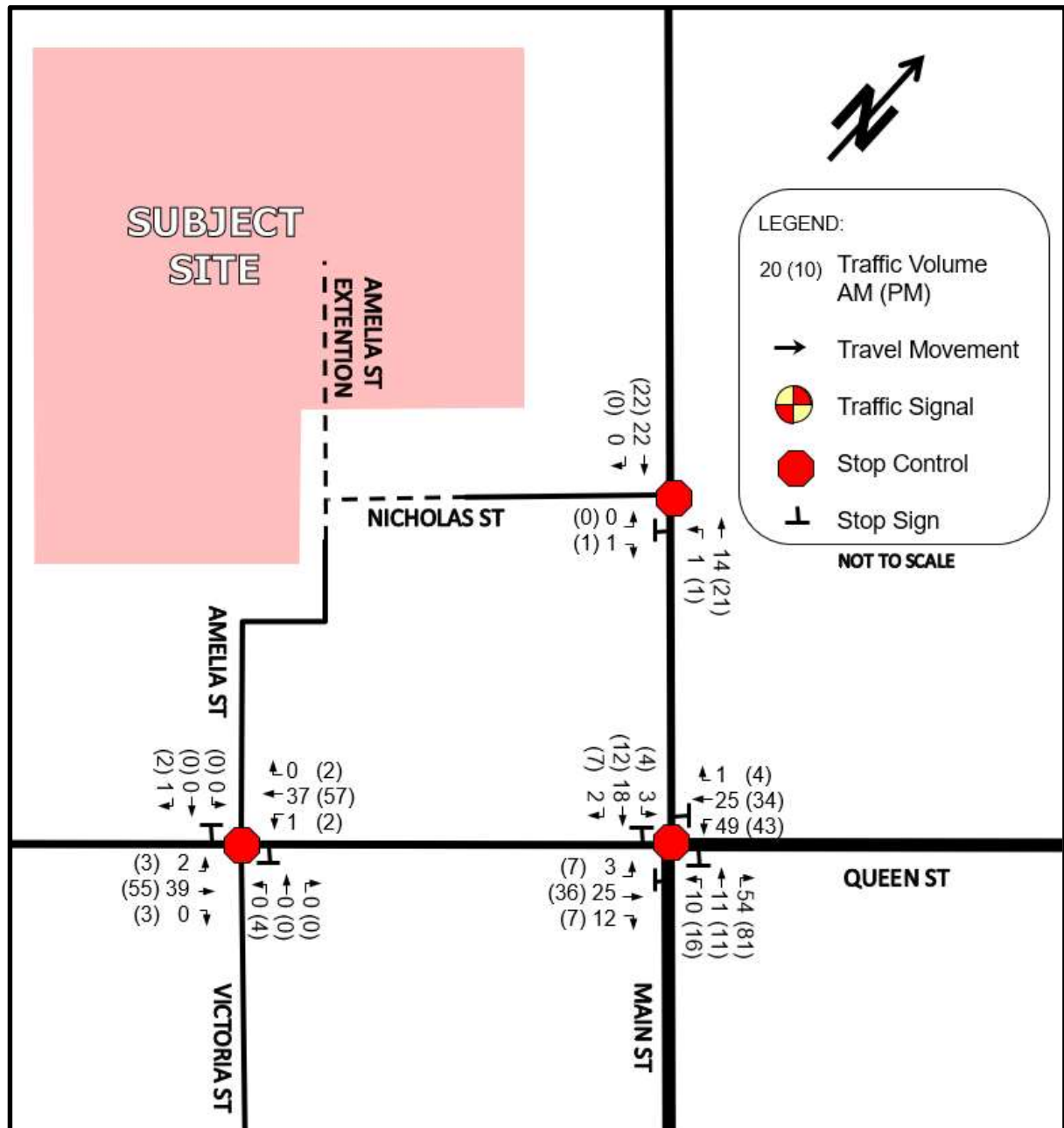
The estimated trip generation of the proposed development is illustrated below in **Table 5**. The AM and PM peak traffic generation for the subject site generally align with the AM and PM peak hour in the traffic counts. The distribution of these trips have been calculated following the methodology outlined in Section 4.2.

Table 5 – Estimated Traffic Generation on Nicholas Street

Land Use	Size	AM Peak Hour			PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Single-Family Detached Housing ITE Land Use: 210	2 units	1	1	2	1	1	2

Figure 8 illustrates the existing (2026) AM and PM peak hour traffic volumes within the study area.

Figure 8 – Existing (2026) Traffic Volumes



2.6 Horizon Year Traffic Volumes

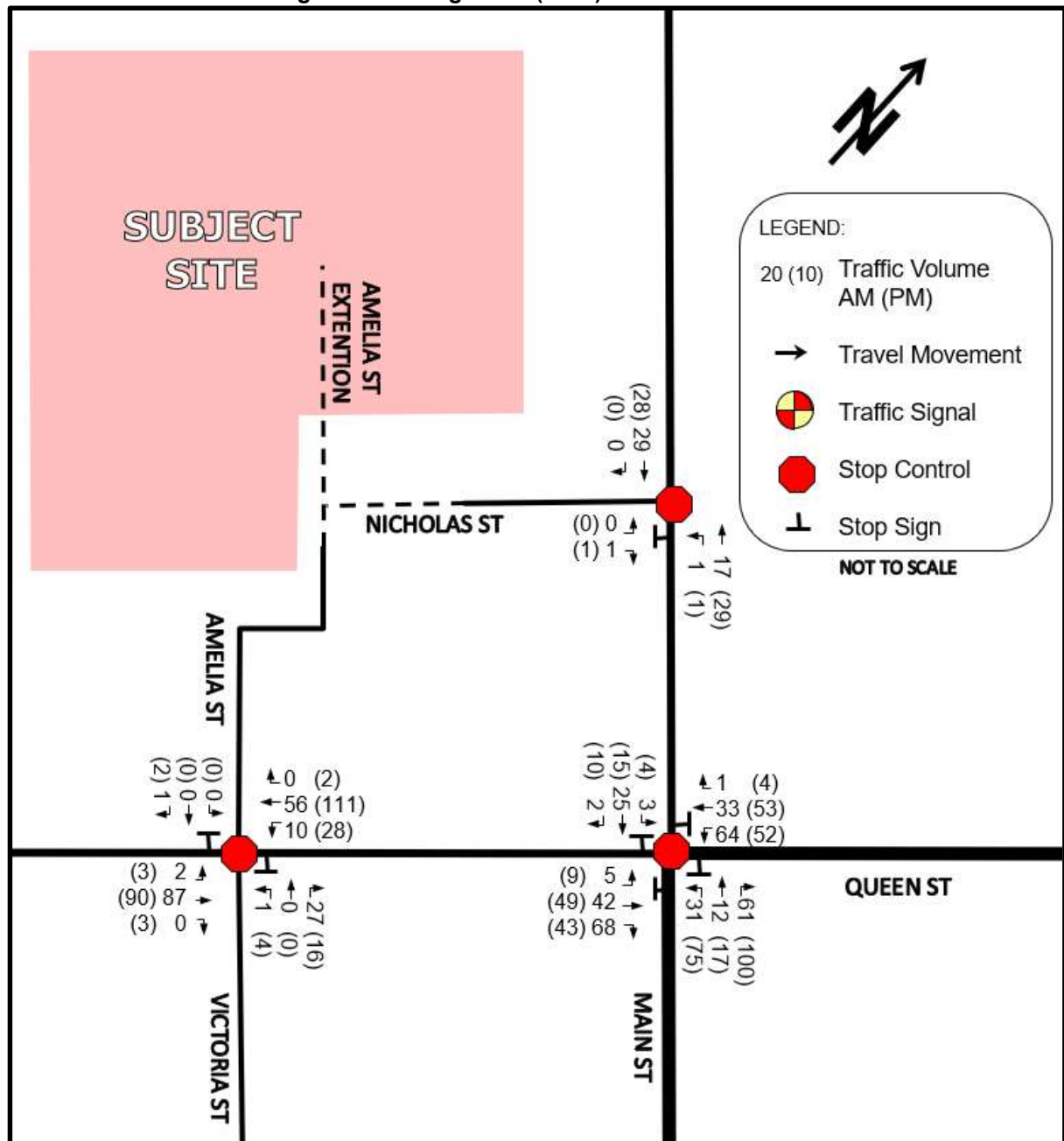
The background traffic growth rate in the study area has been estimated based on the Region's historic Average Annual Daily Traffic [AADT] data (between 2016 and 2023) on Main Street, south of Queen Street and on Queen Street, north of Highpoint Sideroad.

Based on the historic traffic count data on Main Street and Queen Street, the historic background traffic growth rate is approximately 2.2% and -0.8% per year, respectively.

In order to be conservative, a general background traffic growth rate of 2.0% per year has been applied to the existing traffic volumes to estimate the horizon year traffic volumes.

Figure 9 illustrates the background (2031) AM and PM peak hour traffic volumes in the study area.

Figure 9 – Background (2031) Traffic Volumes



3 Intersection Operation without Proposed Development

3.1 Introduction

Existing year operational conditions were established to determine how the street network within the study area is currently functioning without the proposed development. This provides a base case scenario to compare with future development scenarios. Traffic operations within the study area were evaluated using the 2026 traffic volumes with the existing road configuration and traffic control. The intersection performance was measured using the traffic analysis software, Synchro 12, a deterministic model that employs Highway Capacity Manual and Intersection Capacity Utilization methodologies for analyzing intersection operations. These procedures are accepted by provincial and municipal agencies throughout North America.

Synchro 12 enables the study area to be graphically defined in terms of streets and intersections, along with their geometric and traffic control characteristics. The user is able to evaluate both signalized and unsignalized intersections in relation to each other, thus not only providing level of service for the individual intersections, but also enabling an assessment of the impact the various intersections in a network have on each other in terms of spacing, traffic congestion, delay, and queuing.

Individual turning movements with a volume-to-capacity [V/C] ratio of 0.85 or greater are considered to be critical movements and have been highlighted in the LOS tables.

The intersection operations were also evaluated in terms of the LOS. LOS is a common measure of the quality of performance at an intersection and is defined in terms of vehicular delay. This delay includes deceleration delay, queue move-up time, stopped delay, and acceleration delay. LOS is expressed on a scale of A through F, where LOS A represents very little delay (i.e. less than 10 seconds per vehicle) and LOS F represents very high delay (i.e. greater than 50 seconds per vehicle for a stop sign controlled intersection and greater than 80 seconds per vehicle for a signalized intersection).

The LOS criteria for signalized and stop sign controlled intersections are shown in **Table 6**. A description of traffic performance characteristics is included for each LOS.

Table 6 – Level of Service Criteria for Intersections

LOS	LOS Description	Control Delay (seconds per vehicle)	
		Signalized Intersections	Stop Controlled Intersections
A	Very low delay; most vehicles do not stop (Excellent)	less than 10.0	less than 10.0
B	Higher delay; more vehicles stop (Very Good)	between 10.0 and 20.0	between 10.0 and 15.0
C	Higher level of congestion; number of vehicles stopping is significant, although many still pass through intersection without stopping (Good)	between 20.0 and 35.0	between 15.0 and 25.0
D	Congestion becomes noticeable; vehicles must sometimes wait through more than one red light; many vehicles stop (Satisfactory)	between 35.0 and 55.0	between 25.0 and 35.0
E	Vehicles must often wait through more than one red light; considered by many agencies to be the limit of acceptable delay	between 55.0 and 80.0	between 35.0 and 50.0
F	This level is considered to be unacceptable to most drivers; occurs when arrival flow rates exceed the capacity of the intersection (Unacceptable)	greater than 80.0	greater than 50.0

3.2 Existing (2026) Intersection Operation

The results of the LOS analysis under existing (2026) traffic volumes during the AM and PM peak hour can be found below in **Table 7**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix C**.

Table 7 – Existing (2026) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour			Weekday PM Peak Hour		
	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
Queen Street / Main Street	-	7.4	A	-	7.2	A
EB	0.06	7.2	A	0.08	7.4	A
WB	0.12	8.0	A	0.10	7.7	A
Queen Street West / Victoria Street & Amelia Street	-	0.5	A	-	1.2	A
NB	0.00	0.0	A	0.02	9.7	A
SB	0.00	8.6	A	0.00	8.7	A
Nicholas Street / Main Street	-	0.4	A	-	0.3	A
EB	0.00	8.4	A	0.00	8.4	A

The results of the LOS analysis indicate that all intersections are operating within the typical design limits noted in Section 3.1.

An analysis was completed for left turn movements at the unsignalized study area intersections based on the criteria outlined in Appendix 9A of the Ontario Ministry of Transportation Design Supplement for TAC Geometric Design Guide for Canadian Roads June 2017 [MTO DS]. According to the above-noted criteria a left turn lane is not warranted within the study area (results are provided in **Appendix I**).

A review of the need for an auxiliary right turn lane at the unsignalized study area intersections was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at any of the study area intersections (results are provided in **Appendix D**).

No infrastructure improvements are recommended within the study area.

3.3 Background (2031) Intersection Operation

The results of the LOS analysis under background (2031) traffic volumes during the AM and PM peak hour can be found below in **Table 8**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix E**.

Table 8 – Background (2031) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour			Weekday PM Peak Hour		
	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
Queen Street / Main Street	-	7.9	A	-	7.8	A
EB	0.16	7.8	A	0.16	7.9	A
WB	0.17	8.6	A	0.15	8.2	A
Queen Street West / Victoria Street & Amelia Street	-	1.9	A	-	2.6	A
NB	0.03	9.0	A	0.07	9.7	A
SB	0.00	8.7	A	0.00	9.0	A
Nicholas Street / Main Street	-	0.3	A	-	0.2	A
EB	0.00	8.4	A	0.00	8.4	A

The results of the LOS analysis indicate that all intersections are operating within the typical design limits noted in Section 3.1.

An analysis was completed for left turn movements at the unsignalized study area intersections based on the criteria outlined in Appendix 9A of the MTO DS. According to the above-noted criteria a left turn lane is not warranted within the study area (results are provided in **Appendix I**).

A review of the need for an auxiliary right turn lane at the unsignalized study area intersections was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at any of the study area intersections (results are provided in **Appendix D**).

No infrastructure improvements are recommended within the study area.

4 Proposed Development Traffic Generation and Assignment

4.1 Traffic Generation

The traffic generation for the subject site has been based on the ITE *Trip Generation* data. The following ITE land uses have been applied to estimate the traffic from the proposed development:

- ITE land use 210 (Single Family Detached Housing) – General Urban / Suburban Setting;

The estimated trip generation of the proposed development is illustrated below in **Table 9**. The AM and PM peak traffic generation for the subject site generally align with the AM and PM peak hour in the traffic counts.

Table 9 – Estimated Traffic Generation of Proposed Development

Land Use	Size	AM Peak Hour			PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Single-Family Detached Housing ITE Land Use: 210	15 units	4	12	16	10	7	17

No transportation modal split has been applied to the above-noted traffic generation calculation.

4.2 Traffic Assignment

For the purposes of this study, it has been assumed that all residential traffic generated by the proposed development will be new traffic and would not be in the study area if the development was not constructed.

The ITE data provides the anticipated percentage of new traffic entering and exiting during the peak hour. The distribution of traffic has been calculated based on the 2022 Transportation Tomorrow Survey [TTS] data for traffic zone 4004 retrieved using the TTS Internet Data Retrieval System (output attached as **Appendix F**).

Our analysis is based on egress traffic during the AM peak hour. Logically, the distribution of ingress traffic will follow the inverse of the exiting traffic distribution. For each of the individual areas identified in the TTS data, we have selected the probable route of travel, assuming that people will select their route primarily based on travel time.

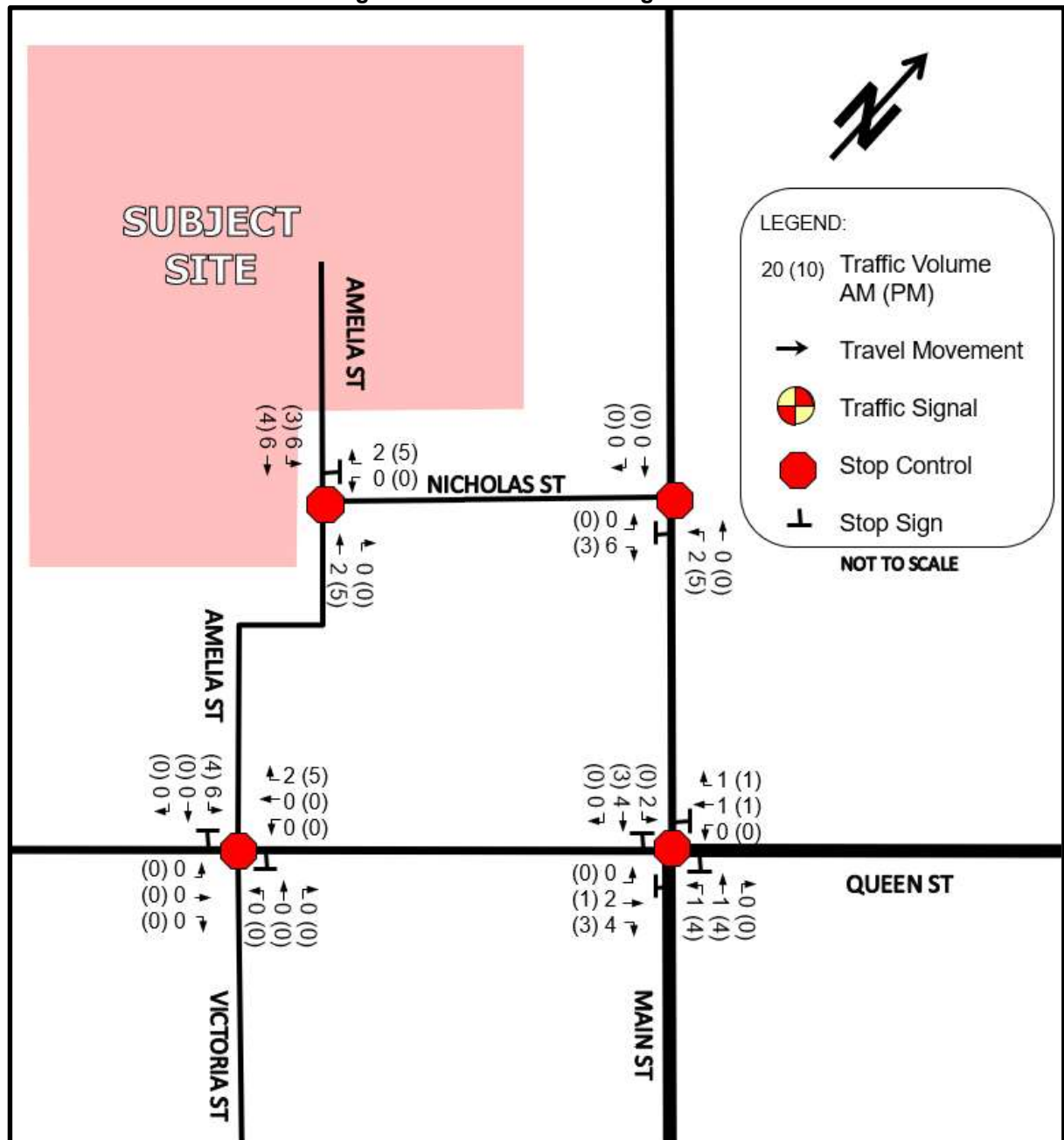
The distribution of trips is illustrated in **Table 10** using the methodology outlined above.

Table 10 – Distribution of Traffic from the Proposed Development

Travel Direction (to / from)	Percentage of Total Traffic Generation
Northbound via Main Street	3%
Southbound via Main Street	75%
Eastbound via Queen Street	20%
Westbound via Queen Street	2%
TOTAL	100%

Figure 10 illustrates the assignment of entering and exiting traffic, within the study area, generated by the proposed development.

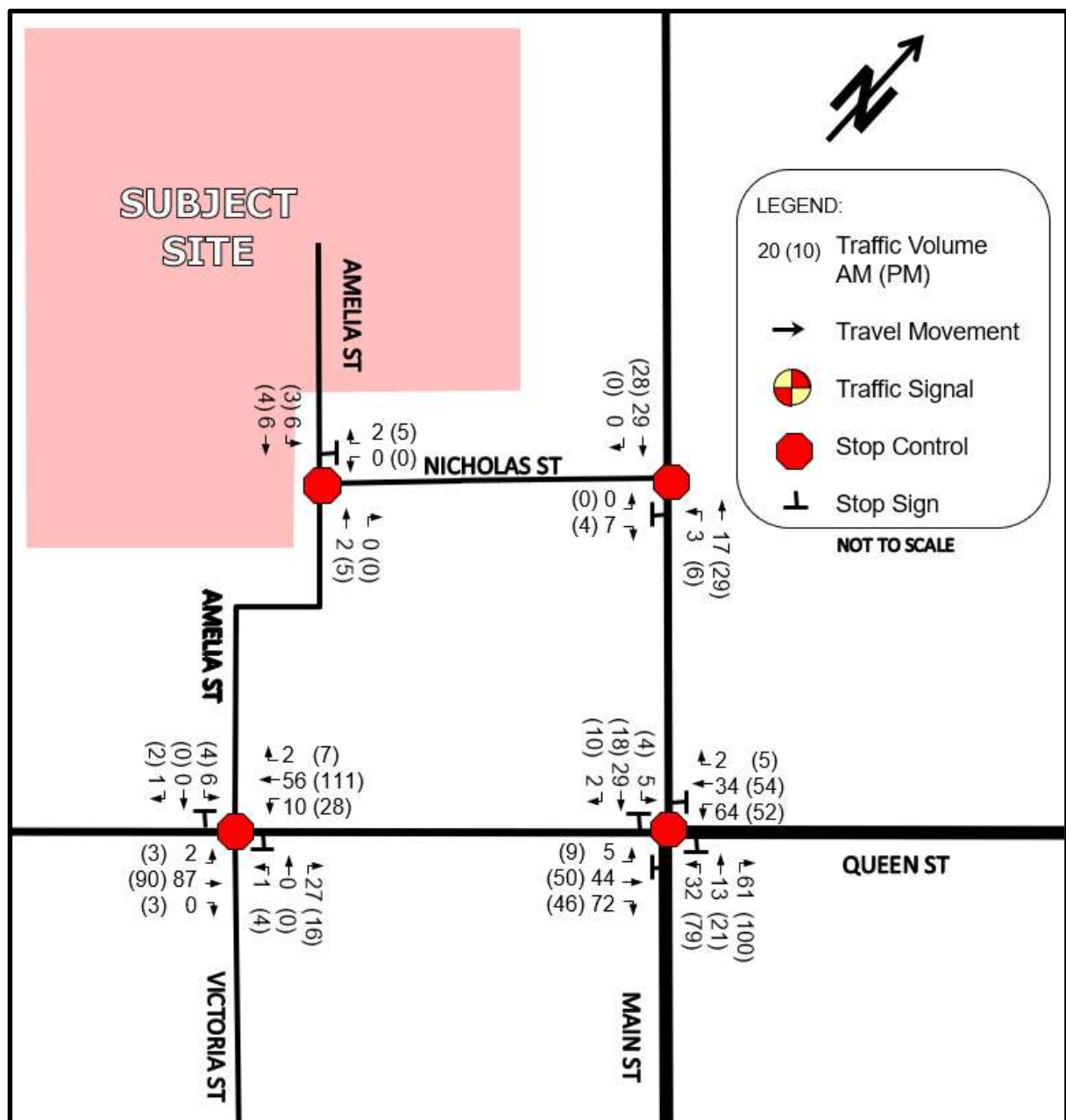
Figure 10 – Site Traffic Assignment



4.3 Total Horizon Year Traffic Volumes with the Proposed Development

For the total (2031) horizon year traffic volumes, the proposed development traffic was added to the background (2031) traffic volumes. The resulting total (2031) horizon year traffic volume for the AM and PM peak hour can be found in **Figure 11**.

Figure 11 – Total (2031) Traffic Volumes



5 Intersection Operation with Proposed Development

5.1 Total (2031) Intersection Operation

The results of the LOS analysis under total (2031) traffic volumes during the AM and PM peak hour can be found below in **Table 11**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix G**.

Table 11 – Total (2031) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour			Weekday PM Peak Hour		
	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
Queen Street / Main Street	-	7.9	A	-	7.9	A
EB	0.17	7.8	A	0.16	8.0	A
WB	0.17	8.6	A	0.15	8.3	A
Queen Street West / Victoria Street & Amelia Street	-	2.7	A	-	2.8	A
NB	0.03	9.0	A	0.07	9.7	A
SB	0.04	10.3	B	0.02	11.0	B
Nicholas Street / Main Street	-	1.4	A	-	1.2	A
EB	0.01	8.5	A	0.00	8.5	A
Nicholas Street / Amelia Street	-	7.0	A	-	6.8	A
WB	0.00	6.4	A	0.00	6.4	A

The results of the LOS analysis indicate that all intersections are operating within the typical design limits noted in Section 3.1.

An analysis was completed for left turn movements at the unsignalized study area intersections based on the criteria outlined in Appendix 9A of the MTO DS. According to the above-noted criteria a left turn lane is not warranted within the study area (results are provided in **Appendix I**).

A review of the need for an auxiliary right turn lane at the unsignalized study area intersections was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at any of the study area intersections (results are provided in **Appendix D**).

No infrastructure improvements are recommended within the study area.

5.2 Sight Distance Review

A review of the available sight distance at the intersections of Amelia Street / Queen Street, Nicholas Street / Main Street and the future Spring Street / Main Street was completed as part of this analysis.

The sight distance north and south of Nicholas Street is greater than the minimum stopping sight distance requirements as identified in the Transportation Association of Canada *Design Guide for Canadian Roads* (2017) [TAC Guidelines] for a design speed of 60km/h (85 meters). It is noted that the Margaret Street / Main Street intersection is located approximately 35 meters south of Nicholas

Street; however, there are no concerns with the sight distance as vehicles turning onto Main Street will be turning at much slower speeds.

The sight distance east and west of Amelia Street is greater than the minimum stopping sight distance requirements as identified in the TAC Guidelines for a design speed of 60km/h (85 meters). It is noted that the Agnes Street / Queen Street intersection is located approximately 80 meters west of Amelia Street; however, there are no concerns with the sight distance as vehicles turning onto Queen Street will be turning at much slower speeds.

The sight distance north and south of the future Spring Street connection at Main Street is greater than the minimum stopping sight distance requirements as identified in the TAC Guidelines for a design speed of 60km/h (85 meters).

There are no issues with the sight distance available for at the intersection of Amelia Street / Queen Street, Nicholas Street / Main Street and the future Spring Street / Main Street.

5.3 Nicholas Street / Amelia Street Intersection

The Nicholas Street / Amelia Street intersection will operate efficiently as an unsignalized T-intersection with one-way stop control intersection for the westbound movements. The Nicholas Street extension and Amelia Street extension will both operate efficiently with two-lane cross sections.

5.4 Amelia Street – 90 degree bends

There are two existing 90 degree bends and one proposed 90 degree bend in Amelia Street. Based on the anticipated traffic volumes on Amelia Street, there are no operational or safety concerns with the 90 degree bends in Amelia Street as it is a low volume local road.

Additionally, the 90 degree bends in the road will act as form of traffic calming to vehicles on Amelia Street.

6 Summary

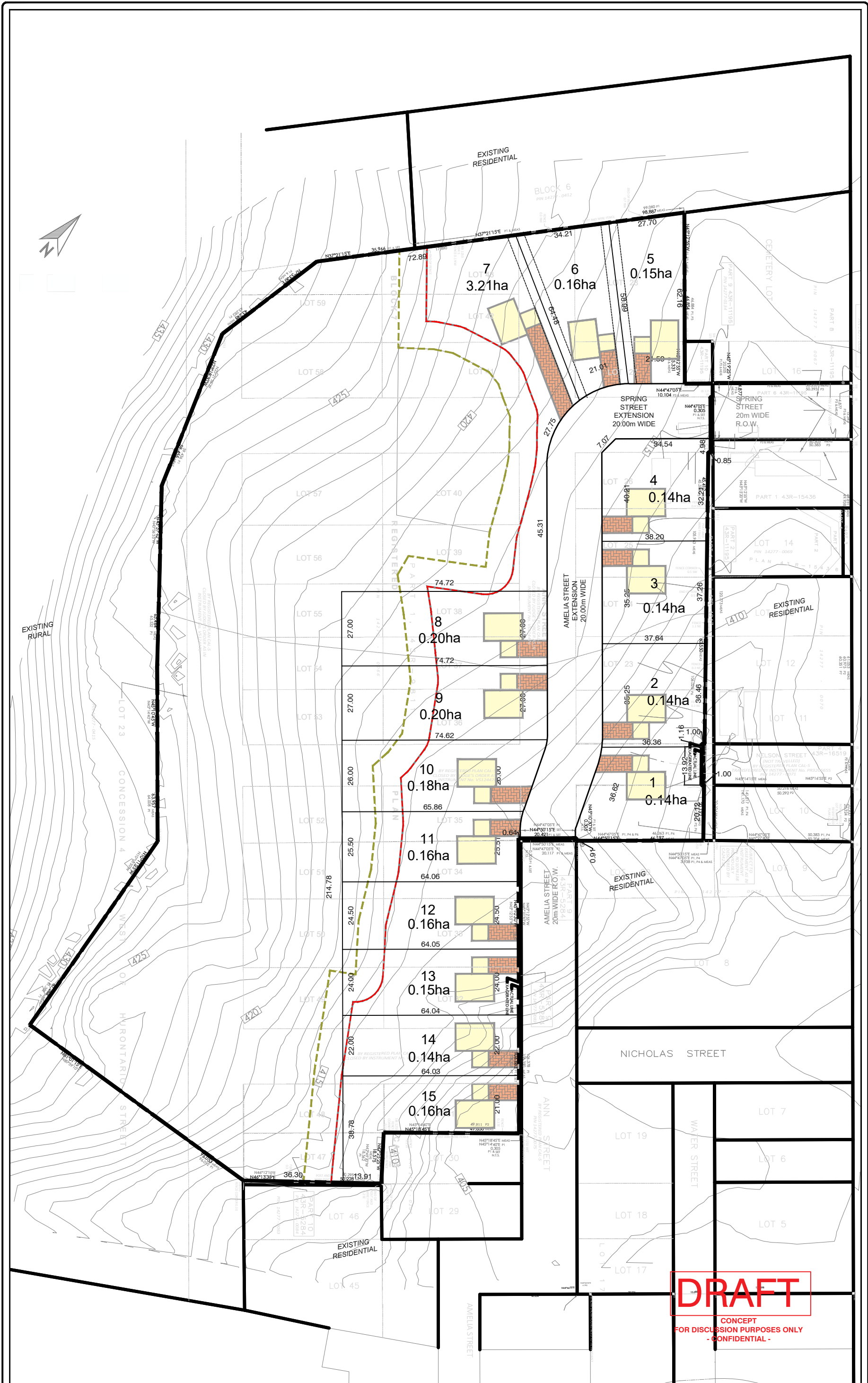
1029629 Ontario Inc. retained **JD Engineering** to prepare this traffic impact study in support of the proposed residential development in the Community of Alton, Town of Caledon, Regional Municipality of Peel. The proposed Site Plan is shown in **Appendix A**. This chapter summarizes the conclusions and recommendations from the study.

The proposed residential development includes 15 single-detached residential units.

1. The proposed development is expected to generate a total of 16 AM and 17 PM peak hour trips.
2. Detailed turning movement counts were conducted for the study intersection, completed at Tuesday March 24, 2026.
3. An intersection operation analysis was completed at the study area intersections, using the existing (2026) and background (2031) traffic volumes without the proposed development traffic. This enabled a review of existing and future traffic deficiencies that would be present without the influence of the proposed development. No infrastructure improvements were required as a result of the analysis.

4. An estimate of the amount of traffic that would be generated by the Subject Site was prepared and assigned to the study area streets and intersections.
5. An intersection operation analysis was completed under total (2031) traffic volumes with the proposed development operational at the study area intersections. No infrastructure improvements were required as a result of the analysis.
6. The sight distance available at the intersection of Amelia Street / Queen Street and Nicholas Street / Main Street meet the minimum stopping sight distance requirements.
7. In summary, the proposed development will not cause any operational issues and will not add significant delay or congestion to the local roadway network.

Appendix A – Site Plan



DRAFT

CONCEPT
FOR DISCUSSION PURPOSES ONLY
- CONFIDENTIAL -

**BIGLIERI
GROUP**

PROJECT NUMBER:
16420
DATE:
October 25, 2021
SCALE:
1:1300
DRAWN BY:
JS

SITE STATS
UNIT COUNT: 15
LOT AREA MIN. : 0.14ha
LIMIT OF WOODLAND 
10m WOODLAND MVPZ 

**ALTON VILLAGE
CALEDON,
ONTARIO**

Appendix B – Traffic Count Data

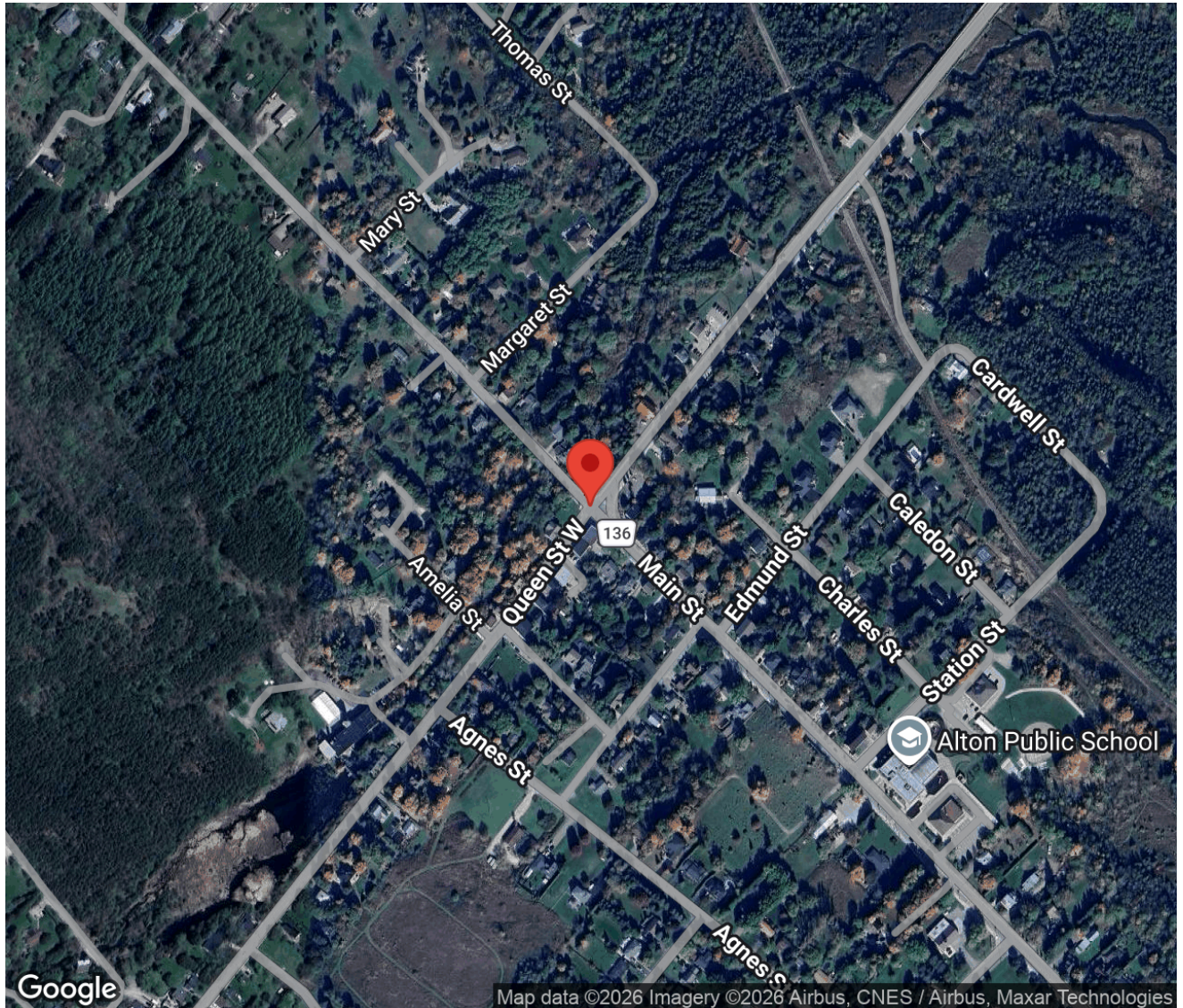
Project #26-079 - JD Engineering Inc

Intersection Count Report

Intersection:	Queen St & Main St
Municipality:	Alton
Count Date:	Tuesday, Mar 24, 2026
Site Code:	2607900001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-19:00
Weather:	Clear
Comments:	

Traffic Count Map

Intersection:	Queen St & Main St
Site Code:	2607900001
Municipality:	Alton
Count Date:	Mar 24, 2026



Traffic Count Summary

Intersection: Queen St & Main St
 Site Code: 2607900001
 Municipality: Alton
 Count Date: Mar 24, 2026

Main St - Traffic Summary

Hour	North Approach Totals						South Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	0	13	1	0	14	0	2	4	34	0	40	0	54
08:00 - 09:00	4	16	2	0	22	0	11	11	57	0	79	3	101
BREAK													
16:00 - 17:00	4	12	7	0	23	0	16	11	81	0	108	2	131
17:00 - 18:00	5	7	7	0	19	0	9	14	51	0	74	7	93
18:00 - 19:00	2	5	5	0	12	2	15	8	29	0	52	2	64
GRAND TOTAL	15	53	22	0	90	2	53	48	252	0	353	14	443

Traffic Count Summary

Intersection: Queen St & Main St
 Site Code: 2607900001
 Municipality: Alton
 Count Date: Mar 24, 2026

Queen St - Traffic Summary

Hour	East Approach Totals						West Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	33	22	2	0	57	0	2	22	6	0	30	0	87
08:00 - 09:00	53	24	1	0	78	0	3	19	12	0	34	0	112
BREAK													
16:00 - 17:00	43	34	4	0	81	0	7	36	7	0	50	0	131
17:00 - 18:00	36	27	5	0	68	1	10	32	8	0	50	0	118
18:00 - 19:00	42	39	4	0	85	0	5	20	11	0	36	0	121
GRAND TOTAL	207	146	16	0	369	1	27	129	44	0	200	0	569

Traffic Count Data

Intersection: Queen St & Main St
Site Code: 2607900001
Municipality: Alton
Count Date: Mar 24, 2026

North Approach - Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0
07:15	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
07:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
07:45	0	5	1	0	6	0	0	0	0	0	0	0	0	0	0	0
08:00	0	8	0	0	8	0	1	0	0	1	0	0	0	0	0	0
08:15	2	4	1	0	7	0	0	0	0	0	0	0	0	0	0	0
08:30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
08:45	1	3	1	0	5	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	4	28	3	0	35	0	1	0	0	1	0	0	0	0	0	0

Traffic Count Data

Intersection: Queen St & Main St
Site Code: 2607900001
Municipality: Alton
Count Date: Mar 24, 2026

North Approach - Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
16:00	2	5	2	0	9	0	0	1	0	1	0	0	0	0	0	0
16:15	1	3	1	0	5	0	0	0	0	0	0	0	0	0	0	0
16:30	1	2	0	0	3	0	1	0	0	1	0	0	0	0	0	0
16:45	0	1	1	0	2	0	0	2	0	2	0	0	0	0	0	0
17:00	0	3	2	0	5	0	0	0	0	0	0	0	0	0	0	0
17:15	4	2	1	0	7	0	0	0	0	0	0	0	0	0	0	0
17:30	0	1	3	0	4	0	0	0	0	0	0	0	0	0	0	0
17:45	1	0	1	0	2	0	0	0	0	0	0	1	0	0	1	0
18:00	1	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0
18:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
18:30	0	1	3	0	4	0	0	0	0	0	0	1	0	0	1	2
18:45	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	11	21	16	0	48	0	1	3	0	4	0	2	0	0	2	2
GRAND TOTAL	15	49	19	0	83	0	2	3	0	5	0	2	0	0	2	2

Traffic Count Data

Intersection: Queen St & Main St
 Site Code: 2607900001
 Municipality: Alton
 Count Date: Mar 24, 2026

South Approach - Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	1	1	4	0	6	0	0	1	0	1	0	0	0	0	0	0
07:15	0	1	8	0	9	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	8	0	8	0	0	0	0	0	0	0	0	0	0	0
07:45	1	2	12	0	15	0	0	1	0	1	0	0	0	0	0	0
08:00	0	2	11	0	13	0	0	0	0	0	0	0	0	0	0	0
08:15	3	3	18	0	24	1	1	0	0	2	0	0	0	0	0	1
08:30	5	2	12	0	19	0	1	0	0	1	0	0	0	0	0	2
08:45	2	2	15	0	19	0	0	1	0	1	0	0	0	0	0	0
SUBTOTAL	12	13	88	0	113	1	2	3	0	6	0	0	0	0	0	3

Traffic Count Data

Intersection: Queen St & Main St
Site Code: 2607900001
Municipality: Alton
Count Date: Mar 24, 2026

South Approach - Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
16:00	3	3	25	0	31	0	1	1	0	2	0	0	0	0	0	0
16:15	6	1	16	0	23	0	0	0	0	0	0	0	0	0	0	0
16:30	3	4	20	0	27	0	0	1	0	1	0	0	0	0	0	0
16:45	3	2	18	0	23	1	0	0	0	1	0	0	0	0	0	2
17:00	4	8	15	0	27	0	0	0	0	0	0	0	0	0	0	1
17:15	2	1	11	0	14	0	0	0	0	0	0	0	0	0	0	2
17:30	2	3	11	0	16	0	0	0	0	0	0	0	0	0	0	2
17:45	1	2	14	0	17	0	0	0	0	0	0	0	0	0	0	2
18:00	3	0	10	0	13	0	0	0	0	0	0	0	1	0	1	0
18:15	3	5	6	0	14	0	0	0	0	0	0	0	0	0	0	0
18:30	8	2	9	0	19	0	0	0	0	0	0	0	0	0	0	0
18:45	1	1	3	0	5	0	0	0	0	0	0	0	0	0	0	2
SUBTOTAL	39	32	158	0	229	1	1	2	0	4	0	0	1	0	1	11
GRAND TOTAL	51	45	246	0	342	2	3	5	0	10	0	0	1	0	1	14

Traffic Count Data

Intersection: Queen St & Main St
Site Code: 2607900001
Municipality: Alton
Count Date: Mar 24, 2026

East Approach - Queen St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	8	4	1	0	13	0	0	0	0	0	0	0	0	0	0	0
07:15	9	2	0	0	11	0	0	0	0	0	0	0	0	0	0	0
07:30	7	8	1	0	16	0	0	0	0	0	0	0	0	0	0	0
07:45	8	8	0	0	16	1	0	0	0	1	0	0	0	0	0	0
08:00	4	6	0	0	10	2	1	0	0	3	0	0	0	0	0	0
08:15	17	7	1	0	25	1	0	0	0	1	0	0	0	0	0	0
08:30	12	3	0	0	15	4	0	0	0	4	0	0	0	0	0	0
08:45	12	7	0	0	19	1	0	0	0	1	0	0	0	0	0	0
SUBTOTAL	77	45	3	0	125	9	1	0	0	10	0	0	0	0	0	0

Traffic Count Data

Intersection: Queen St & Main St
Site Code: 2607900001
Municipality: Alton
Count Date: Mar 24, 2026

East Approach - Queen St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
16:00	8	2	2	0	12	0	0	0	0	0	1	0	0	0	1	0
16:15	9	11	1	0	21	1	0	0	0	1	0	0	0	0	0	0
16:30	12	10	0	0	22	0	0	0	0	0	0	0	0	0	0	0
16:45	12	11	1	0	24	0	0	0	0	0	0	0	0	0	0	0
17:00	9	10	1	0	20	0	0	0	0	0	0	0	0	0	0	0
17:15	6	4	2	0	12	0	0	0	0	0	0	0	0	0	0	0
17:30	9	6	0	0	15	0	0	0	0	0	0	0	0	0	0	0
17:45	10	7	2	0	19	1	0	0	0	1	1	0	0	0	1	1
18:00	13	11	1	0	25	1	0	0	0	1	0	0	0	0	0	0
18:15	12	11	1	0	24	0	0	0	0	0	0	0	0	0	0	0
18:30	9	9	1	0	19	0	0	0	0	0	0	0	0	0	0	0
18:45	7	8	1	0	16	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	116	100	13	0	229	3	0	0	0	3	2	0	0	0	2	1
GRAND TOTAL	193	145	16	0	354	12	1	0	0	13	2	0	0	0	2	1

	Cars					Trucks					Bicycles					
Start Time					Total					Total					Total	Total Peds
07:00	0	3	2	0	5	0	0	0	0	0	0	0	0	0	0	0
07:15	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0
07:30	1	5	3	0	9	0	0	0	0	0	0	0	0	0	0	0
07:45	1	9	1	0	11	0	0	0	0	0	0	0	0	0	0	0
08:00	1	5	3	0	9	0	0	0	0	0	0	0	0	0	0	0
08:15	1	3	5	0	9	0	0	0	0	0	0	0	0	0	0	0
08:30	0	8	3	0	11	0	0	0	0	0	0	0	0	0	0	0
08:45	1	3	1	0	5	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	5	41	18	0	64	0	0	0	0	0	0	0	0	0	0	0

Traffic Count Data

Intersection: Queen St & Main St
Site Code: 2607900001
Municipality: Alton
Count Date: Mar 24, 2026

West Approach - Queen St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
16:00	3	8	3	0	14	0	0	1	0	1	0	0	0	0	0	0
16:15	1	12	0	0	13	0	0	0	0	0	0	0	0	0	0	0
16:30	1	8	1	0	10	0	0	0	0	0	0	0	0	0	0	0
16:45	2	8	2	0	12	0	0	0	0	0	0	0	0	0	0	0
17:00	5	11	2	0	18	0	0	0	0	0	0	0	0	0	0	0
17:15	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0
17:30	2	8	3	0	13	0	0	0	0	0	0	0	0	0	0	0
17:45	3	6	3	0	12	0	1	0	0	1	0	0	0	0	0	0
18:00	1	5	2	0	8	0	0	0	0	0	0	0	0	0	0	0
18:15	2	5	3	0	10	0	0	0	0	0	0	0	0	0	0	0
18:30	2	5	3	0	10	0	0	0	0	0	0	0	0	0	0	0
18:45	0	5	3	0	8	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	22	87	25	0	134	0	1	1	0	2	0	0	0	0	0	0
GRAND TOTAL	27	128	43	0	198	0	1	1	0	2	0	0	0	0	0	0

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 09:00:00

One Hour Peak

From: 07:45:00
To: 08:45:00

Intersection: Queen St & Main St
Site Code: 2607900001
Count Date: Mar 24, 2026

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Queen St runs E/W

North Approach

	Out	In	Total
	22	13	35
	1	2	3
	0	0	0
Totals	23	15	38

Main St

	0	0	0	0
	0	1	0	0
	2	17	3	0
Totals	2	18	3	0

East Approach

	Out	In	Total
	66	81	147
	9	1	10
	0	0	0
Totals	75	82	157

Queen St

				Totals
	0	0	0	0
	0	0	3	3
	0	0	25	25
	0	0	12	12

Peds: 0



Peds: 0

Peds: 0

Peds: 3

Queen St

Totals			
	0	0	0
	1	1	0
	25	24	1
	49	41	8

West Approach

	Out	In	Total
	40	35	75
	0	2	2
	0	0	0
Totals	40	37	77

Totals				
	10	11	54	0
	9	9	53	0
	1	2	1	0
	0	0	0	0

Main St

South Approach

	Out	In	Total
	71	70	141
	4	9	13
	0	0	0
Totals	75	79	154

- Cars

- Trucks

- Bicycles

Comments

Peak Hour Summary

Intersection: Queen St & Main St
Site Code: 2607900001
Count Date: Mar 24, 2026
Period: 07:00 - 09:00

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

Start Time	North Approach Main St						South Approach Main St						East Approach Queen St						West Approach Queen St						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
07:45	0	5	1	0	0	6	1	2	13	0	0	16	9	8	0	0	0	17	1	9	1	0	0	11	50
08:00	0	9	0	0	0	9	0	2	11	0	0	13	6	7	0	0	0	13	1	5	3	0	0	9	44
08:15	2	4	1	0	0	7	4	4	18	0	1	26	18	7	1	0	0	26	1	3	5	0	0	9	68
08:30	1	0	0	0	0	1	5	3	12	0	2	20	16	3	0	0	0	19	0	8	3	0	0	11	51
Grand Total	3	18	2	0	0	23	10	11	54	0	3	75	49	25	1	0	0	75	3	25	12	0	0	40	213
Approach %	13	78.3	8.7	0	-	-	13.3	14.7	72	0	-	-	65.3	33.3	1.3	0	-	-	7.5	62.5	30	0	-	-	-
Totals %	1.4	8.5	0.9	0	-	10.8	4.7	5.2	25.4	0	-	35.2	23	11.7	0.5	0	-	35.2	1.4	11.7	5.6	0	-	18.8	-
PHF	0.38	0.5	0.5	0	-	0.64	0.5	0.69	0.75	0	-	0.72	0.68	0.78	0.25	0	-	0.72	0.75	0.69	0.6	0	-	0.91	0.78
Cars	3	17	2	0	-	22	9	9	53	0	-	71	41	24	1	0	-	66	3	25	12	0	-	40	199
% Cars	100	94.4	100	0	-	95.7	90	81.8	98.1	0	-	94.7	83.7	96	100	0	-	88	100	100	100	0	-	100	93.4
Trucks	0	1	0	0	-	1	1	2	1	0	-	4	8	1	0	0	-	9	0	0	0	0	-	0	14
% Trucks	0	5.6	0	0	-	4.3	10	18.2	1.9	0	-	5.3	16.3	4	0	0	-	12	0	0	0	0	-	0	6.6
Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
Peds	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	0	-	3
% Peds	-	-	-	-	0	-	-	-	-	-	100	-	-	-	-	-	0	-	-	-	-	-	0	-	-

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 19:00:00

One Hour Peak

From: 16:00:00
To: 17:00:00

Intersection: Queen St & Main St
Site Code: 2607900001
Count Date: Mar 24, 2026

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Queen St runs E/W

North Approach

	Out	In	Total
	19	21	40
	4	1	5
	0	0	0
Totals	23	22	45

Main St

	0	0	0	0
	3	1	0	0
	4	11	4	0
Totals	7	12	4	0






East Approach

	Out	In	Total
	79	119	198
	1	2	3
	1	0	1
Totals	81	121	202

Queen St

				Totals
	0	0	0	0
	0	0	7	7
	0	0	36	36
	0	1	6	7

Peds: 0



Peds: 0

Peds: 2

Queen St

Totals			
	0	0	0
	4	4	0
	34	34	0
	43	41	1

West Approach

	Out	In	Total
	49	53	102
	1	4	5
	0	0	0
Totals	50	57	107

	16	11	81	0
	15	10	79	0
	1	1	2	0
	0	0	0	0

Main St

South Approach

	Out	In	Total
	104	58	162
	4	3	7
	0	1	1
Totals	108	62	170

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Queen St & Main St
Site Code: 2607900001
Count Date: Mar 24, 2026
Period: 16:00 - 19:00

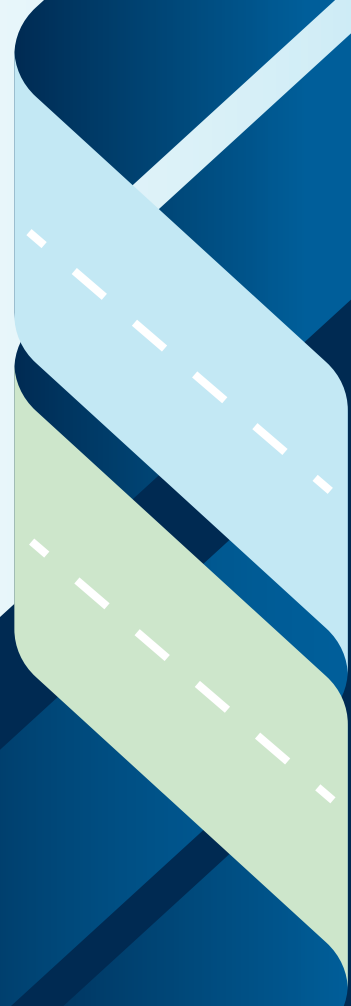
Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Main St						South Approach Main St						East Approach Queen St						West Approach Queen St						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:00	2	5	3	0	0	10	3	4	26	0	0	33	9	2	2	0	0	13	3	8	4	0	0	15	71
16:15	1	3	1	0	0	5	6	1	16	0	0	23	10	11	1	0	0	22	1	12	0	0	0	13	63
16:30	1	3	0	0	0	4	3	4	21	0	0	28	12	10	0	0	0	22	1	8	1	0	0	10	64
16:45	0	1	3	0	0	4	4	2	18	0	2	24	12	11	1	0	0	24	2	8	2	0	0	12	64
Grand Total	4	12	7	0	0	23	16	11	81	0	2	108	43	34	4	0	0	81	7	36	7	0	0	50	262
Approach %	17.4	52.2	30.4	0	-	-	14.8	10.2	75	0	-	-	53.1	42	4.9	0	-	-	14	72	14	0	-	-	-
Totals %	1.5	4.6	2.7	0	-	8.8	6.1	4.2	30.9	0	-	41.2	16.4	13	1.5	0	-	30.9	2.7	13.7	2.7	0	-	19.1	-
PHF	0.5	0.6	0.58	0	-	0.58	0.67	0.69	0.78	0	-	0.82	0.9	0.77	0.5	0	-	0.84	0.58	0.75	0.44	0	-	0.83	0.92
Cars	4	11	4	0	-	19	15	10	79	0	-	104	41	34	4	0	-	79	7	36	6	0	-	49	251
% Cars	100	91.7	57.1	0	-	82.6	93.8	90.9	97.5	0	-	96.3	95.3	100	100	0	-	97.5	100	100	85.7	0	-	98	95.8
Trucks	0	1	3	0	-	4	1	1	2	0	-	4	1	0	0	0	-	1	0	0	1	0	-	1	10
% Trucks	0	8.3	42.9	0	-	17.4	6.3	9.1	2.5	0	-	3.7	2.3	0	0	0	-	1.2	0	0	14.3	0	-	2	3.8
Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	1
% Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	2.3	0	0	0	-	1.2	0	0	0	0	-	0	0.4
Peds	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	2
% Peds	-	-	-	-	0	-	-	-	-	-	100	-	-	-	-	-	0	-	-	-	-	-	0	-	-

Project #26-079 - JD Engineering Inc

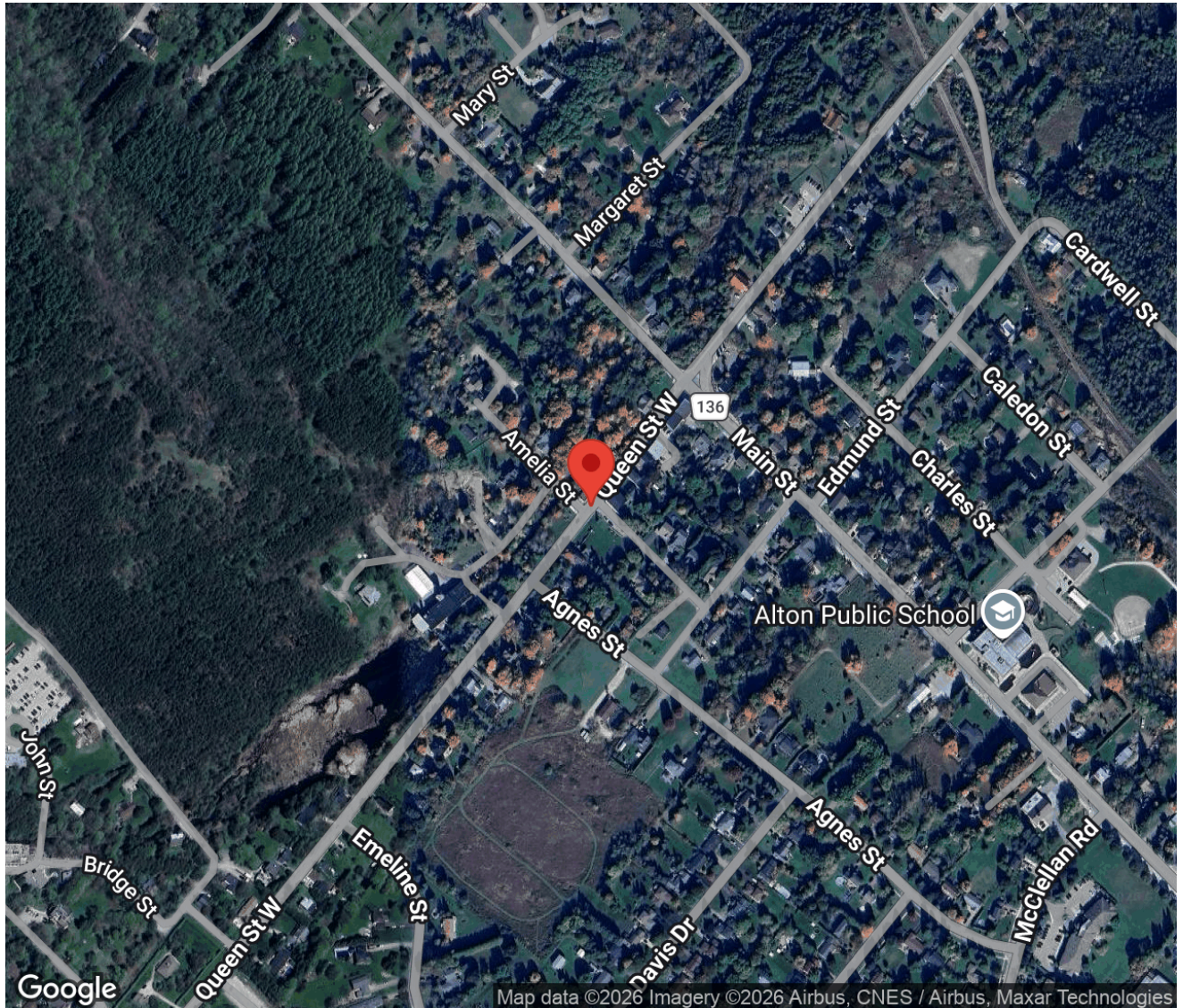
Intersection Count Report

Intersection: Queen St & Amelia St - Victoria St
Municipality: Alton
Count Date: Tuesday, Mar 24, 2026
Site Code: 2607900002
Count Categories: Cars, Trucks, Bicycles, Pedestrians
Count Period: 07:00-09:00, 16:00-19:00
Weather: Clear
Comments:



Traffic Count Map

Intersection:	Queen St & Amelia St - Victoria St
Site Code:	2607900002
Municipality:	Alton
Count Date:	Mar 24, 2026



Traffic Count Summary

Intersection: Queen St & Amelia St - Victoria St
 Site Code: 2607900002
 Municipality: Alton
 Count Date: Mar 24, 2026

Amelia St - Traffic Summary

Hour	North Approach Totals						South Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	0	0	1	0	1	2	0	0	0	0	0	0	1
08:00 - 09:00	0	0	0	0	0	6	0	0	0	0	0	0	0
BREAK													
16:00 - 17:00	0	0	2	0	2	10	4	0	1	0	5	0	7
17:00 - 18:00	1	0	1	0	2	9	3	0	0	0	3	0	5
18:00 - 19:00	0	0	2	0	2	5	3	0	0	0	3	3	5
GRAND TOTAL	1	0	6	0	7	32	10	0	1	0	11	3	18

Traffic Count Summary

Intersection: Queen St & Amelia St - Victoria St
 Site Code: 2607900002
 Municipality: Alton
 Count Date: Mar 24, 2026

Queen St - Traffic Summary

Hour	East Approach Totals						West Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	0	25	0	0	25	0	3	30	0	0	33	0	58
08:00 - 09:00	0	37	0	0	37	0	1	34	1	0	36	0	73
BREAK													
16:00 - 17:00	3	50	2	0	55	2	2	50	3	0	55	1	110
17:00 - 18:00	3	39	1	0	43	1	1	50	1	0	52	0	95
18:00 - 19:00	0	58	1	0	59	0	2	39	1	0	42	4	101
GRAND TOTAL	6	209	4	0	219	3	9	203	6	0	218	5	437

	Cars						Trucks						Bicycles							
Start Time					Total					Total					Total	Total Peds				
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0			
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0			
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		1			
07:45	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0		1			
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		1			
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		3			
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		2			
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0			
SUBTOTAL	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0		8			

[illegible]

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

Traffic Count Data

Intersection: Queen St & Amelia St - Victoria St
 Site Code: 2607900002
 Municipality: Alton
 Count Date: Mar 24, 2026

South Approach - Victoria St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0
16:15	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
18:45	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	10	0	0	0	10	0	0	1	0	1	0	0	0	0	0	3
GRAND TOTAL	10	0	0	0	10	0	0	1	0	1	0	0	0	0	0	3

Traffic Count Data

Intersection: Queen St & Amelia St - Victoria St
 Site Code: 2607900002
 Municipality: Alton
 Count Date: Mar 24, 2026

East Approach - Queen St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0
07:15	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
07:30	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0
07:45	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0
08:00	0	6	0	0	6	0	1	0	0	1	0	0	0	0	0	0
08:15	0	11	0	0	11	0	1	0	0	1	0	0	0	0	0	0
08:30	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0
08:45	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	60	0	0	60	0	2	0	0	2	0	0	0	0	0	0

Traffic Count Data

Intersection: Queen St & Amelia St - Victoria St
Site Code: 2607900002
Municipality: Alton
Count Date: Mar 24, 2026

East Approach - Queen St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	1	6	0	0	7	1	0	0	0	1	0	0	0	0	0	2
16:15	0	18	0	0	18	0	0	0	0	0	0	0	0	0	0	0
16:30	1	9	2	0	12	0	0	0	0	0	0	0	0	0	0	0
16:45	0	14	0	0	14	0	3	0	0	3	0	0	0	0	0	0
17:00	1	13	0	0	14	0	0	0	0	0	0	0	0	0	0	1
17:15	1	7	0	0	8	0	0	0	0	0	0	0	0	0	0	0
17:30	1	11	0	0	12	0	0	0	0	0	0	0	0	0	0	0
17:45	0	8	1	0	9	0	0	0	0	0	0	0	0	0	0	0
18:00	0	15	0	0	15	0	0	0	0	0	0	0	0	0	0	0
18:15	0	13	0	0	13	0	0	0	0	0	0	0	0	0	0	0
18:30	0	20	0	0	20	0	0	0	0	0	0	0	0	0	0	0
18:45	0	10	1	0	11	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	5	144	4	0	153	1	3	0	0	4	0	0	0	0	0	3
GRAND TOTAL	5	204	4	0	213	1	5	0	0	6	0	0	0	0	0	3

[illegible]

Traffic Count Data

Intersection: Queen St & Amelia St - Victoria St
Site Code: 2607900002
Municipality: Alton
Count Date: Mar 24, 2026

West Approach - Queen St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	0	13	0	0	13	0	0	0	0	0	0	0	0	0	0	0
16:15	2	13	3	0	18	0	0	0	0	0	0	0	0	0	0	0
16:30	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	1
16:45	0	13	0	0	13	0	0	0	0	0	0	0	0	0	0	0
17:00	1	18	0	0	19	0	0	0	0	0	0	0	0	0	0	0
17:15	0	6	1	0	7	0	0	0	0	0	0	1	0	0	1	0
17:30	0	13	0	0	13	0	0	0	0	0	0	0	0	0	0	0
17:45	0	11	0	0	11	0	1	0	0	1	0	0	0	0	0	0
18:00	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0
18:15	1	11	1	0	13	0	0	0	0	0	0	0	0	0	0	1
18:30	1	10	0	0	11	0	0	0	0	0	0	0	0	0	0	3
18:45	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	5	137	5	0	147	0	1	0	0	1	0	1	0	0	1	5
GRAND TOTAL	9	201	6	0	216	0	1	0	0	1	0	1	0	0	1	5

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 09:00:00

One Hour Peak

From: 07:45:00
To: 08:45:00

Intersection: Queen St & Amelia St - Victoria St
Site Code: 2607900002
Count Date: Mar 24, 2026

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Queen St runs E/W

North Approach

	Out	In	Total
	1	2	3
	0	0	0
	0	0	0
Totals	1	2	3

Amelia St

	0	0	0	0
	0	0	0	0
	1	0	0	0
Totals	1	0	0	0






East Approach

	Out	In	Total
	35	39	74
	2	0	2
	0	0	0
Totals	37	39	76

Queen St

				Totals
	0	0	0	0
	0	0	2	2
	0	0	39	39
	0	0	0	0

Peds: 0



Peds: 7

Peds: 0

Queen St

Totals			
	0	0	0
	0	0	0
	37	35	2
	0	0	0

West Approach

	Out	In	Total
	41	36	77
	0	2	2
	0	0	0
Totals	41	38	79

Totals				
	0	0	0	0
	0	0	0	0
	0	0	0	0

Victoria St

South Approach

Out	In	Total
	0	0
	0	0
	0	0
Totals	0	0

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Queen St & Amelia St - Victoria St
Site Code: 2607900002
Count Date: Mar 24, 2026
Period: 07:00 - 09:00

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

Start Time	North Approach Amelia St						South Approach Victoria St						East Approach Queen St						West Approach Queen St						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
07:45	0	0	1	0	1	1	0	0	0	0	0	0	0	11	0	0	0	11	1	10	0	0	0	11	23
08:00	0	0	0	0	1	0	0	0	0	0	0	0	0	7	0	0	0	7	0	9	0	0	0	9	16
08:15	0	0	0	0	3	0	0	0	0	0	0	0	0	12	0	0	0	12	0	9	0	0	0	9	21
08:30	0	0	0	0	2	0	0	0	0	0	0	0	0	7	0	0	0	7	1	11	0	0	0	12	19
Grand Total	0	0	1	0	7	1	0	0	0	0	0	0	0	37	0	0	0	37	2	39	0	0	0	41	79
Approach %	0	0	100	0	-	-	0	0	0	0	-	-	0	100	0	0	-	-	4.9	95.1	0	0	-	-	-
Totals %	0	0	1.3	0	1.3	-	0	0	0	0	0	-	0	46.8	0	0	46.8	-	2.5	49.4	0	0	51.9	-	-
PHF	0	0	0.25	0	0.25	-	0	0	0	0	0	-	0	0.77	0	0	0.77	-	0.5	0.89	0	0	0.85	0.86	-
Cars	0	0	1	0	1	1	0	0	0	0	0	0	0	35	0	0	35	35	2	39	0	0	41	41	77
% Cars	0	0	100	0	100	100	0	0	0	0	0	0	0	94.6	0	0	94.6	94.6	100	100	0	0	100	100	97.5
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0	0	0	0	0	0	2
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	5.4	0	0	5.4	5.4	0	0	0	0	0	0	2.5
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peds					7	-					0	-					0	-					0	-	7
% Peds					100	-					0	-					0	-					0	-	-

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 19:00:00

One Hour Peak

From: 16:15:00
To: 17:15:00

Intersection: Queen St & Amelia St - Victoria St
Site Code: 2607900002
Count Date: Mar 24, 2026

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Queen St runs E/W

North Approach

	Out	In	Total
	2	5	7
	0	0	0
	0	0	0
Totals	2	5	7

Amelia St

	0	0	0	0
	0	0	0	0
	2	0	0	0
Totals	2	0	0	0






East Approach

	Out	In	Total
	58	55	113
	3	0	3
	0	0	0
Totals	61	55	116

Queen St

				Totals
	0	0	0	0
	0	0	3	3
	0	0	55	55
	0	0	3	3

Peds: 1

Peds: 10



Peds: 0

Peds: 1

Queen St

Totals			
	0	0	0
	2	2	0
	57	54	3
	2	2	0

West Approach

	Out	In	Total
	61	60	121
	0	3	3
	0	0	0
Totals	61	63	124

Totals				
	4	0	0	0
	0	0	0	0
	0	0	0	0

Victoria St

South Approach

	Out	In	Total
	4	5	9
	0	0	0
	0	0	0
Totals	4	5	9

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Queen St & Amelia St - Victoria St
Site Code: 2607900002
Count Date: Mar 24, 2026
Period: 16:00 - 19:00

Peak Hour Data (16:15 - 17:15)

Start Time	North Approach Amelia St						South Approach Victoria St						East Approach Queen St						West Approach Queen St						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:15	0	0	1	0	1	1	3	0	0	0	0	3	0	18	0	0	0	18	2	13	3	0	0	18	40
16:30	0	0	1	0	7	1	0	0	0	0	0	0	1	9	2	0	0	12	0	11	0	0	1	11	24
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0	17	0	13	0	0	0	13	30
17:00	0	0	0	0	2	0	1	0	0	0	0	1	1	13	0	0	1	14	1	18	0	0	0	19	34
Grand Total	0	0	2	0	10	2	4	0	0	0	0	4	2	57	2	0	1	61	3	55	3	0	1	61	128
Approach %	0	0	100	0	-	-	100	0	0	0	-	-	3.3	93.4	3.3	0	-	-	4.9	90.2	4.9	0	-	-	-
Totals %	0	0	1.6	0	1.6	3.1	0	0	0	3.1	1.6	44.5	1.6	0	47.7	2.3	43	2.3	0	47.7					
PHF	0	0	0.5	0	0.5	0.33	0	0	0	0.33	0.5	0.79	0.25	0	0.85	0.38	0.76	0.25	0	0.8	0.8				
Cars	0	0	2	0	2	4	0	0	0	4	2	54	2	0	58	3	55	3	0	61	125				
% Cars	0	0	100	0	100	100	0	0	0	100	100	94.7	100	0	95.1	100	100	100	0	100	97.7				
Trucks	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	3				
% Trucks	0	0	0	0	0	0	0	0	0	0	0	5.3	0	4.9	0	0	0	0	0	0	2.3				
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
% Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Peds					10	-					0	-					1	-				1	-	12	
% Peds					83.3	-					0	-					8.3	-				8.3	-		

Appendix C – Synchro Analysis Output – Existing Traffic Volumes

HCM Unsignalized Intersection Capacity Analysis

Existing (2026) - AM

3: Main St & Queen St

																			
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR							
Lane Configurations																			
Sign Control		Stop			Stop			Stop			Stop								
Traffic Volume (vph)	3	25	12	49	25	1	10	11	54	3	18	2							
Future Volume (vph)	3	25	12	49	25	1	10	11	54	3	18	2							
Peak Hour Factor	0.77	0.77	0.77	0.75	0.75	0.75	0.76	0.76	0.76	0.61	0.61	0.61							
Hourly flow rate (vph)	4	32	16	65	33	1	13	14	71	5	30	3							
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1														
Volume Total (vph)	52	99	27	71	38														
Volume Left (vph)	4	65	13	0	5														
Volume Right (vph)	16	1	0	71	3														
Hadj (s)	-0.17	0.32	0.33	-0.57	0.06														
Departure Headway (s)	4.0	4.4	4.6	3.2	4.3														
Degree Utilization, x	0.06	0.12	0.03	0.06	0.05														
Capacity (veh/h)	879	799	746	1121	793														
Control Delay (s/veh)	7.2	8.0	7.8	6.4	7.5														
Approach Delay (s/veh)	7.2	8.0	6.8		7.5														
Approach LOS	A	A	A		A														
Intersection Summary																			
Delay			7.4																
Level of Service			A																
Intersection Capacity Utilization			21.5%	ICU Level of Service					A										
Analysis Period (min)			15																

HCM Unsignalized Intersection Capacity Analysis 6: Victoria St/Amelia St & Queen St

Existing (2026) - AM

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (veh/h)	2	39	0	0	37	0	0	0	0	0	0	1		
Future Volume (Veh/h)	2	39	0	0	37	0	0	0	0	0	0	1		
Sign Control	Free				Free				Stop		Stop			
Grade	0%				0%				0%		0%			
Peak Hour Factor	0.85	0.85	0.85	0.77	0.77	0.77	0.92	0.92	0.92	0.25	0.25	0.25		
Hourly flow rate (vph)	2	46	0	0	48	0	0	0	0	0	0	4		
Pedestrians								10				10		
Lane Width (m)								3.6				3.6		
Walking Speed (m/s)								1.2				1.2		
Percent Blockage								1				1		
Right turn flare (veh)														
Median type	None						None							
Median storage (veh)														
Upstream signal (m)														
pX, platoon unblocked														
vC, conflicting volume	58				56				112	118	56	108	118	58
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	58				56				112	118	56	108	118	58
tC, single (s)	4.1				4.1				7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)														
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100				100				100	100	100	100	100	100
cM capacity (veh/h)	1546				1549				848	762	1008	857	762	1005
Direction, Lane #	EB 1	WB 1	NB 1	SB 1										
Volume Total	48	48	0	4										
Volume Left	2	0	0	0										
Volume Right	0	0	0	4										
cSH	1546	1549	1700	1005										
Volume to Capacity	0.00	0.00	0.00	0.00										
Queue Length 95th (m)	0.0	0.0	0.0	0.1										
Control Delay (s/veh)	0.3	0.0	0.0	8.6										
Lane LOS	A			A	A									
Approach Delay (s/veh)	0.3	0.0	0.0	8.6										
Approach LOS				A	A									
Intersection Summary														
Average Delay				0.5										
Intersection Capacity Utilization				16.4%	ICU Level of Service			A						
Analysis Period (min)				15										

HCM Unsignalized Intersection Capacity Analysis

Existing (2026) - AM

9: Main St & Nicholas St

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	1	14	22	0
Future Volume (Veh/h)	0	1	1	14	22	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	0	1	1	16	26	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	44	26	26			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	44	26	26			
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)	971	1056	1601			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1	17	26			
Volume Left	0	1	0			
Volume Right	1	0	0			
cSH	1056	1601	1700			
Volume to Capacity	0.00	0.00	0.02			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s/veh)	8.4	0.4	0.0			
Lane LOS	A	A				
Approach Delay (s/veh)	8.4	0.4	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		0.4				
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 10: Amelia St & Nicholas St

Existing (2026) - AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	0	0	0			
Volume Left (vph)	0	0	0			
Volume Right (vph)	0	0	0			
Hadj (s)	0.00	0.00	0.00			
Departure Headway (s)	3.9	3.9	3.9			
Degree Utilization, x	0.00	0.00	0.00			
Capacity (veh/h)	917	917	917			
Control Delay (s/veh)	6.9	6.9	6.9			
Approach Delay (s/veh)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			0.0			
Level of Service			A			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

Existing (2026) - PM

3: Main St & Queen St

																			
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR							
Lane Configurations																			
Sign Control		Stop			Stop			Stop			Stop								
Traffic Volume (vph)	7	36	7	43	34	4	16	11	81	4	12	7							
Future Volume (vph)	7	36	7	43	34	4	16	11	81	4	12	7							
Peak Hour Factor	0.74	0.74	0.74	0.92	0.92	0.92	0.91	0.91	0.91	0.90	0.90	0.90							
Hourly flow rate (vph)	9	49	9	47	37	4	18	12	89	4	13	8							
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1														
Volume Total (vph)	67	88	30	89	25														
Volume Left (vph)	9	47	18	0	4														
Volume Right (vph)	9	4	0	89	8														
Hadj (s)	-0.05	0.10	0.18	-0.58	0.11														
Departure Headway (s)	4.1	4.2	4.4	3.2	4.4														
Degree Utilization, x	0.08	0.10	0.04	0.08	0.03														
Capacity (veh/h)	866	842	774	1121	784														
Control Delay (s/veh)	7.4	7.7	7.6	6.5	7.5														
Approach Delay (s/veh)	7.4	7.7	6.8		7.5														
Approach LOS	A	A	A		A														
Intersection Summary																			
Delay			7.2																
Level of Service			A																
Intersection Capacity Utilization			26.5%	ICU Level of Service					A										
Analysis Period (min)			15																

HCM Unsignalized Intersection Capacity Analysis 6: Victoria St/Amelia St & Queen St

Existing (2026) - PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	55	3	2	57	2	4	0	0	0	0	2
Future Volume (Veh/h)	3	55	3	2	57	2	4	0	0	0	0	2
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.80	0.80	0.80	0.85	0.85	0.85	0.33	0.33	0.33	0.50	0.50	0.50
Hourly flow rate (vph)	4	69	4	2	67	2	12	0	0	0	0	4
Pedestrians	5			5			5			10		
Lane Width (m)	3.6			3.6			3.6			3.6		
Walking Speed (m/s)	1.2			1.2			1.2			1.2		
Percent Blockage	0			0			0			1		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	79			78			165	167	81	166	168	83
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	79			78			165	167	81	166	168	83
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			98	100	100	100	100	100
cM capacity (veh/h)	1519			1527			784	717	976	783	717	970
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	77	71	12	4								
Volume Left	4	2	12	0								
Volume Right	4	2	0	4								
cSH	1519	1527	784	970								
Volume to Capacity	0.00	0.00	0.02	0.00								
Queue Length 95th (m)	0.1	0.0	0.4	0.1								
Control Delay (s/veh)	0.4	0.2	9.7	8.7								
Lane LOS	A	A	A	A								
Approach Delay (s/veh)	0.4	0.2	9.7	8.7								
Approach LOS			A	A								
Intersection Summary												
Average Delay				1.2								
Intersection Capacity Utilization				18.1%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

Existing (2026) - PM

9: Main St & Nicholas St

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	1	21	22	0
Future Volume (Veh/h)	0	1	1	21	22	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	1	1	24	25	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	51	25	25			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51	25	25			
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)	962	1057	1603			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1	25	25			
Volume Left	0	1	0			
Volume Right	1	0	0			
cSH	1057	1603	1700			
Volume to Capacity	0.00	0.00	0.01			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s/veh)	8.4	0.3	0.0			
Lane LOS	A	A				
Approach Delay (s/veh)	8.4	0.3	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		0.3				
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 10: Amelia St & Nicholas St

Existing (2026) - PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	0	0	0			
Volume Left (vph)	0	0	0			
Volume Right (vph)	0	0	0			
Hadj (s)	0.00	0.00	0.00			
Departure Headway (s)	3.9	3.9	3.9			
Degree Utilization, x	0.00	0.00	0.00			
Capacity (veh/h)	917	917	917			
Control Delay (s/veh)	6.9	6.9	6.9			
Approach Delay (s/veh)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			0.0			
Level of Service			A			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			

Appendix D – OTM Signal Justification Sheets

Appendix E – Synchro Analysis Output – Background Traffic Volumes

3: Main St & Queen St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control	Stop			Stop			Stop			Stop		
Traffic Volume (vph)	5	42	68	64	33	1	31	12	61	3	25	2
Future Volume (vph)	5	42	68	64	33	1	31	12	61	3	25	2
Peak Hour Factor	0.77	0.77	0.77	0.75	0.75	0.75	0.76	0.76	0.76	0.61	0.61	0.61
Hourly flow rate (vph)	6	55	88	85	44	1	41	16	80	5	41	3
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total (vph)	149	130	57	80	49							
Volume Left (vph)	6	85	41	0	5							
Volume Right (vph)	88	1	0	80	3							
Hadj (s)	-0.35	0.32	0.34	-0.57	0.07							
Departure Headway (s)	4.0	4.6	4.9	3.2	4.7							
Degree Utilization, x	0.16	0.17	0.08	0.07	0.06							
Capacity (veh/h)	875	745	685	1121	719							
Control Delay (s/veh)	7.8	8.6	8.3	6.4	8.0							
Approach Delay (s/veh)	7.8	8.6	7.2		8.0							
Approach LOS	A	A	A		A							
Intersection Summary												
Delay				7.9								
Level of Service				A								
Intersection Capacity Utilization				27.9%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis 6: Victoria St/Amelia St & Queen St

BG (2031) - AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	87	0	10	56	0	1	0	27	0	0	1
Future Volume (Veh/h)	2	87	0	10	56	0	1	0	27	0	0	1
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.85	0.85	0.85	0.77	0.77	0.77	0.92	0.92	0.92	0.25	0.25	0.25
Hourly flow rate (vph)	2	102	0	13	73	0	1	0	29	0	0	4
Pedestrians								10		10		
Lane Width (m)								3.6		3.6		
Walking Speed (m/s)								1.2		1.2		
Percent Blockage								1		1		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	83			112			219	225	112	244	225	83
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	83			112			219	225	112	244	225	83
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	97	100	100	100
cM capacity (veh/h)	1514			1478			717	660	939	672	660	974
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	104	86	30	4								
Volume Left	2	13	1	0								
Volume Right	0	0	29	4								
cSH	1514	1478	929	974								
Volume to Capacity	0.00	0.01	0.03	0.00								
Queue Length 95th (m)	0.0	0.2	0.8	0.1								
Control Delay (s/veh)	0.2	1.2	9.0	8.7								
Lane LOS	A	A	A	A								
Approach Delay (s/veh)	0.2	1.2	9.0	8.7								
Approach LOS			A	A								
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			19.1%	ICU Level of Service				A				
Analysis Period (min)			15									

9: Main St & Nicholas St

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	1	17	29	0
Future Volume (Veh/h)	0	1	1	17	29	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	0	1	1	20	34	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	56	34	34			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	56	34	34			
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)	956	1045	1591			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1	21	34			
Volume Left	0	1	0			
Volume Right	1	0	0			
cSH	1045	1591	1700			
Volume to Capacity	0.00	0.00	0.02			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s/veh)	8.4	0.4	0.0			
Lane LOS	A	A				
Approach Delay (s/veh)	8.4	0.4	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

BG (2031) - PM

3: Main St & Queen St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	49	43	52	53	4	75	17	100	4	15	10
Future Volume (vph)	9	49	43	52	53	4	75	17	100	4	15	10
Peak Hour Factor	0.74	0.74	0.74	0.92	0.92	0.92	0.91	0.91	0.91	0.90	0.90	0.90
Hourly flow rate (vph)	12	66	58	57	58	4	82	19	110	4	17	11
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total (vph)	136	119	101	110	32							
Volume Left (vph)	12	57	82	0	4							
Volume Right (vph)	58	4	0	110	11							
Hadj (s)	-0.24	0.09	0.25	-0.58	0.10							
Departure Headway (s)	4.1	4.5	4.8	3.2	4.7							
Degree Utilization, x	0.16	0.15	0.13	0.10	0.04							
Capacity (veh/h)	838	767	714	1121	714							
Control Delay (s/veh)	7.9	8.2	8.5	6.5	7.9							
Approach Delay (s/veh)	7.9	8.2	7.5		7.9							
Approach LOS	A	A	A		A							
Intersection Summary												
Delay			7.8									
Level of Service			A									
Intersection Capacity Utilization			31.3%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 6: Victoria St/Amelia St & Queen St

BG (2031) - PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	90	3	28	111	2	4	0	16	0	0	2
Future Volume (Veh/h)	3	90	3	28	111	2	4	0	16	0	0	2
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.80	0.80	0.80	0.85	0.85	0.85	0.33	0.33	0.33	0.50	0.50	0.50
Hourly flow rate (vph)	4	112	4	33	131	2	12	0	48	0	0	4
Pedestrians	5			5			5			10		
Lane Width (m)	3.6			3.6			3.6			3.6		
Walking Speed (m/s)	1.2			1.2			1.2			1.2		
Percent Blockage	0			0			0			1		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	143			121			334	336	124	383	337	147
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	143			121			334	336	124	383	337	147
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			98	100	95	100	100	100
cM capacity (veh/h)	1440			1473			598	566	924	526	565	894
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	120	166	60	4								
Volume Left	4	33	12	0								
Volume Right	4	2	48	4								
cSH	1440	1473	833	894								
Volume to Capacity	0.00	0.02	0.07	0.00								
Queue Length 95th (m)	0.1	0.5	1.9	0.1								
Control Delay (s/veh)	0.3	1.6	9.7	9.0								
Lane LOS	A	A	A	A								
Approach Delay (s/veh)	0.3	1.6	9.7	9.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay				2.6								
Intersection Capacity Utilization				27.4%	ICU Level of Service				A			
Analysis Period (min)				15								

9: Main St & Nicholas St

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	1	29	28	0
Future Volume (Veh/h)	0	1	1	29	28	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	1	1	33	32	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	67	32	32			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	67	32	32			
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)	943	1048	1593			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1	34	32			
Volume Left	0	1	0			
Volume Right	1	0	0			
cSH	1048	1593	1700			
Volume to Capacity	0.00	0.00	0.02			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s/veh)	8.4	0.2	0.0			
Lane LOS	A	A				
Approach Delay (s/veh)	8.4	0.2	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)		15				

Appendix F – Transportation Tomorrow Survey – Internet Data Retrieval System excerpt



TTS Cross Tabulation

Cross Tabulation Query Form - Trip - 2022

Filter Variables

2022 TTS zone of hous...

2022 TTS zone of desti...

(Optional) Table Attribute

Group Attributes

Row Grouping

Column Grouping

Table Grouping

Grouping file: No file chosen

Filter Selection +

☒ 2022 TTS zone of household In
4004

☒ Start time of trip In
0700-0900

☒ Trip Purpose of Destination In
w, R,

[Add](#) [Delete](#)

Output

☒ Comma-delimited table ☐ Column format [Expansion Factor On](#) [Load](#)

[Execute Query](#) [Select All](#) [Save As](#)

Tue Mar 31 2026 11:19:15 GMT-0400 (Eastern Daylight Time) - Run Time: 3256ms

Cross Tabulation Query Form - Trip - 2022

Row: 2022 TTS zone of household - tts22_hhld
Column: 2022 TTS zone of destination - tts22_dest

Filters:
(2022 TTS zone of household - tts22_hhld In 4004
and
Start time of trip - start_time In 0700-0900
and
Trip Purpose of Destination - purp_dest In w, R,)

Trip 2022
Table:

,4006,4061,4131,4323,4573,15002,98005
4004,27,26,3,26,27,33,3

Filter Tutorial Here about the c

[Open current page in new tab.](#)

Trip Purpose of Dest

Code	Description
C	Subsequent School
D	Daycare (Starting Frc
E	Entertainment (1986)
F	Facilitate passenger
H	Home
L	Linked trip (1991)
M	Market/Shop (Not in y
O	Other
P	Personal (1986)
R	Subsequent Work
S	School
W	Work
9	Unknown

2022 GTA zone of Destination	Trips	%	Route Selection				Distribution				Total
			N	S	E	W	N	S	E	W	
4006	27	19%		100%			0%	19%	0%	0%	19%
4061	26	18%		100%			0%	18%	0%	0%	18%
4131	3	2%		100%			0%	2%	0%	0%	2%
4323	26	18%		90%		10%	0%	16%	0%	2%	18%
4573	27	19%		100%			0%	20%	0%	0%	20%
15002	33	23%	15%		85%		3%	0%	20%	0%	23%
Totals	142	100%					3%	75%	20%	2%	100%

Appendix G – Synchro Analysis Output – Total Traffic Volumes

HCM Unsignalized Intersection Capacity Analysis

Total (2031) - AM

3: Main St & Queen St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	44	72	64	34	2	31	13	61	5	29	2
Future Volume (vph)	5	44	72	64	34	2	31	13	61	5	29	2
Peak Hour Factor	0.77	0.77	0.77	0.75	0.75	0.75	0.76	0.76	0.76	0.61	0.61	0.61
Hourly flow rate (vph)	6	57	94	85	45	3	41	17	80	8	48	3
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total (vph)	157	133	58	80	59							
Volume Left (vph)	6	85	41	0	8							
Volume Right (vph)	94	3	0	80	3							
Hadj (s)	-0.35	0.30	0.34	-0.57	0.08							
Departure Headway (s)	4.0	4.7	5.0	3.2	4.7							
Degree Utilization, x	0.17	0.17	0.08	0.07	0.08							
Capacity (veh/h)	867	739	678	1121	713							
Control Delay (s/veh)	7.8	8.6	8.4	6.4	8.1							
Approach Delay (s/veh)	7.8	8.6	7.3		8.1							
Approach LOS	A	A	A		A							
Intersection Summary												
Delay			7.9									
Level of Service			A									
Intersection Capacity Utilization			27.6%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

Total (2031) - AM

6: Victoria St/Amelia St & Queen St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	87	0	10	56	2	1	0	27	6	0	1
Future Volume (Veh/h)	2	87	0	10	56	2	1	0	27	6	0	1
Sign Control	Free				Free				Stop			
Grade	0%				0%				0%			
Peak Hour Factor	0.85	0.85	0.85	0.77	0.77	0.77	0.92	0.92	0.92	0.25	0.25	0.25
Hourly flow rate (vph)	2	102	0	13	73	3	1	0	29	24	0	4
Pedestrians								10				10
Lane Width (m)								3.6				3.6
Walking Speed (m/s)								1.2				1.2
Percent Blockage								1				1
Right turn flare (veh)												
Median type	None						None					
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	86				112				221	228	112	246
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	86				112				221	228	112	246
tC, single (s)	4.1				4.1				7.1	6.5	6.2	7.1
tC, 2 stage (s)												
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5
p0 queue free %	100				99				100	100	97	96
cM capacity (veh/h)	1510				1478				716	657	939	671
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	104	89	30	28								
Volume Left	2	13	1	24								
Volume Right	0	3	29	4								
cSH	1510	1478	929	702								
Volume to Capacity	0.00	0.01	0.03	0.04								
Queue Length 95th (m)	0.0	0.2	0.8	1.0								
Control Delay (s/veh)	0.2	1.1	9.0	10.3								
Lane LOS	A	A	A	B								
Approach Delay (s/veh)	0.2	1.1	9.0	10.3								
Approach LOS				A	B							
Intersection Summary												
Average Delay				2.7								
Intersection Capacity Utilization				19.3%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

Total (2031) - AM

9: Main St & Nicholas St

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	7	3	17	29	0
Future Volume (Veh/h)	0	7	3	17	29	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	0	8	3	20	34	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	60	34	34			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	60	34	34			
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	99	100			
cM capacity (veh/h)	950	1045	1591			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	8	23	34			
Volume Left	0	3	0			
Volume Right	8	0	0			
cSH	1045	1591	1700			
Volume to Capacity	0.01	0.00	0.02			
Queue Length 95th (m)	0.2	0.0	0.0			
Control Delay (s/veh)	8.5	1.0	0.0			
Lane LOS	A	A				
Approach Delay (s/veh)	8.5	1.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		1.4				
Intersection Capacity Utilization		13.4%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

Total (2031) - AM

10: Amelia St & Nicholas St

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	0	2	2	0	6	6
Future Volume (vph)	0	2	2	0	6	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	2	0	7	7
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	2	2	14			
Volume Left (vph)	0	0	7			
Volume Right (vph)	2	0	0			
Hadj (s)	-0.57	0.03	0.13			
Departure Headway (s)	3.4	4.0	4.0			
Degree Utilization, x	0.00	0.00	0.02			
Capacity (veh/h)	1055	907	886			
Control Delay (s/veh)	6.4	7.0	7.1			
Approach Delay (s/veh)	6.4	7.0	7.1			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.0			
Level of Service			A			
Intersection Capacity Utilization			15.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

Total (2031) - PM

3: Main St & Queen St

																			
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR							
Lane Configurations																			
Sign Control		Stop			Stop			Stop			Stop								
Traffic Volume (vph)	9	50	46	52	54	5	79	21	100	4	18	10							
Future Volume (vph)	9	50	46	52	54	5	79	21	100	4	18	10							
Peak Hour Factor	0.74	0.74	0.74	0.92	0.92	0.92	0.91	0.91	0.91	0.90	0.90	0.90							
Hourly flow rate (vph)	12	68	62	57	59	5	87	23	110	4	20	11							
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1														
Volume Total (vph)	142	121	110	110	35														
Volume Left (vph)	12	57	87	0	4														
Volume Right (vph)	62	5	0	110	11														
Hadj (s)	-0.25	0.09	0.24	-0.58	0.11														
Departure Headway (s)	4.2	4.5	4.8	3.2	4.7														
Degree Utilization, x	0.16	0.15	0.15	0.10	0.05														
Capacity (veh/h)	830	760	711	1121	707														
Control Delay (s/veh)	8.0	8.3	8.6	6.5	8.0														
Approach Delay (s/veh)	8.0	8.3	7.6		8.0														
Approach LOS	A	A	A		A														
Intersection Summary																			
Delay			7.9																
Level of Service			A																
Intersection Capacity Utilization			31.8%	ICU Level of Service					A										
Analysis Period (min)			15																

HCM Unsignalized Intersection Capacity Analysis 6: Victoria St/Amelia St & Queen St

Total (2031) - PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	90	3	28	111	7	4	0	16	4	0	2
Future Volume (Veh/h)	3	90	3	28	111	7	4	0	16	4	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.85	0.85	0.85	0.33	0.33	0.33	0.50	0.50	0.50
Hourly flow rate (vph)	4	112	4	33	131	8	12	0	48	8	0	4
Pedestrians		5			5			5			10	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	149			121			337	342	124	386	340	150
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	149			121			337	342	124	386	340	150
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			98	100	95	98	100	100
cM capacity (veh/h)	1433			1473			595	562	924	524	563	891
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	120	172	60	12								
Volume Left	4	33	12	8								
Volume Right	4	8	48	4								
cSH	1433	1473	832	607								
Volume to Capacity	0.00	0.02	0.07	0.02								
Queue Length 95th (m)	0.1	0.5	1.9	0.5								
Control Delay (s/veh)	0.3	1.6	9.7	11.0								
Lane LOS	A	A	A	B								
Approach Delay (s/veh)	0.3	1.6	9.7	11.0								
Approach LOS			A	B								
Intersection Summary												
Average Delay			2.8									
Intersection Capacity Utilization			26.1%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

Total (2031) - PM

9: Main St & Nicholas St

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	6	29	28	0
Future Volume (Veh/h)	0	4	6	29	28	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	5	7	33	32	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	79	32	32			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	79	32	32			
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)	924	1048	1593			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	5	40	32			
Volume Left	0	7	0			
Volume Right	5	0	0			
cSH	1048	1593	1700			
Volume to Capacity	0.00	0.00	0.02			
Queue Length 95th (m)	0.1	0.1	0.0			
Control Delay (s/veh)	8.5	1.3	0.0			
Lane LOS	A	A				
Approach Delay (s/veh)	8.5	1.3	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		1.2				
Intersection Capacity Utilization		16.7%		ICU Level of Service		A
Analysis Period (min)		15				

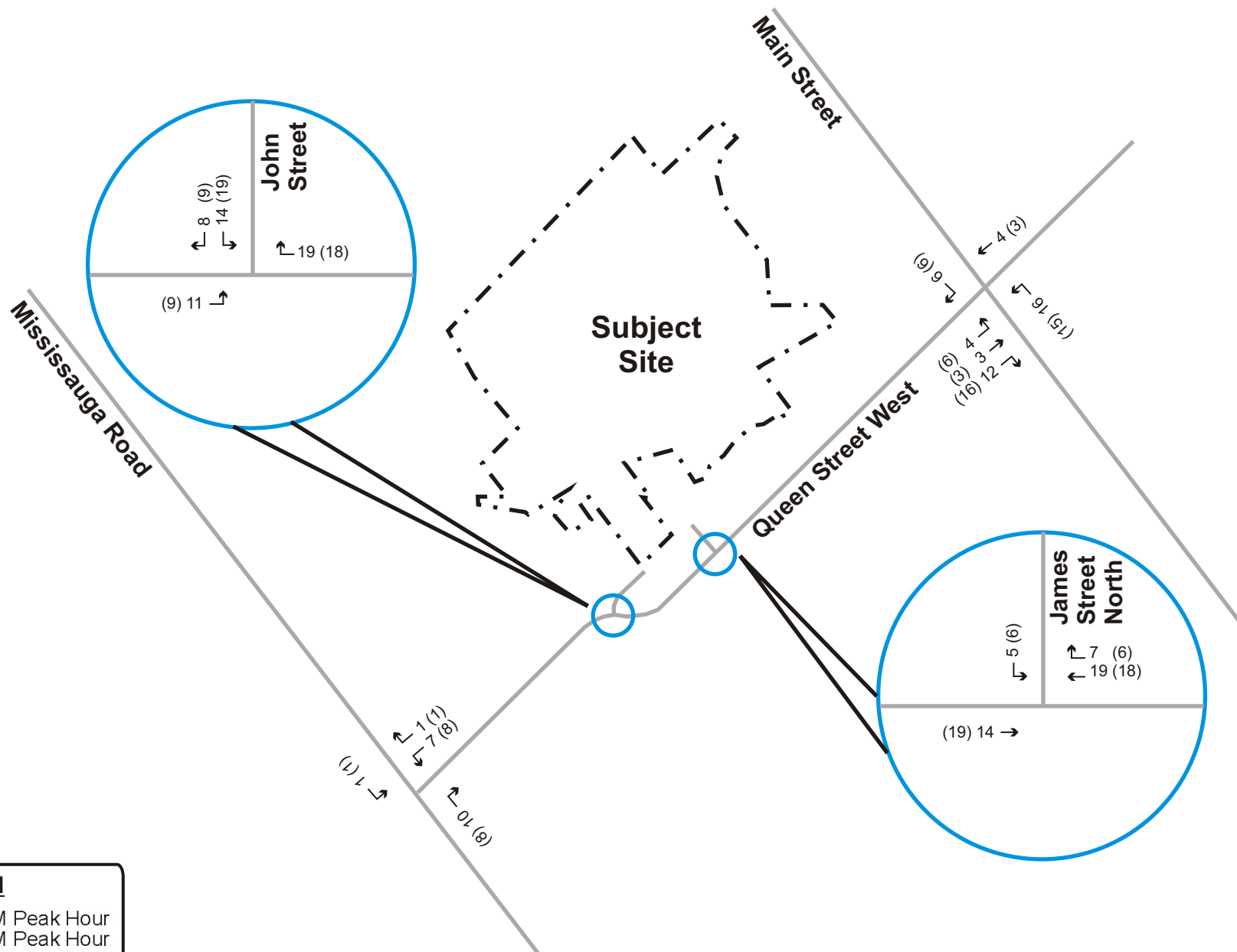
HCM Unsignalized Intersection Capacity Analysis

Total (2031) - PM

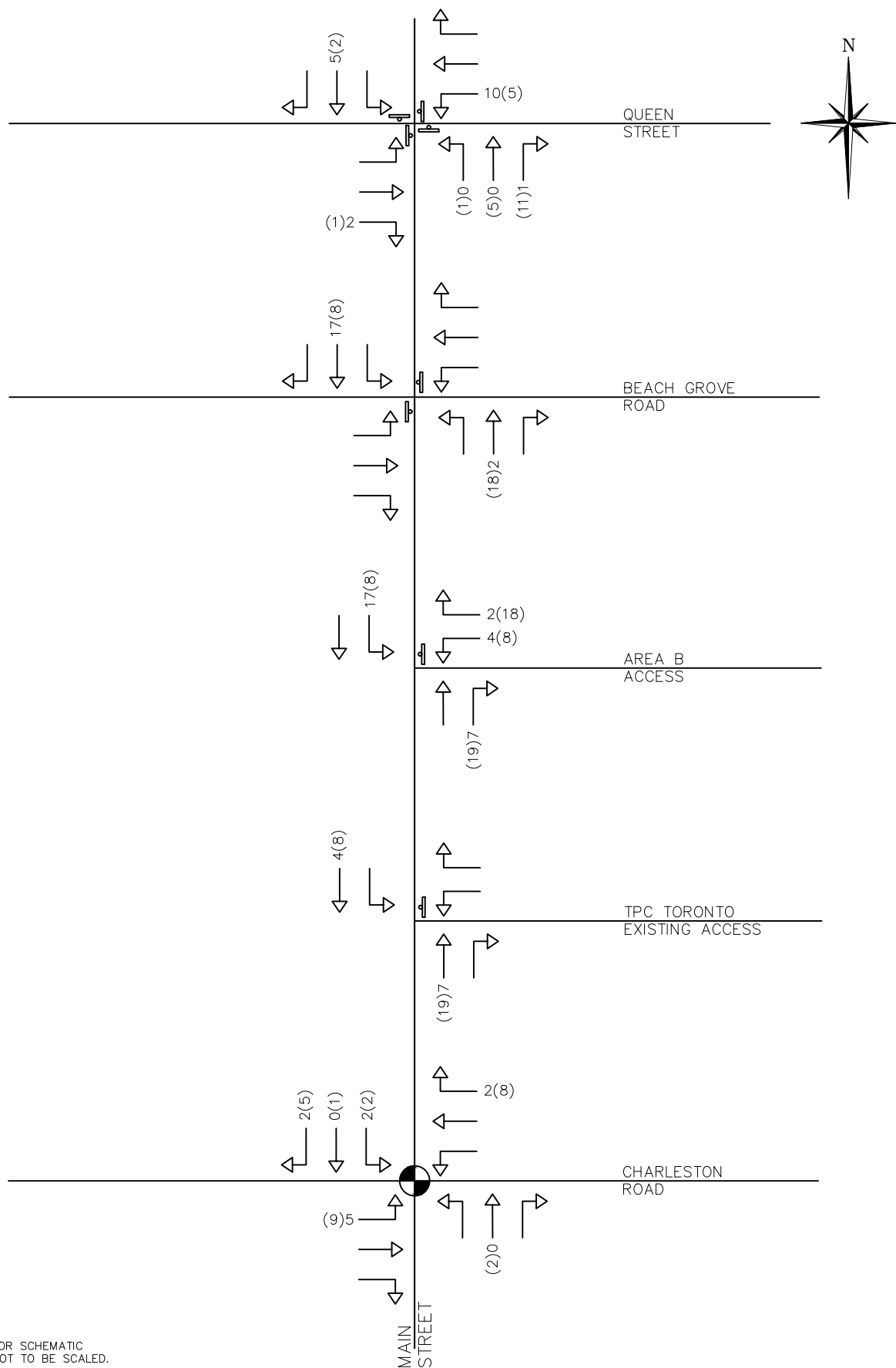
10: Amelia St & Nicholas St

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	0	5	5	0	3	4
Future Volume (vph)	0	5	5	0	3	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	5	5	0	3	4
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	5	5	7			
Volume Left (vph)	0	0	3			
Volume Right (vph)	5	0	0			
Hadj (s)	-0.57	0.03	0.12			
Departure Headway (s)	3.4	3.9	4.0			
Degree Utilization, x	0.00	0.01	0.01			
Capacity (veh/h)	1059	907	886			
Control Delay (s/veh)	6.4	7.0	7.1			
Approach Delay (s/veh)	6.4	7.0	7.1			
Approach LOS	A	A	A			
Intersection Summary						
Delay			6.8			
Level of Service			A			
Intersection Capacity Utilization			13.3%	ICU Level of Service	A	
Analysis Period (min)			15			

Appendix H – Adjacent Development Excerpts

**Legend**

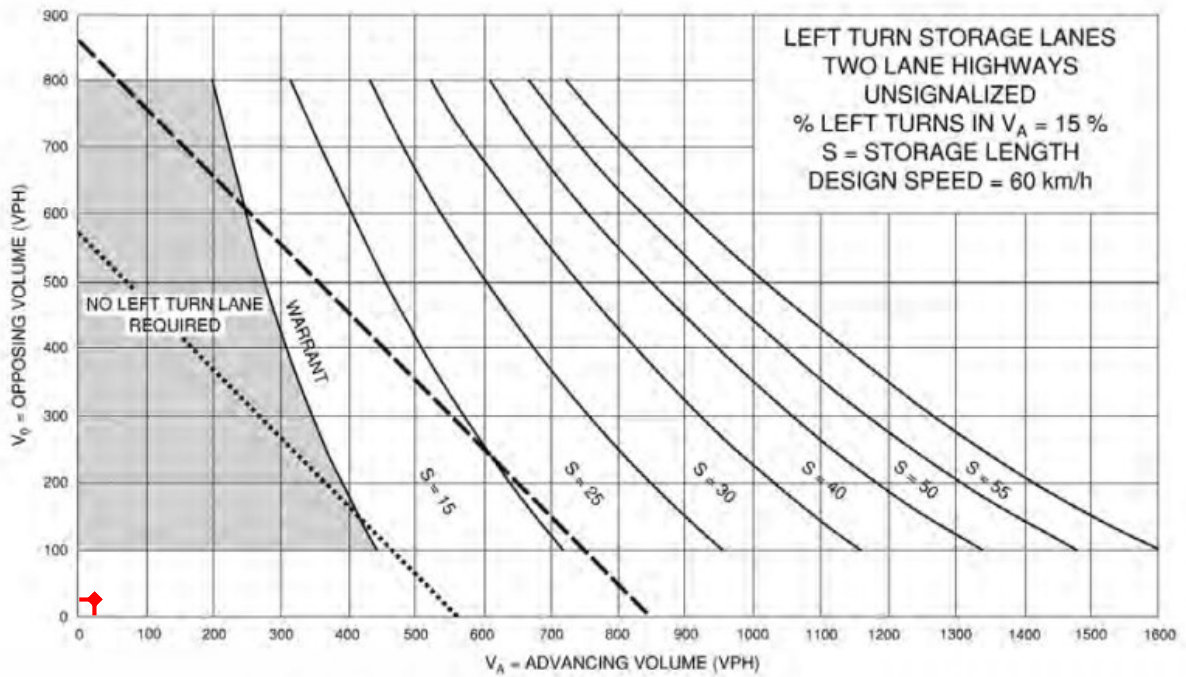
XX AM Peak Hour
(XX) PM Peak Hour



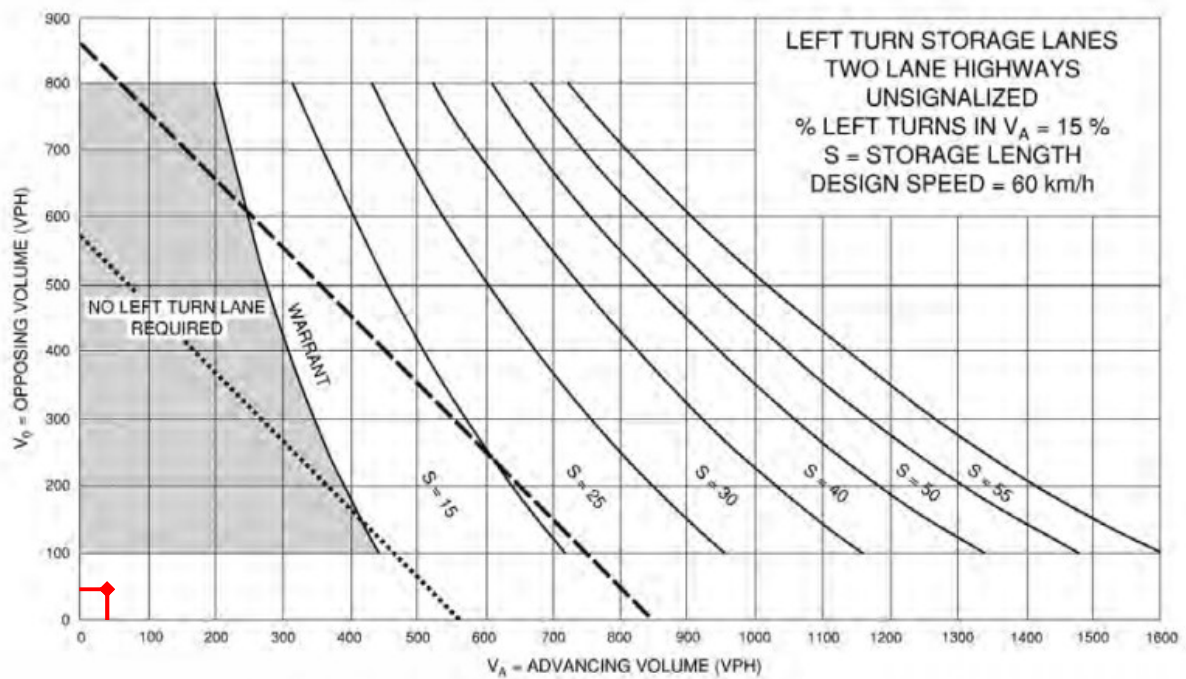
NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend  SIGNAL CONTROL  STOP CONTROL  WEEKDAY A.M. (WEEKDAY P.M.) PEAK HOUR VOLUMES	Project OSPREY VALLEY GOLF COURSE TOWN OF CALEDON	 CROZIER CONSULTING ENGINEERS THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3 705 446-3510 T 705 446-3520 F WWW.CROZIER.CA INFO@CROZIER.CA	
	Drawing PRIMARY TRIP ASSIGNMENT		Drawn By S.K. Design By S.K. Project 129-5521
			Scale N.T.S. Date MAR/23/2021 Check By A.F. Drawing FIG 8

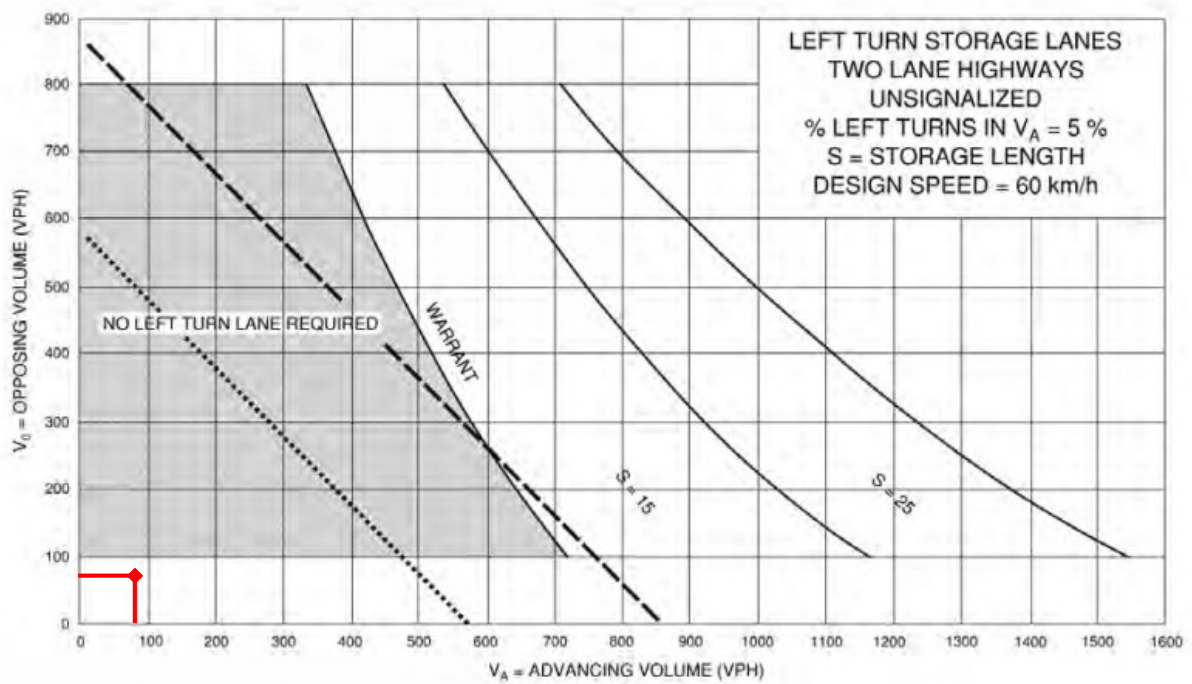
Appendix I – MTO Left Turn Warrant Analysis



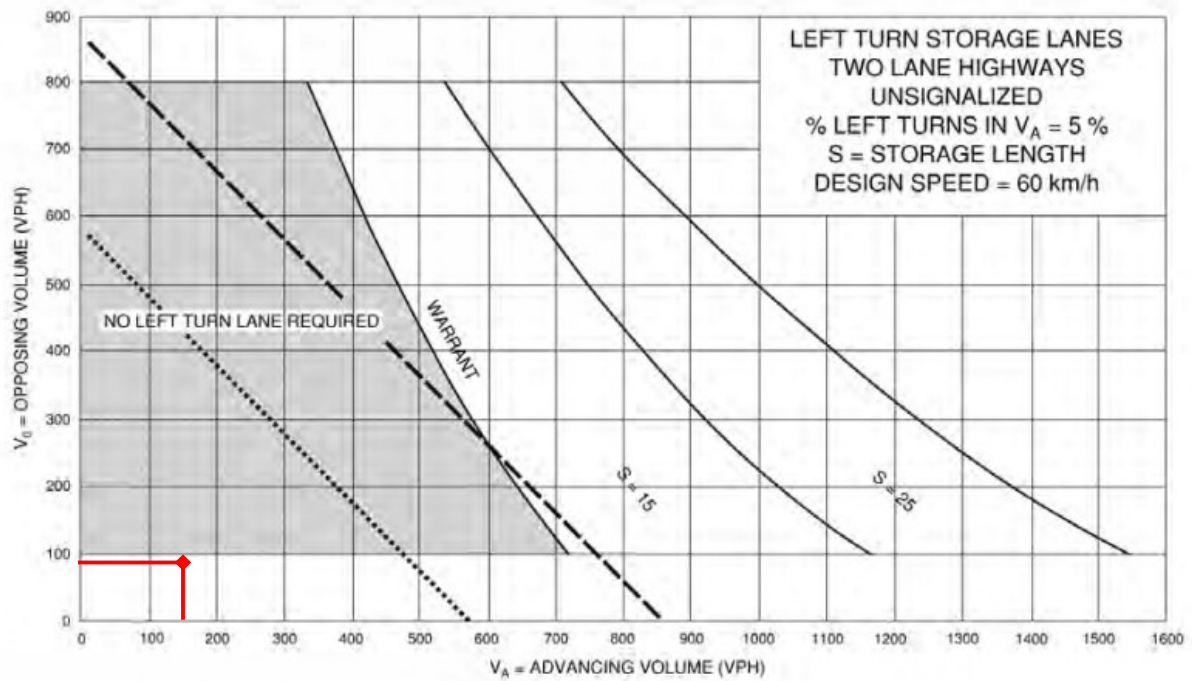
Total (2031) AM Peak – NB on Main Street at Nicholas Street



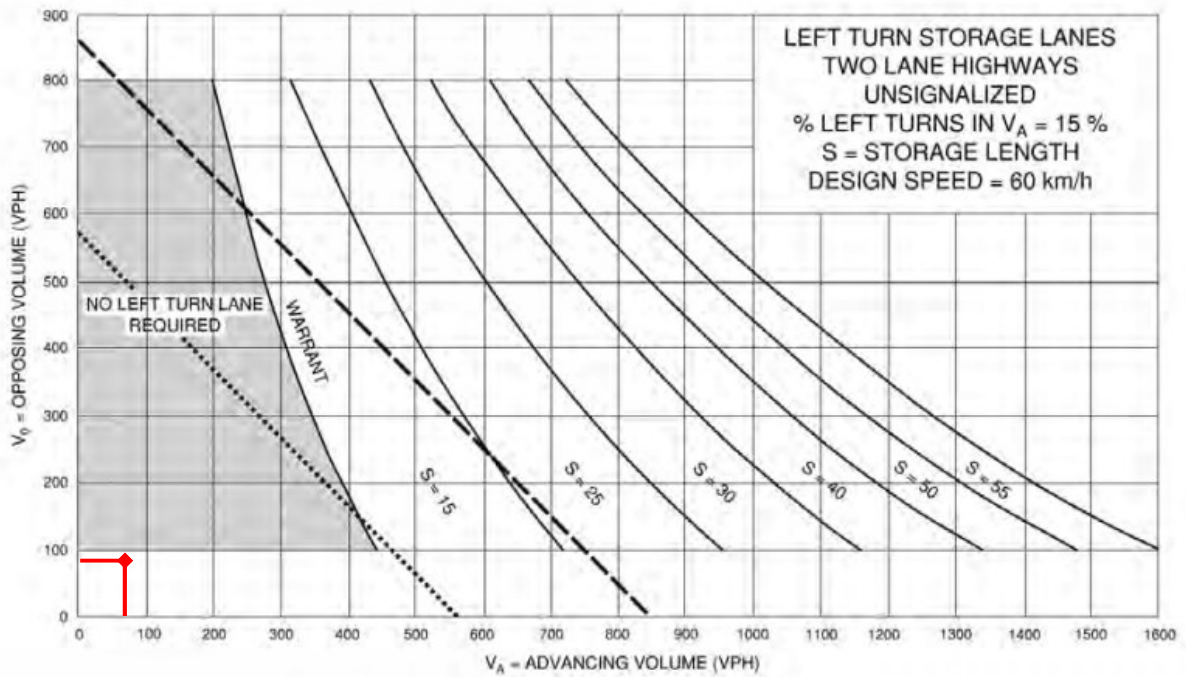
Total (2031) PM Peak – NB on Main Street at Nicholas Street



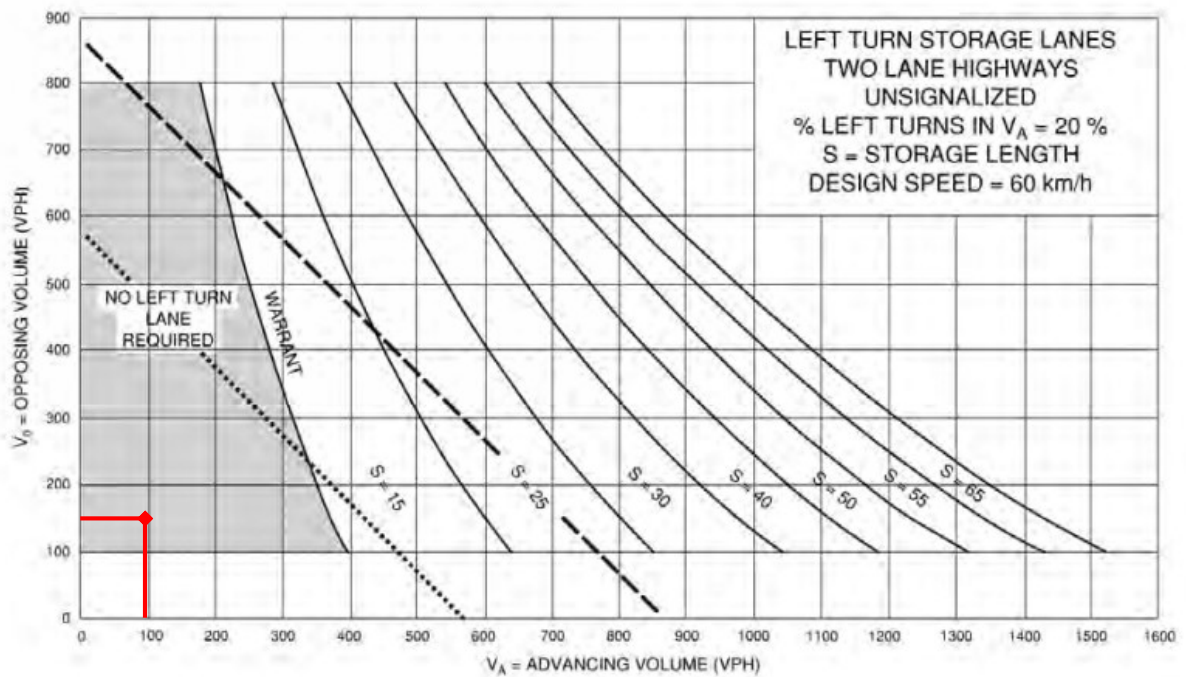
Total (2031) AM Peak – EB on Queen Street at Victoria Street



Total (2031) PM Peak – EB on Queen Street at Victoria Street



Total (2031) AM Peak – WB on Queen Street at Victoria Street



Total (2031) PM Peak – WB on Queen Street at Victoria Street