

TRIPLE CROWN LINE DEVELOPMENT INC.

REVISED TRAFFIC IMPACT STUDY

15717 Airport Road, Town of Caledon

Project No. TR16-0619



COLE

COLE ENGINEERING GROUP LTD.

HEAD OFFICE

70 Valleywood Drive Markham, ON L3R 4T5

T. 905 940 6161 | 416 987 6161 **F.** 905 940 2064

www.coleengineering.ca

AUGUST 2018



August 31, 2018
Reference No. TR16-0619

Triple Crown Line Development Inc.
c/o DG Group
30 Floral Parkway, Suite 300
Concord, ON L4K 4R1

Dear Mr. Hall:

**Re: Revised Traffic Impact Study
15717 Airport Road
Town of Caledon**

Cole Engineering Group Ltd. (COLE) is pleased to submit this revised Traffic Impact Study (TIS) for the above-noted site in support of a Plan of Subdivision, Official Plan Amendment, and Zoning By-Law Amendment. The subject site located at the southeast quadrant of Airport Road and Old Church Road in the Town of Caledon (the "Town"), in the Region of Peel (the "Region").

The proposed development is to have two primary accesses via Airport Road and a third access from Montcrest Road. Based on the information provided, the intention is to provide a residential development.

The report documents our findings and conclusions regarding the traffic impact of the proposed development in support of a draft plan of subdivision.

Based on our analysis, the proposed residential development is expected to have minimal impact on the surrounding study intersections in the future conditions. Should you have any questions, please do not hesitate to contact the undersigned.

Yours truly,
COLE ENGINEERING GROUP LTD.

Kim Nystrom
Principal
Traffic – ICI

KN/SC

Sevim Coskun, C.E.T.
Senior Transportation Analyst
Traffic – ICI

COLE ENGINEERING GROUP LTD.

HEAD OFFICE

70 Valleywood Drive, Markham, ON Canada L3R 4T5

T. 905 940 6161 | 416 987 6161 F. 905 940 2064

www.coleengineering.ca



PREPARED BY:

COLE ENGINEERING GROUP LTD.

Sevim Coskun, C.E.T.
Senior Transportation Analyst
Traffic – ICI

CHECKED BY:

COLE ENGINEERING GROUP LTD.

Kim Nystrom
Principal
Traffic – ICI

Issues and Revisions Registry

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1 Introduction

Cole Engineering Group Ltd. (COLE) was retained by DG Group (the “Client”) to undertake a revised Traffic Impact Study in support of a Plan of Subdivision, Official Plan Amendment, and Zoning By-law Amendment. The property is municipally known as 15717 Airport Road (herein “the subject site”). The subject site located at approximately 500 m north of the Airport Road and Olde Base Line Road intersection and southeast quadrant of Airport Road and Old Church Road in the Town of Caledon (the “Town”), in the Region of Peel (the “Region”).

The subject site is bounded by undeveloped lands (agricultural land) to the south, Airport Road (Regional Road 7) to the west, single residential houses to the north, and Valley Lands to the east. Caledon East Public School is located immediately west of Airport Road. **Figure 1-1** illustrates the site location.

The overall development of the site area is approximately 63.80 hectares including 25.42 ha detached single-family houses, 1.75 ha townhouses, 0.35 high density block, 1.60 ha residential condominium, 0.06 future development block, 1.85 ha neighbourhood park, 0.28 ha parks, 3.91 ha buffer limit, 16.45 ha open space, 0.03 pumping station, 12.10 ha public roads and laneways. Currently, the property lands are mostly vacantly consisting of two dwellings, and the associated buildings related to existing agricultural uses.

Vehicle access to the development is provided via three full movement access driveways. Two site accesses are provided off Airport Road. The one site access will align with the existing Cranston Drive intersection to create a four-way intersection under ‘Stop’ control at the minor street approaches, approximately 730 metres north of Olde Base Line Road. The second access will align with the existing Caledon East Public School Only Exit access and Airport Road intersection to create a four-way intersection with under ‘Controlled-Access’, located 200 m south of Hiltop Drive. The third access will be on the north side of the development connecting Street ‘B’ to existing Mountcrest Road. **Figure 1-2** illustrates the draft plan for the subdivision.

The purpose of this study is to:

- Identify any traffic operational concerns in the existing and future traffic conditions;
- Document the total traffic impacts associated with the subject site; and,
- Identify any required mitigative measures.

2 Study Approach

Existing traffic counts were undertaken by Accu-Traffic on behalf of COLE. A five year (the Year 2023) and 10 year (the Year 2033) horizon periods were selected to represent future traffic conditions and full-build out of the proposed development.

To forecast the future (2023 and 2033) background traffic conditions in the vicinity of the subject site, an annual growth rate will be applied to the study intersections to reflect and capture general traffic growth. Detailed calculation methodologies and assumptions will be presented in the later chapters.

Based on the site related information received, the study area for this analysis includes the following intersections:

- Airport Road and Olde Base Line Road (Signalized);
- Airport Road and Cranston Drive (Unsignalized);
- Airport Road and Mountcrest Road (Unsignalized);
- Airport Road and Hiltop Drive (Unsignalized);
- Airport Road and School Driveway (Unsignalized); and,
- Airport Road and Old Church Road (Signalized).

The TIS preparation will be based on the Peel Region Traffic Impact Study Guidelines and Regional Guidelines for Using Synchro Version 7.73 Rev 8, as well as the following:

- Town of Caledon Transportation Impact Studies Terms of Reference and Guidelines, March 2017;
- Town of Caledon Development Standards, Policies, and Guidelines;
- Town of Caledon Official Plan;
- Geometric Design Standards for Canadian Roads (TAC) Manual;
- Ontario Provincial Standard Drawings (OPSD);
- Peel Region Controlled Access By-Law; and,
- Ontario Traffic Manual (OTM) Book 12.

Proposed site traffic was derived using information contained in the *Trip Generation Manual*, 9th Edition, published by the ITE and distributed based on the existing traffic pattern and information extracted from the 2011 Transportation Tomorrow Survey (TTS).

2.1 Input Parameters and Assumptions

Analysis of the intersection operations will be conducted using *Synchro 9*.

The signalized intersection analysis is representative of the following assumptions:

- Peak hour factors (PHFs) based on the Peel Region suggested the value of 1.0;
- Heavy Vehicle percentage based on the existing traffic volumes;
- Saturation flow ratio will be based on the Synchro default value of 1,900 vphpl; and,
- Synchro results for the signalized intersections will be provided in the Highway Capacity Manual (HCM) format.

The unsignalized intersections operational analysis in this report will be completed using the *Synchro 9* software, which employs the 2000 Highway Capacity Methodology for the intersection analysis. All parameters for the unsignalized intersection analysis are based on *Synchro* default values. *Synchro* results for the unsignalized intersections will be provided in the Highway Capacity Manual (HCM) format.

Based on our review of the Environmental Study Report conducted for Airport Road (1.0 km of Mayfield Road to 0.6 km north of King Street), the report identified a 3% growth rate per annum along Airport Road from 2011-2021 and a 2% growth rate per annum from 2021-2031. Therefore, 3% and 2% per annum (compounded) growth rate will be applied to the through movements along Airport Road, respectively.

Trip generation for the proposed development will be based on *Trip Generation Manual, 9th Edition* prepared by the Institute of Transportation Engineers (ITE) for Residential Condominium / Townhouse (land use code 230) and Senior Adult Housing-Attached (land use code 252). To be more conservative, the average rate will be used.

The subject zone and adjacent TTS Zones have an existing non-auto modal split of approximately 8%. Currently, the Town does not operate a transit service. To be more conservative we will not be applying a non-auto split reduction.

Trip distribution and assignments will be based on the latest 2011 Transportation Tomorrow Survey (TTS) and existing traffic patterns.

3 Existing Traffic Operation

3.1 Existing Road Network

The existing road network, lane configuration and existing traffic control for the study intersections are shown in **Figure 3-1**.

The details are described as follows:

- **Airport Road (Regional Road 7)** is a north-south major arterial road consisting of a two-lane cross section under the jurisdictional control of the Region of Peel. Within the study area, on-street parking is only available on the south leg of the Airport Road / Walker Road intersection on either side of the roadway. It has a posted speed limit of 60 km/h except for 980 m north of the Olde Base Line Road and Airport intersection 50 km/h speed limit starts to the north to Airport Road and Huntsmill Drive intersection, is posted 80 km/h beyond the intersection;
- **Olde Base Line Road (Regional Road 12)** is an east-west, two-lane major arterial road under the jurisdiction of the Region of Peel. The posted speed limit on Olde Base Line Road at Airport Road is 50 km/h and is posted at 80 km/h beyond 500 m from Olde Base Line Road and Airport Road intersection. The Olde Base Line Road east leg terminates at Airport Road. No Parking allowed in the vicinity of the subject site. The road is currently truck prohibited;
- **Old Church Road (Regional Road 22)** is an east-west two-lane arterial road under the jurisdiction of the Region of Peel and it has a posted speed limit of 50 km/h. No Parking allowed in the vicinity of the subject site except one disabled parking spot by permit on the south of the roadway. The road is currently truck prohibited;
- **Mountcrest Road** is north-south local road consisting of a two-lane cross section under the jurisdictional control of Town of Caledon. The roadway maintains an unposted speed limit of 40 km/h in the vicinity of the proposed development. It is a 'T' intersection 'Stop' control at the minor street approach;
- **Cranston Drive** is a two-lane, east-west local road under the jurisdiction of The Town of Caledon and has a posted speed limit of 40 km/h. It terminates at Mountainview Road. It is a "T" intersection "Stop" control at the minor street approach; and,
- **Hiltop Drive** is a two-lane, east-west local road under the jurisdiction of The Town of Caledon and has a posted speed limit of 40 km/h. It is a 'T' intersection 'Stop' control at the minor street approach.

3.2 Planned Transportation Improvements

It is noted that the Ministry of Transportation, Ontario (MTO) is currently examining the feasibility of a GTA West Corridor, which will provide an east-west connection between the City of Vaughan and City of Guelph area. This new corridor has the potential to affect the timeline of improvements on Airport Road. However, given that plans are still in progress, the study has not assumed the GTA West Corridor.

It is understood that consideration of a potential Municipal Class Environmental Assessment (EA) for Peel Regional Road 7 (Airport Road) from 0.6 kilometres north of King Street to Huntmill Drive, as suggested by the Region, has been considered. Based on the discussion with Regional staff, the study will examine the need for improvements to Airport Road to address short term and long term issues related to capacity, operational, geometric and storm drainage deficiencies. In addition, the EA Study will include long-term improvements related to planned future growth, intersection improvements including roundabouts, traffic calming measures for truck and other vehicular traffic through Caledon East, infrastructure improvements for walking and cycling and streetscaping to support the Caledon East Community Improvements Plan.

As per the Region of Peel website, this particular EA study will not be considering road widening for additional through traffic lanes along Airport Road.

3.3 Existing Data

Existing traffic counts were undertaken by Accu-Traffic on behalf of COLE. The traffic data is provided in **Appendix A**.

Table 3.1 Summary of Traffic Data

Intersection	Data	Date	Source
Airport Road / Old Church Road – LCBO Driveway	TMC Signal Timing	Jan 17, 2017 September 22, 2014	TMCs Accu-Traffic Inc.
Airport Road / Mountcrest Road	TMC	Jan 17, 2017	
Airport Road / Hiltop Drive	TMC	Jan 17, 2017	
Airport Road / Public School Driveway	TMC	March 2, 2017	Signal Timing Cards Region of Peel
Airport Road / Cranston Drive	TMC	Jan 17, 2017	
Airport Road / Olde Base Line Road	TMC Signal Timing	Jan 17, 2017 December 18, 2000	
Airport Road / Caledon Trail Crossing	Signal Timing	September 22, 2014	

The existing traffic volumes are illustrated in **Figure 3-2**.

3.4 Existing Analysis

Capacity analysis for all intersections under balanced existing traffic conditions was analyzed using *Synchro 9* software following the *Region of Peel Transportation Impact Study (TIS) Terms of Reference¹* and *Regional Guidelines for Using Synchro Version 7.73 Rev.* It should be noted that the sum of the traffic

¹ *Transportation Impact Study (TIS) Terms of Reference*, The Regional Municipality of Peel, 2011.

volumes entering / exiting the link at Airport Road / School Driveway L/R out does not equal the sum of traffic volumes at the downstream end of link. This could be because the volume data as collected at different peak hour times. Therefore, traffic volumes are balanced between those intersections.

The network intersection’s capacity analysis is summarized in **Table 3.1**, while detailed calculations are provided in **Appendix B**. It should be noted that Airport Road and Old Church Road – LCBO Driveway is a three-leg intersection, however, for analysis purpose, the intersection was analyzed as a 4-leg intersection to create the westbound left movement. The critical movements (i.e. above volume to capacity (v/c) ratio of 0.90 for shared through / turning movements and 1.0 for exclusive movements) are bolded.

Table 3.2 Existing Traffic Analysis – Level of Service

Intersections	Control Type	Key Movements	AM Peak Hour LOS (v/c Ratio)[Delay(s)]	AM Peak Hour LOS (v/c Ratio)[Delay(s)]
Airport Road / Old Church Road – LCBO Driveway	Signalized	Overall EBLTR WBL WBTR NBLT NBR SBLTR	B (0.47) [15.5] B (0.00) [16.9] C (0.46) [23.2] B (0.02) [17.0] A (0.07) [9.3] A (0.03) [9.0] B (0.47) [13.2]	B (0.36) [13.2] B (0.05) [17.4] C (0.29) [20.3] B (0.09) [17.8] B (0.40) [12.3] A (0.15) [9.9] B (0.20) [10.3]
Airport Road / Mountcrest Road	Stop	WBLR NBT NBR SBLT	B (0.02) [11.5] A (0.06) [0.0] A (0.00) [0.0] A (0.00) [0.0]	B (0.01) [12.6] A (0.38) [0.0] A (0.01) [0.0] A (0.01) [0.3]
Airport Road / Hiltop Drive	Stop	EBLR NBL NBT SBTR	B (0.02) [12.2] A (0.01) [8.7] A (0.06) [0.0] A (0.35) [0.0]	B (0.02) [10.6] A (0.02) [7.7] A (0.38) [0.0] A (0.14) [0.0]
Airport Road / Public School Driveway	Stop (Left/Right Out)	EBLR NBT SBT	B (0.17) [13.5] A (0.06) [0.0] A (0.36) [0.0]	B (0.08) [11.8] A (0.38) [0.0] A (0.14) [0.0]
Airport Road / Cranston Drive	Stop	EBLR NBL NBT SBT SBR	B (0.05) [12.6] A (0.00) [9.2] A (0.05) [0.0] A (0.36) [0.0] A (0.00) [0.0]	B (0.02) [11.3] A (0.02) [7.7] A (0.38) [0.0] A (0.13) [0.0] A (0.00) [0.0]
Airport Road / Olde Base Line Road	Signalized	Overall EBLR NBLT SBTR	A (0.44) [8.3] D (0.28) [37.6] A (0.07) [2.5] A (0.45) [4.6]	B (0.51) [14.5] D (0.68) [39.0] A (0.47) [8.0] A (0.17) [5.4]

Under existing traffic conditions, all unsignalized and signalized intersections are currently operating at the good level of service (LOS) during the weekday a.m. and p.m. peak hours. All movements are operating with residual capacity and minimum delay time.

4 Future Background Traffic Operation

Future background traffic volumes for the 2023 and 2033 horizon periods, excluding the additional traffic generated by the proposed development, consists of the following components: background traffic growth from outside the study area and traffic generated within the study area from other proposed developments.

4.1 Growth Rate

As mentioned in **Section 2**, five-year and 10-year horizon periods have been identified for our analysis. This is in line with the Region's Traffic Impact Study requirements where the year 2023 and 2033 represents the proposed development full build-out period.

Based on our review of the Environmental Study Report conducted for Airport Road (1.0 km of Mayfield Road to 0.6 km north of King Street), the report identified a 3% growth rate per annum along Airport Road from 2011-2021 and a 2% growth rate per annum from 2021-2031. Therefore, 3% and 2% per annum (compounded) growth rate will be applied to the through movements along Airport Road, respectively in 2023 and 2033 horizons.

4.2 Future Background Developments

The subject site is located proximate to where other developments have been proposed in the vicinity of the site.

Potential future background developments:

- **Caledon Villas**, the subject lands are located on the east side of Innis Lake Road, north of Old Church in Caledon East. The subject lands, known municipally as 6600 Old Church Road, comprise an area of approximately 29.1 hectares. The residential subdivision proposed 321 lot residential dwelling. The Traffic Impact Study prepared by Cole Engineering Group Ltd., dated July 2013. The construction anticipated start in 2017. The generated site traffic is taken from this study, the associated site traffic figures are provided in **Appendix C**;
- **Castle of Caledon Corp.**, the subject lands are located at the north-east corner of Walker Road West and Mountainview Road in Caledon East. The subject lands, known municipally as 89 Walker Road West, comprise an area of approximately 24.91 hectares. The residential subdivision proposed 203 lot residential dwelling. The Traffic Impact Study prepared by Cole Engineering Group Ltd., dated October 2013. The construction anticipated start in 2017. The generated site traffic is taken from this study, the associated site traffic figures are provided in **Appendix C**;
- **2031818 Ontario Ltd.** (Weston Consulting), (0 Airport Road), the subject lands are located on the east of Airport Road, north of McKee Drive in Caledon East. The subject lands are comprised of approximately 18.8 hectares. The residential subdivision proposed 21 condominium dwelling. However, there was no traffic impact study submitted for this specific lands. The trip generation for this land summarized in **Table 4.1**;

- **16008, 16012, 16018 and 16024 Airport Road**, potential future development. The subject lands are comprised of 20,000 ft² commercial development. The trip generation for this land is summarized in **Table 4.1**; and,
- **16114 Airport Road** for potential future development. However, at this stage, there was not enough information to calculate the trip generation for this particular land.

Table 4.1 Trip Generation Summary for the Future Background Developments

Use	Parameter	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
2031818 Ontario Inc. (Weston Consulting) Residential Condominium / Townhouse 21 Units (LUC 230)	Gross Trip	3	12	15	11	6	17
	Rate (trips / unit)	0.14	0.57	0.71	0.52	0.29	0.81
	Net Trip	3	12	15	11	6	17
16008/16012/16018/16024 Airport Road 20,000 ft ² Commercial Development (LUC 820)	Gross Trip	36	22	58	46	28	74
	Rate (trips / unit)	1.80	1.10	2.90	2.30	1.40	3.70
	Net Trip	36	22	58	46	28	74
Gross Total		39	34	73	57	34	91

The future background developments traffic volumes are illustrated in **Figure 4-1**.

4.3 2023 Future Background Traffic Analysis

Future (2023) background traffic volumes are illustrated in **Figure 4-2**. The proposed future background traffic volumes were analyzed using *Synchro 9.0* software with detailed information provided in **Appendix D**. The Synchro output is summarized in **Table 4.2**. The critical movements (i.e. above volume to capacity (v/c) ratio of 0.90 for shared through/turning movements and 1.0 for exclusive movements) are bolded.

Table 4.2 Future 2023 Background Traffic Analysis – Level of Service

Intersections	Control Type	Key Movements	AM Peak Hour LOS (v/c Ratio)[Delay(s)]	AM Peak Hour LOS (v/c Ratio)[Delay(s)]
Airport Road / Old Church Road – LCBO Driveway	Signalized	Overall	B (0.56) [16.5]	B (0.49) [14.3]
		EBLTR	B (0.00) [16.9]	B (0.05) [17.4]
		WBL	C (0.55) [25.1]	C (0.35) [21.2]
		WBTR	B (0.02) [17.0]	B (0.10) [17.8]
		NBLT	A (0.11) [9.6]	B (0.58) [15.1]
		NBR	A (0.05) [9.1]	B (0.21) [10.4]
		SBLTR	B (0.56) [14.8]	B (0.32) [11.5]
Airport Road / Mountcrest Road	Stop	WBLR	B (0.03) [12.6]	C (0.02) [16.2]
		NBT	A (0.10) [0.0]	A (0.55) [0.0]
		NBR	A (0.00) [0.0]	A (0.01) [0.0]
		SBLT	A (0.00) [0.0]	A (0.01) [0.3]
Airport Road / Hiltop Drive	Stop	EBLR	B (0.02) [13.9]	B (0.02) [12.1]
		NBL	A (0.01) [9.2]	A (0.02) [8.1]
		NBT	A (0.09) [0.0]	A (0.56) [0.0]
		SBTR	A (0.44) [0.0]	A (0.22) [0.0]
Airport Road / Public School Driveway	Stop (Left/Right Out)	EBLR	C (0.21) [15.7]	B (0.11) [14.3]
		NBT	A (0.09) [0.0]	A (0.55) [0.0]
		SBT	A (0.45) [0.0]	A (0.22) [0.0]
Airport Road / Cranston Drive	Stop	EBLR	C (0.07) [15.0]	B (0.02) [13.6]
		NBL	B (0.01) [10.0]	A (0.02) [8.1]
		NBT	A (0.09) [0.0]	A (0.55) [0.0]
		SBT	A (0.48) [0.0]	A (0.23) [0.0]
		SBR	A (0.00) [0.0]	A (0.00) [0.0]
Airport Road / Olde Base Line Road	Signalized	Overall	A (0.55) [8.6]	B (0.70) [0.15]
		EBLR	D (0.30) [37.5]	D (0.69) [39.3]
		NBLT	A (0.13) [2.8]	B (0.71) [12.3]
		SBTR	A (0.58) [1.8]	B (0.32) [6.5]

Under 2023 future background traffic conditions, all unsignalized and signalized intersections are currently operating at the good level of service (LOS) during the weekday a.m. and p.m. peak hours. All movements are operating with residual capacity and minimum delay time.

4.4 2033 Future Background Traffic Analysis

Future (2033) background traffic volumes are illustrated in **Figure 4-2**. The proposed future background traffic volumes were analyzed using *Synchro 9.0* software with detailed information provided in **Appendix E**. The Synchro output is summarized in **Table 4.3**. The critical movements (i.e. above volume to capacity (v/c) ratio of 0.90 for shared through/turning movements and 1.0 for exclusive movements).

Table 4.3 Future 2033 Background Traffic Analysis – Level of Service

Intersections	Control Type	Key Movements	AM Peak Hour LOS (v/c Ratio)[Delay(s)]	AM Peak Hour LOS (v/c Ratio)[Delay(s)]
Airport Road / Old Church Road – LCBO Driveway	Signalized	Overall	B (0.62) [17.6]	B (0.55) [15.4]
		EBLTR	B (0.00) [16.9]	B (0.05) [17.4]
		WBL	C (0.55) [25.1]	C (0.35) [21.2]
		WBTR	B (0.02) [17.0]	B (0.10) [17.8]
		NBLT	A (0.13) [9.7]	B (0.68) [17.4]
		NBR	A (0.05) [9.1]	B (0.21) [10.4]
		SBLTR	A (0.67) [17.1]	B (0.37) [12.3]
Airport Road / Mountcrest Road	Stop	WBLR	B (0.03) [13.9]	C (0.02) [18.9]
		NBT	A (0.11) [0.0]	A (0.65) [0.0]
		NBR	A (0.00) [0.0]	A (0.01) [0.0]
		SBLT	A (0.00) [0.0]	A (0.01) [0.3]
Airport Road / Hiltop Drive	Stop	EBLR	C (0.03) [15.9]	B (0.02) [13.1]
		NBL	A (0.01) [9.8]	A (0.03) [8.2]
		NBT	A (0.11) [0.0]	A (0.65) [0.0]
		SBTR	A (0.53) [0.0]	A (0.25) [0.0]
Airport Road / Public School Driveway	Stop (Left/Right Out)	EBLR	C (0.25) [18.7]	C (0.13) [16.0]
		NBT	A (0.11) [0.0]	A (0.65) [0.0]
		SBT	A (0.54) [0.0]	A (0.26) [0.0]
Airport Road / Cranston Drive	Stop	EBLR	C (0.08) [17.7]	C (0.02) [15.0]
		NBL	B (0.01) [10.9]	A (0.02) [8.3]
		NBT	A (0.11) [0.0]	A (0.64) [0.0]
		SBT	A (0.58) [0.0]	A (0.27) [0.0]
		SBR	A (0.00) [0.0]	A (0.00) [0.0]
Airport Road / Olde Base Line Road	Signalized	Overall	A (0.64) [9.3]	B (0.78) [16.8]
		EBLR	D (0.30) [37.5]	D (0.69) [39.3]
		NBLT	A (0.14) [2.9]	B (0.81) [16.0]
		SBTR	A (0.67) [7.3]	A (0.36) [6.8]

Under 2033 future background traffic conditions, all unsignalized and signalized intersections are currently operating at the good level of service (LOS) during the weekday a.m. and p.m. peak hours. All movements are operating with residual capacity and minimum delay time.

5 Site Traffic Operations

Trip generation forecasts were undertaken using information contained in the *Trip Generation, 9th Edition* published by ITE. For the assessment of traffic generation, the ITE land use code (LUC) 230 was used to estimate residential land use trips for the weekday AM and PM peak hour. The current application is for 671 units including a Senior Adult Housing comprise 30 units. The trips generated by the proposed residential development are outlined in. To be more conservative the fitted curve equation used. The future lane configuration is illustrated in **Figure 5-1**. The trip generation calculation is summarized in **Table 5.2**.

The information contained in the 2011 Transportation Tomorrow Survey (TTS) for zone 3197 (the Subject Zone) has been reviewed but, since there are no residential zones near the subject site, zones 3442, 3386, and 3447 located in the City of Brampton have also been included in the calculations. The subject zone and adjacent TTS Zones have an existing non-auto modal split of approximately 8%. The non-auto modal split calculation is summarized in **Table 5.1**.

Table 5.1 Non-Auto Modal Split Calculation Summary

Zones	Transit Excluding GO Rail	Auto Driver	GO Rail Only	Joint GO Rail and Local Transit	Auto Passenger	School Bus	Walk	Total
3197	117	5317	35	0	987	0	134	6590
3386	1352	15018	206	62	1938	0	31	18607
3442	263	5697	118	242	949	57	0	7326
3447	295	6122	47	47	806	57	57	7431
Total	2033	32154	406	351	4680	114	222	39954
Percent	5%	80%	1%	1%	12%	0%	1%	100%
Non-Auto Reduction								8%

Currently, the Town does not operate a transit service. To be more conservative, we will not be applying a non-auto split reduction.

Table 5.2 Site Trip Generation Summary

Use	Parameter	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Residential Townhouse – 641 Units (LUC 230)	Gross Trip	48	234	282	223	110	333
	Rate (trips / unit)	0.07	0.37	0.44	0.35	0.17	0.52
	Net Trip	48	234	282	223	110	333
Senior Adult Housing – Attached - 30 Units (LUC 252)	Gross Trip	2	4	6	4	4	8
	Rate (trips / unit)	0.07	0.13	0.2	0.14	0.12	0.26
	Net Trip	2	4	6	4	4	8
Gross Total		50	238	288	227	114	341

Based on the foregoing, the proposed development is expected to generate 288 two-way (50 inbound and 238 outbound) trips during the roadway a.m. peak hour and 341 two-way (227 inbound and 114 outbound) trips during the roadway p.m. peak hour.

5.1 Trip Distribution

Trip distribution and assignments will be based on the latest 2011 Transportation Tomorrow Survey (TTS) and existing traffic patterns. The applied trip distribution is summarized in **Table 5.3** with detailed information provided in **Appendix F**.

Table 5.3 Site Trip Distribution

Direction	Via	Proportions (AM/PM)
North	Airport Road	24%
South	Airport Road	54%
East	Old Church Road via Airport Road	10%
West	Olde Base Line Road via Airport Road	12%
Total		100%

The site development traffic is assigned to the study area intersections based on the trip distribution presented and the projected site traffic volumes are illustrated in **Figure 5-2**.

5.2 Trip Assignment

The proposed site development traffic volumes noted in **Section 5.0** were assigned to the study area intersections based on the trip distribution presented in **Table 5.3** and are provided in **Figure 5-2**.

6 Future Total Traffic Operations

6.1 2023 Future Total Traffic Analysis – 5-Year Post Build-Out

Future (2023) total traffic volumes are illustrated in **Figure 6-1**. The proposed future total traffic volumes were analyzed using *Synchro 9.0* software with detailed information provided in **Appendix G**. The Synchro output is summarized in **Table 6.1**. The critical movements (i.e. above volume to capacity (v/c) ratio of 0.90 for shared through/turning movements and 1.0 for exclusive movements).

Table 6.1 2023 Future Total Traffic Analysis – Level of Service

Intersections	Control Type	Key Movements	AM Peak Hour LOS (v/c Ratio)[Delays]	AM Peak Hour LOS (v/c Ratio)[Delays]
Airport Road / Old Church Road – LCBO Driveway	Signalized	Overall EBLTR WBL WBTR NBLT NBR SBLTR	B (0.57) [16.3] B (0.00) [16.9] C (0.56) [25.4] B (0.02) [17.0] B (0.18) [10.2] A (0.06) [9.2] B (0.58) [15.1]	B (0.53) [14.8] B (0.05) [17.4] C (0.40) [22.1] B (0.10) [17.8] B (0.61) [15.7] B (0.21) [10.5] B (0.38) [12.3]
Airport Road / Mountcrest Road	Stop	WBLR NBT NBR SBLT	B (0.04) [12.5] - (0.14) [0.0] - (0.00) [0.0] A (0.00) [0.0]	C (0.03) [16.9] - (0.57) [0.0] - (0.01) [0.0] A (0.02) [0.6]
Airport Road / Hiltop Drive	Stop	EBLR NBL NBT SBTR	B (0.02) [14.1] A (0.01) [9.3] - (0.14) [0.0] - (0.45) [0.0]	B (0.02) [13.4] A (0.03) [8.3] - (0.58) [0.0] - (0.26) [0.0]
Airport Road / Public School Driveway – Street ‘A’ North Access	Signalized (New)	Overall EBLTR WBL WBR NBT NBR SBL SBT	B (0.59) [10.9] C (0.21) [24.8] C (0.53) [28.3] C (0.03) [23.9] A (0.17) [4.1] C (0.00) [31.6] A (0.01) [3.4] A (0.60) [7.7]	A (0.68) [8.8] C (0.03) [27.3] C (0.47) [28.3] C (0.00) [32.4] A (0.70) [4.8] C (0.00) [32.4] A (0.19) [2.7] A (0.29) [3.0]
Airport Road / Cranston Drive – Street ‘A’ South Access	Stop	EBLTR WBLTR NBL NBT NBR SBL SBT SBR	C (0.08) [17.1] C (0.24) [20.3] B (0.01) [11.2] - (0.10) [0.0] - (0.02) [0.0] A (0.00) [7.6] - (0.54) [0.0] - (0.00) [0.0]	C (0.03) [15.7] C (0.10) [19.4] A (0.02) [8.3] - (0.56) [0.0] - (0.08) [0.0] B (0.01) [10.6] - (0.26) [0.0] - (0.00) [0.0]
Airport Road / Olde Base Line Road	Signalized	Overall EBLR NBLT SBTR	A (0.66) [9.8] D (0.33) [37.5] A (0.15) [3.0] A (0.70) [7.9]	B (0.81) [18.4] D (0.73) [40.7] B (0.83) [17.8] A (0.39) [7.5]

Under 2023 future total traffic conditions, all unsignalized and signalized intersections are currently operating at the good level of service (LOS) during the weekday a.m. and p.m. peak hours. All movements are operating with residual capacity and minimum delay time.

6.2 2023 Future Total Traffic Analysis – 10-Year Post Build-Out

Future (2033) total traffic volumes are illustrated in **Figure 6-2**. The proposed future total traffic volumes were analyzed using *Synchro 9.0* software with detailed information provided in **Appendix H**. The Synchro output is summarized in **Table 6.2**. The critical movements (i.e. above volume to capacity (v/c) ratio of 0.90 for shared through / turning movements and 1.0 for exclusive movements).

Table 6.2 2023 Future Total Traffic Analysis – Level of Service

Intersections	Control Type	Key Movements	AM Peak Hour LOS (v/c Ratio)[Delays]	AM Peak Hour LOS (v/c Ratio)[Delays]
Airport Road / Old Church Road – LCBO Driveway	Signalized	Overall EBLTR WBL WBTR NBLT NBR SBLTR	B (0.63) [17.5] B (0.00) [16.9] C (0.56) [20.3] B (0.02) [17.0] B (0.20) [10.3] A (0.06) [9.2] B (0.68) [17.5]	B (0.59) [16.0] B (0.05) [17.4] C (0.40) [22.1] B (0.10) [17.8] B (0.71) [18.3] B (0.21) [10.5] B (0.46) [13.5]
Airport Road / Mountcrest Road	Stop	WBLR NBT NBR SBLT	B (0.04) [13.7] - (0.16) [0.0] - (0.00) [0.0] A (0.00) [0.0]	C (0.04) [19.7] - (0.67) [0.0] - (0.01) [0.0] A (0.02) [0.7]
Airport Road / Hiltop Drive	Stop	EBLR NBL NBT SBTR	C (0.03) [16.1] A (0.01) [9.9] - (0.15) [0.0] - (0.54) [0.0]	C (0.03) [16.3] A (0.03) [8.4] - (0.67) [0.0] - (0.29) [0.0]
Airport Road / Public School Driveway – Street ‘A’ North Access	Signalized (New)	Overall EBLTR WBL WBR NBT NBR SBL SBT	B (0.69) [12.0] C (0.21) [24.8] C (0.53) [28.3] C (0.04) [23.9] A (0.19) [4.2] A (0.00) [3.3] A (0.01) [3.4] B (0.73) [10.2]	B (0.79) [11.0] C (0.03) [26.7] C (0.45) [30.3] C (0.02) [26.6] B (0.83) [12.1] A (0.01) [2.4] A (0.31) [7.2] A (0.34) [3.8]
Airport Road / Cranston Drive – Street ‘A’ South Access	Stop	EBLTR WBLTR NBL NBT	C (0.11) [22.6] D (0.37) [30.9] B (0.01) [13.7] - (0.11) [0.0]	C (0.03) [18.0] C (0.12) [23.2] A (0.02) [8.5] - (0.66) [0.0]

Intersections	Control Type	Key Movements	AM Peak Hour LOS (v/c Ratio)[Delays]	AM Peak Hour LOS (v/c Ratio)[Delays]
		NBR SBL SBT SBR	- (0.02) [0.0] A (0.00) [7.6] - (0.64) [0.0] - (0.00) [0.0]	- (0.08) [0.0] B (0.01) [11.4] - (0.30) [0.0] - (0.00) [0.0]
Airport Road / Olde Base Line Road	Signalized	Overall EBLR NBLT SBTR	B (0.74) [11.7] D (0.33) [37.5] A (0.17) [3.1] B (0.79) [10.5]	C (0.89) [23.6] D (0.73) [40.7] C (0.93) [27.2] A (0.43) [7.9]
Airport Road / Olde Base Line Road	Signalized (Optimized)	Overall EBLR NBLT SBTR	-	C (0.88) [22.0] E (0.87) [60.9] B (0.88) [20.0] A (0.41) [6.6]

Under 2033 future total traffic conditions, all unsignalized and signalized intersections are currently operating at the good level of service (LOS) during the weekday a.m. and p.m. peak hours except northbound left true movement in the intersection of Airport Road / Olde Base Line Road will experience LOS 0.93 and delay 27.2 seconds. To improve the intersection operation the cycle length has been optimized, LOS 0.88 and delay 22.0 seconds. All other movements are operating with residual capacity and minimum delay time.

6.3 Queuing Analysis – Future (2023 and 2033) Total Traffic Conditions

Queuing analyses were completed using the *Synchro 9.0* software. The Airport Road / Street ‘A’ North Access and Airport Road / Street ‘A’ South Access intersections were analyzed.

The detailed queuing report outputs under the future 2023 and 2033 total traffic conditions are presented in **Appendix I**. The 95th percentile queues of the critical movement are summarized in **Table 6.3**.

Table 6.3 95th Percentile Queue Lengths

Intersection	Key Movements	95 th Percentile Queue (m)		Recommended Storage Lengths (m)
		FT2023 AM (PM)	FT 2033 AM (PM)	
Airport Road / Cranston Drive – Street ‘A’ South Access	Westbound Left-thru-right	7.9 (2.6)	12.8 (3.2)	--
	Northbound Left	0.2 (0.5)	0.2 (0.5)	30.0 m
	Northbound Right	0.0 (0.0)	0.0 (0.0)	30.0 m
	Southbound Left	0.1 (0.3)	0.1 (0.3)	30.0 m
Airport Road / School Driveway L/R Out – Street ‘A’ North Access	Westbound Left	22.5 (14.7)	22.5 (14.7)	22.0 m
	Northbound Right	0.0 (0.0)	0.0 (0.6)	30.0 m
	Southbound Left	2.3 (8.0)	2.3 (11.5)	30.0 m

The results of the queueing analysis indicate that the westbound left-thru-right lane 95th percentile queue in the Airport Road / Cranston Drive – Street ‘A’ South Access intersection, in the future (2023 and 2033) total horizon years will be less than 12.8 m (or less than two-car) length. It is determined that westbound left-thru-right lane is not expected to block the laneways inbound or outbound traffic. The laneways are located approximately 35 m to Airport Road / Cranston Drive – Street ‘A’ South Access, under “Stop” control at the minor street. It should be noted, that the recommended storage lengths on Airport Road are based on the Peel Region’s minimum storage length requirement of 30 m.

Based on the queueing analysis in the future 2023 and 2033 total traffic conditions, estimated 95th percentile queue lengths will not exceed their available / proposed storage length for all intersections.

6.4 Traffic Signal Warrant Analysis – Justification 7

Traffic signal warrant analysis was conducted for the future (2023 and 2033) total horizon years, during the weekday AM and PM peak hours for following intersections;

- Airport Road / Street ‘A’ North Access; and,
- Airport Road / Street ‘A’ South Access.

The results of the analysis indicate that the traditional warrants for signalization are not satisfied for the Airport Road / Street ‘A’ North Access intersection. The results indicate that the traditional warrants for signalization are not satisfied as the governing warrant fulfillment percentages are 75% and 75% for the 2023 and 2033 horizon years, respectively. As indicated in the ‘Overall Warrant’ section of the attached sheets, the 72% fulfillment reported is well below the 120% required for an existing intersection with one road or both roads are future. This is due to the fact that the minor volumes, from School Driveway L/R Out and the proposed Street ‘A’ North access, are considered to be too low. The detailed analysis sheets are provided in **Appendix J**.

However, it should be noted that Caledon East Public School is located in the vicinity of the subject site. Pedestrians, especially children, can be particularly vulnerable to serious injuries at intersections at which vehicles on one or more approaches are not required to stop. The poor operations and high delay associated with these pedestrians, in combination with various safety considerations, continue to support signalization of the proposed Street ‘A’ North Access / Airport Road intersection. As such, despite not satisfying the traditional warrant for signalization, the North Access was analyzed as a signalized intersection in order to assess the degree of operational improvement that could be achieved. Pedestrian Volume and Delay warrants are completed and presented in the following **Section 6.5**.

Also, a signal warrant analysis was conducted for the intersection of Cranston Road and the proposed Street ‘A’ South Access with Airport Road, for the future (2023 and 2033) total horizon year. The results of the analysis indicate that the traditional warrants for signalization are not satisfied for this intersection. The results indicate that the traditional warrants for signalization are not satisfied as the governing warrant fulfillment percentages are 31% and 31% for the 2023 and 2033 horizon years, respectively. As indicated in the ‘Overall Warrant’ section of the attached sheets, the 31% fulfillment reported is well below the 120% required for an existing intersection with one road or both roads are future. This is due to the fact that the minor volumes, from Cranston Drive and the proposed Street ‘A’ South Access, are considered to be too low. The detailed analysis sheets are provided in **Appendix J**.

6.5 Pedestrian Volume and Delay Warrants – Justification 6

The minimum pedestrian volume conditions are intended for applications where the traffic volume on the main road is so heavy that pedestrians experience excessive delay or hazard in crossing the main road and where high pedestrian crossing volumes produce the likelihood of such delays. To determine the need for a traffic signal at the intersection the following minimum pedestrian volume and delay criteria are must meet:

- Pedestrian Volume warrant; and,
- Pedestrian Delay warrant.

6.5.1 Pedestrian Volume Warrant

It should be noted that Caledon East Public School is located in the vicinity of the subject site, therefore, a pedestrian signal warrant analysis was carried out for the total eight-hour pedestrian volume crossing the main road (Airport Road) at the unsignalized intersection of Airport Road / School Driveway L/R out – Street 'A' North Access.

6.5.1.1 Net 8-Hour Pedestrian Volume (Vp)

Based on the Peel District School Board response the City planner, the subject site's the anticipated yield is 161 students between kindergarten to Grade 8. The Peel District School Board response letter and the Peel District School Board Transportation Policy are illustrated in **Appendix K**. Since the Peel District School Board Transportation Policy (Policy 39) states that eligibility distances for transportation are:

- Kindergarten-Grade 1 Students 1.0 km
- Grade 2 – Four Students 1.6 km
- Grade 5 – Eight Students 2.0 km

Given the close proximity of the subject site to the school, with most of the students assumed to be walking to the school with a guardian; the anticipated student from the subject site is therefore; 161 students.

- Eight-Hour Pedestrian Volume: $161 \text{ student} \times 2 \text{ (am/pm)} \times 50\% = 161 \text{ students}$ (to be conservative it is assumed that 50% will be walking to school);
- Eight-Hour Pedestrian Volume: $161 \text{ students} \times 50\% = 81 \text{ guardians}$ (based on the Ontario Traffic Manual Book 12, Justification 6 notes – children under 12 assisted in crossing road, to be conservative it is assumed that 50% will be assisted with a guardian);
- Eight-Hour Pedestrian Volume: $81 \text{ guardians} \times 4 = 324 \text{ guardians}$ (guardians will be crossing the roadway four times); and,
- Eight-Hour Pedestrian Volume: $161 \text{ students} + 324 \text{ guardians} = 485 \text{ pedestrians}$ (Adjusted).

6.5.1.2 8-Hour Vehicular Volume (V8)

Total Count at the intersection of Airport Road / School Driveway L/R out- Street 'A' North Access includes: For the subject site future 8-hour vehicular volumes are not available therefore Peak Hour Volumes (PHV) used.

The Average Hourly Volume (AHV) estimated by:

Future Total 2023 Traffic Volume:

$$AHV = (amPHV + pmPHV) / 4$$

Future Total 2023 AM AHV: $(1182 + 1460) / 4 = 661$ vehicle per hour (vph) (rounded to whole number)

Eight-Hour Vehicular Volume: $661 \text{ vph} \times 8 \text{ h} = 5288$ vehicle (v) (NB and SB).

Future Total 2033 Traffic Volume:

$$AHV = (amPHV + pmPHV) / 4$$

Future Total 2033 AM AHV: $(1369 + 1687) / 4 = 764$ vph

Eight-Hour Vehicular Volume: $764 \text{ vph} \times 8 \text{ h} = 6112$ v (NB and SB).

8 HOUR VEHICULAR VOLUME (V8)	NET 8 HOUR PEDESTRIAN VOLUME				
	<200	200 - 275	276 - 475	476 - 1000	>1000
<1440	NOT JUSTIFIED	NOT JUSTIFIED	NOT JUSTIFIED	NOT JUSTIFIED	NOT JUSTIFIED
1440 - 2600	NOT JUSTIFIED	NOT JUSTIFIED	NOT JUSTIFIED	SEE EQUATION 1	JUSTIFIED
2601 - 7000	NOT JUSTIFIED	NOT JUSTIFIED	SEE EQUATION 2	JUSTIFIED	JUSTIFIED
>7000	NOT JUSTIFIED	SEE EQUATION 3	JUSTIFIED	JUSTIFIED	JUSTIFIED

EQUATION 1: Justified if net 8-hour ped vol. $> (1650 - (0.45V_8))$
 EQUATION 2: Justified if net 8-hour ped vol. $> (0.00001 V_8^2 - 0.146V_8 + 800)$
 EQUATION 3: Justified if net 8 hour ped vol. $> (340 - (0.0094V_8))$
 % Justification = ((net 8 hour pedestrian volume)/(Equation 1, 2 or 3 as appropriate)) x 100%

As indicate in the (Table 18) Pedestrian Volume Justification 6A and Figure 22, illustrated in **Appendix L**, from OTM Book 12, the pedestrian signal warrant is justified, as the projected pedestrian volume falls within the '476-1000' category and the projected future 8 Hour Vehicular Volume is 5288 and 6112 for future 2023 and 2033 horizons years, respectively.

6.5.2 Pedestrian Delay Warrant

To determine the probability of delayed crossing over 10 seconds, a HCM2010 methodology for two-way stop-controlled intersections used. As per the HCM2010 methodology, Poisson distribution was used to calculate the probability of delayed crossing events longer than 10 seconds.

6.5.2.1 Poisson Distribution

The probability of delayed crossing over 10 seconds:

Poisson Formula is:

$$P(x; \mu) = \frac{(e^{-\mu})(\mu^x)}{x!}$$

Where:

$$x = \text{time to cross the intersection (seconds)}$$

$$\mu = \text{average delay experienced (seconds)}$$

Based on HCM2010 analysis using *Synchro 9.0*, average pedestrian delays were obtained and are detailed and summarized in **Appendix M** and **Table 6.4** respectively for the Future (2023) Total Traffic Scenario. Poisson distribution was used to determine the probability of delayed crossing over 10 seconds, the calculations for Poisson Distribution are shown in **Appendix N**.

Table 6.4 Net Pedestrian Delays >10 Seconds (Future 2023 Total Traffic Conditions)

Peak Hour	AM Peak Hour		PM Peak Hour	
Approach Direction	Northbound Leg	Southbound Leg	Northbound Leg	Southbound Leg
Average Pedestrian Delay (seconds)	>10	>10	>10	>10
The probability of Delayed Crossing over 10 seconds	100%	100%	100%	100%

Based on the analysis of the total 8-hour volume of pedestrians experiencing delays of 10 seconds or more in crossing the road during the highest eight hours of pedestrian traffic fulfills the justification requirement identified in Figure 23 and Ministry of Transportation (MTO) Results Sheet, illustrated in **Appendix O**, the pedestrian signal warrant is justified. A tabular form of the justification values is provided in Table 19 below.

NET TOTAL 8 HOUR VOL. OF TOTAL PEDESTRIANS	NET TOTAL 8 HOUR VOLUME OF DELAYED PEDESTRIANS		
	<75	75 - 130	>130
<200	NOT JUSTIFIED	NOT JUSTIFIED	NOT JUSTIFIED
200 - 300	NOT JUSTIFIED	JUSTIFIED IF VOL. OF DELAYED PEDS. > (240 - (0.55 x VOL. OF TOTAL PEDS))	JUSTIFIED
>300	NOT JUSTIFIED	JUSTIFIED	JUSTIFIED

% Justification = ((net 8 hour delayed pedestrian volume) / (threshold volume for justification)) x 100%

The high pedestrian volume and delay associated with these northbound and southbound movements, in combination with various safety considerations, continue to support signalization of the proposed Street 'A' North Access intersection.

6.6 Left Turn Warrant Analysis

The left-turn warrant analysis was done for the following movements using monographs in the MTO Geometric Design Standards:

- Southbound left-turn at Airport Road / Cranston Drive – Street 'A' South Access; and,
- Westbound left-turn at Airport Road / Cranston Drive – Street 'A' South Access.

Appendix P shows the detailed calculations of the left turn warrant analysis of the southbound and westbound movements at the intersection of Airport Road and Street 'A' South Access intersection. The analysis concludes that an exclusive left-turn lane is warranted for southbound movement under the future (2023 and 2033) total traffic conditions based on the design speed of 60km/h.

However, the left turn on the Street 'A' South access is not warranted. Traffic operational analysis done without exclusive left-turn lane at this intersection shows that this movement will operate at the good level of capacity. Therefore, the exclusive left-turn lane is not considered in the future (2023 and 2033) total traffic conditions for the westbound approach. The detailed calculation and monographs are illustrated in **Appendix P**.

In addition, left turn lane warrants for an exclusive westbound left turn lane were conducted and are assumed in the analysis. The details are included in **Appendix P**. The proposed future lane configuration is illustrated in **Figure 5-1**.

7 Recommendations

7.1 Community Safety Zones

Community Safety Zones (CSZ) is incorporated in the Ontario government's road safety strategy, which includes initiatives intended to discourage unsafe driving. Airport Road is one of the major north / south truck routes in the Town and has high traffic volumes. Caledon East Public School, proposed senior citizen residence and parkette, valleyland are in the vicinity of the subject site in Caledon East Community. Based on this as well as traffic volumes and speeds, the existing CSZ is recommended to be extended onto Airport Road 450 m south of Cranston Drive. The proposed CSZ signage plan as shown in **Appendix Q**.

In addition, the existing Caledon East Gate feature is located at front of the existing commercial plaza on Airport Road, just north of the proposed subject site. The gateway feature is proposed to be relocated to the southernmost portion of the subject site, defining the point of arrival to Caledon East. The relocation of the gateway feature will support a visual and physical transition into the community, helping to establish a 'Community Safety Zone.'

It is suggested that Council enact a By-law to designate the portion of Airport Road as CSZ which contribute to a safer traffic environment in the vicinity of the subject site (Caledon East Public School and Caledon East Community).

7.2 Intersection Spacing and Internal Traffic Control Plan

Based on the Regional Municipality of Peel By-law number 75-2012, **Appendix A**, the minimum spacing for a full moves access along regional roads required to be 300 to 400 m. Along Airport Road, the Regional minimum spacing between intersections is met.

Guidelines for internal intersection spacing are provided in the Geometric Design Guide for Canadian Roads, prepared by the Transportation Association of Canada (TAC) in 1999. These guidelines state that “the minimum spacing between four-legged intersections is normally 60 m. Where the adjacent intersections are three legged a minimum spacing of 40 m is acceptable”. In the subdivision, the TAC normal minimum spacing between intersecting local roads is met.

In addition, the following internal road network intersections are proposed to be stop control at the minor road:

- Airport Road / Street ‘A’ South Access;
- Street ‘A’ / Laneway ‘1’;
- Street ‘A’ / Street ‘M’;
- Street ‘A’ / Street ‘U’ - east;
- Street ‘A’ / Street ‘T’ – Street ‘L’;
- Street ‘A’ / Street ‘U’ – Street ‘N’;
- Street ‘A’ / Street ‘K’;
- Street ‘A’ / Street ‘T’;
- Street ‘A’ / Street ‘J’;
- Street ‘A’ / Street ‘S’;
- Street ‘A’ / Laneway ‘9’;
- Street ‘A’ / Street ‘P’;
- Street ‘A’ / Street ‘P’
- Street ‘A’ / Laneway ‘10’;
- Street ‘A’ / Street ‘D’ - south;
- Street ‘A’ / Street ‘D’ - north;
- Street ‘A’ / Street ‘E’;
- Street ‘A’ / Street ‘F’;
- Street ‘A’ / Street ‘C’;
- Street ‘A’ / Street ‘K’;
- Street ‘A’ / Laneways ‘12’;
- Street ‘A’ / Street ‘B’;
- Street ‘A’ / Street ‘L’;
- Street ‘A’ / Street ‘M’;
- Street ‘M’ / Laneway ‘3’;
- Street ‘M’ / Laneway ‘1’;
- Street ‘M’ / Street ‘N’;
- Street ‘L’ / Street ‘N’;
- Street ‘N’ / Street ‘K’;
- Street ‘N’ / Lane ‘5’ and ‘6’;
- Street ‘N’ / Street ‘H’;
- Street ‘K’ / Laneway ‘7’;
- Street ‘J’ / Laneway ‘7’ and ‘8’;
- Street ‘J’ / Street ‘H’;
- Street ‘G’ / Laneway ‘8’ and ‘10’;
- Street ‘G’ / Street ‘H’;
- Street ‘F’ / Laneway ‘4’ and ‘10’;
- Street ‘F’ / Street ‘G’;
- Street ‘K’ / Laneway ‘4’;
- Laneway ‘4’ / Laneway ‘5’;
- Street ‘T’ / Street ‘Q’;
- Street ‘S’ / Street ‘Q’;
- Street ‘P’ / Street ‘Q’;
- Street ‘E’ / Street ‘D’;
- Street ‘B’ / Street ‘C’;
- Street ‘B’ / Laneway ‘12’.

The following internal road network intersections are proposed to be all-way stop control:

- Street 'A' / Street 'A' / Street 'B' / Street 'L'.

The necessary traffic controls plan is depicted in **Appendix R**.

8 Transportation Demand Management

Transportation Demand Management (TDM) refers to a variety of strategies to reduce congestion, minimize the number of single-occupant vehicles, encourage non-auto modes of travel, and reduce vehicle dependency to create a sustainable transportation system.

- Can lower the number of vehicles on our roads and help improve air quality;
- Promotes more choice and accessibility for users, saving time and money; and,
- Supports better health and fitness.

The Town is developing a Transportation Master Plan to study the existing transportation network and identify strategic actions to meet the Town's future transportation needs.

8.1 TDM Opportunities

8.1.1 Area Marketing Campaigns

Area marketing campaigns are premised on the objective of behavioural change. The methods of persuasion include conveying messages of:

1. Personal benefit;
2. The social benefit, and,
3. Adhering to the "social norm".

It is recognized that individuals are more likely to change their current behaviour or continue that behaviour if it is the social norm amongst their peers.

One of the first area marketing TDM campaigns within the GTA was established by Metropolitan Toronto in 1994. The Diamond Lane Campaign was implemented in coordination with the expansion of the High Occupancy Lane network. The campaign included a billboard, transit vehicle, radio, and newspaper ads. Transportation Management Association (TMA)'s can help facilitate TDM directives by developing promotional materials, advocate for funding, conduct transportation fairs, and many other things.

8.1.2 Public Transit

Currently, the Town does not operate a transit service.

8.1.3 Walking / Cycling

The Town has over 260 km of publicly accessible trails, over 65 parks and many playgrounds, picnic areas, splash pads, tennis courts, sports fields, a leash-free park, a skateboard park and many other amenities. There are many options for people of all ages to enjoy outdoor recreation. In addition, cycling safety programs were offered such as CAN-BIKE courses and community safety workshops. The Road Safety Handbook was published and includes a chapter on cycling safety. Cycling Canada's CAN-BIKE program is a series of progression courses taught on all aspects of cycling, to ride safely, effectively, and enjoyable on the road. Program development is coordinated through Cycling Canada, with help from National Examiners/Instructors. Course delivery and administration takes place through CAN-BIKE Delivery Agents, such as community associations, municipal departments, service groups and the efforts of independent instructors. The link can be found here: <http://canbikecanada.ca/>.

Based on the Caledon East Conceptual Pedestrian Network provided in **Appendix S**, a conceptual pedestrian linkage is provided within the boundaries of the subject site connecting to Valley Land to the west of Airport Road and residential area to the north Caledon Trail path. Sidewalks, walkways and trails provided within the site to ensure there are opportunities for a pedestrian to safely and easily move around the site and connect adjacent neighbourhood and Valley Lands. Sidewalks are provided on all streets (on both sides of Street 'A' and on one side of other streets). **Figure 8-1** illustrates the proposed locations of trails, walkways and sidewalks plan prepared by MBTW.

In addition, a separated bicycle lane has been proposed exclusively for cyclists by a marked roadway. 1.5 m bike lane provided on each side of Street 'A' and Airport Road. The bike lanes support active transportation, provide continuity along Airport Road and connect and create a transition into Caledon East's 'Village-like' character in the vicinity of the subject site. Therefore, appropriate signage, pavement marking and wayfinding signage should be provided at key pedestrian areas.

8.1.4 Carpooling

The Smart Commute program has been established in the form of 10 TMAs across the GTHA. The Smart Commute TMAs are supported by Metrolinx to coordinate and implement TDM initiatives.

Smart Commute – The Town of Caledon has displayed leadership in reducing the environmental impact of its workforce by joining the Smart Commute Program. To date, their program includes bicycle and carpool parking, electric vehicle charging stations, and access to a fleet of vehicles. In addition, they offer an employee bike share program, which encourages employees to try cycling for exercise and as a form of active transportation.

Since inception in 2001, Smart Commute has collectively reduced approximately 1.2 million single-occupant vehicles (SOV) trips, which avoided more than 61 million vehicle kilom travelled (VKT) and prevented the emission of over 14,000 tonnes of greenhouse gases (GHG) and 88 tonnes of smog-causing air pollutants. Smart Commute works to:

- Implement employee trip reduction programs at local workplaces;
- Decrease traffic congestion, and improve air quality and health by reducing vehicle emissions;
- Improve employee productivity and morale, and reduce employee turnover;

- Advocate for improved transit service, and increased local transportation infrastructure;
- Bus-only and cycling lanes, and a wider network of subway and light rapid transit;
- Promote the benefits of transit-supportive development and smart-growth strategies;
- Encourage legislative flexibility in support of high-value, cost-effective transportation strategies such as vanpools, telework, transit subsidies and shuttle services; and,
- Increase opportunities for TMA collaboration with business and government.

Smart Commute offers one-on-one support for staff to use sustainable modes of transportation and provides promotions and incentives on an on-going basis. A web-based car matching tool is provided to allow carpoolers to easily identify ride matching options among a large membership base and form carpooling arrangements. More information about Smart Commute and Tools can be found here: <http://smartcommute.ca/brampton-caledon/smart-partners/town-of-caledon/>.

TDM strategies do not work in isolation, but instead, they work together synergistically as one integrated plan specifically focused on the identified study area. In short, the TDM plan works best when complementary strategies are packaged together. Similarly, the objectives of the TDM plan cannot be achieved alone, but instead, it requires the cooperation between different stakeholders including the developers, City / Region authorities, transit providers, and other involved / impacted partners.

8.2 TDM Strategies

8.2.1 Marketing

The success of a TDM program heavily depends on the marketing strategies. As such, it is recommended to provide residents with a welcome package to inform residents with alternative travelling options using active transportation network including information on cycling, walking and Smart Commute Program.

8.2.2 Education and Promotion

As the new subdivision will be the close proximity of the public school, it is anticipated that a considerable portion of the students will be local residents within the community. Therefore, this provides a great opportunity to encourage alternative modes of transportation specifically active transportation (cycling and walking) through partnerships with school boards.

Metrolinx started a pilot project, "*Stepping It Up*", in fall 2009. The project used the Canadian School Travel Planning (STP) Model to encourage active transportation modes of school travel for students, families, and staff. A total of 30 elementary schools in the Cities of Hamilton, Brampton, and Mississauga participated in the project. According to the final report "*Stepping It Up*" completed in June 2012, the survey results from five Peel Region schools indicated a 10% increase in pedestrian travel based on family surveys and a 3% increase based on student surveys. In contrast, the results showed a 9% decrease in car travel based on family surveys and a 7% decrease based on student surveys. This project is now over; however, following the success of this pilot project, it has since been incorporated into the Peel School Travel Planning Program which provides programs and resources such as the School Bicycle Parking Program, Bike to School Week, Peel Children's Safety Village, and the 10 Step Handbook for High School Bike Projects and the Bike Rodeo Community Kit.

Community-based initiatives, such as Active and Safe Routes to School (ASRTS) could encourage the use of active transportation for the daily trips to school. The Active and Safe Routes to School provides resources, tools, information and links for school and communities to create their own unique Active and Safe Routes to School program. The Active and Safe Routes to School program may include walking to school activities such as Walking School Bus, Walking Wednesdays, Walk-a-Block, Walking Buddies, etc.

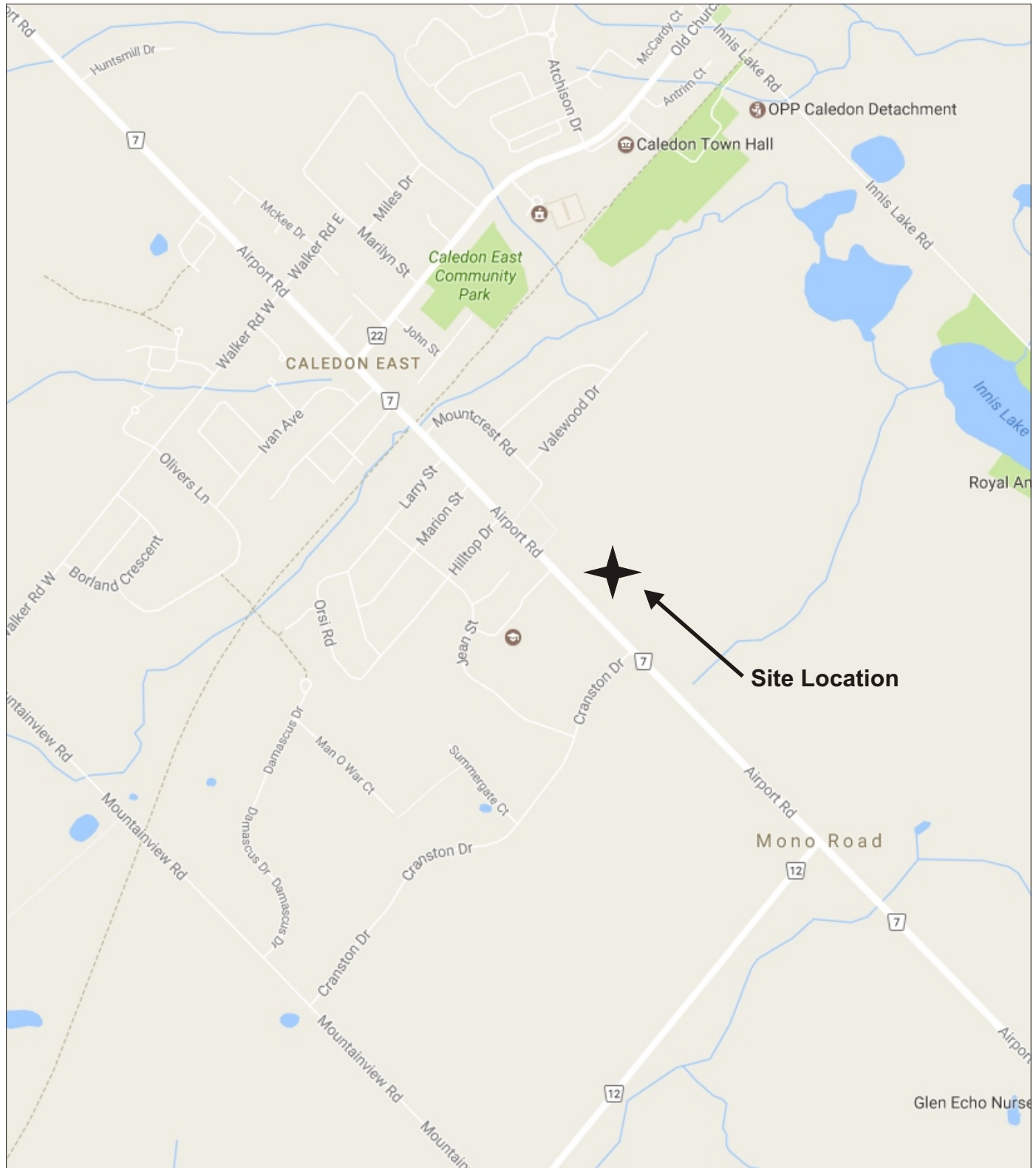
9 Conclusions

Based on the analysis, our findings and conclusions are as follows:

- Vehicle access to the development is provided via three full movement access driveways. Two site accesses are provided off Airport Road approximately 730 m north of Olde Base Line Road 200 m south of Hiltop Drive. The third access will be on the north side of the development connecting Street 'B' to existing Mountcrest Road;
- Under existing conditions, the unsignalized intersections within the site network are currently operating at a good level of service during the weekday a.m. and p.m. peak hour with residual capacity and minimum delay time;
- Background development corridor growth of 3% and 2% were applied to the traffic volume along the major corridors of Airport Road over a five and ten-year horizon coinciding with full build-out of the development, respectively;
- Under future (2023 and 2033) background conditions, all unsignalized and signalized intersections will continue to operate at good levels of service during both the weekday a.m. and weekday p.m. peak hour with residual capacity and minimum delay time;
- The proposed development is expected to generate 288 two-way (50 inbound and 238 outbound) trips during the roadway a.m. peak hour and 341 two-way (227 inbound and 114 outbound) trips during the roadway p.m. peak hours;
- With the addition of the site-generated traffic, the unsignalized and signalized intersections will continue to operate at good level of service at similar conditions to that occurring under future (2023 and 2033) total conditions except northbound left true movement in the intersection of Airport Road / Olde Base Line Road will experience LOS 0.93 and delay 27.2 seconds. To improve the intersection operation the cycle length has been optimized, LOS 0.88 and delay 22.0 seconds. All other movements are operating with residual capacity and minimum delay time;
- The traditional warrants for traffic signals are not satisfied at the intersection of Airport Road / Cranston Drive – Street 'A' South Access, and Airport Road / School Driveway L/R out – Street 'A' North Access based on future (2023) and (2033) total traffic volumes. However, traffic signals are recommended at Airport Road / School Driveway L/R out – Street 'A' North Access as they dramatically mitigate the excessive pedestrian delays of the northbound and southbound approaches associated with the School Driveway L/R Out and the proposed Street A North access;

Intersection	Key Movements	Recommended Storage Lengths (m)
Airport Road / Cranston Drive – Street 'A' South Access	Westbound Left-thru-right	--
	Northbound Left	30.0 m
	Northbound Right	30.0 m
	Southbound Left	30.0 m
Airport Road / School Driveway L/R Out – Street 'A' North Access	Westbound Left	22.0 m
	Northbound Right	30.0 m
	Southbound Left	30.0 m

- The results of the queueing analysis indicate that the westbound left-thru-right lane 95th percentile queue in the Airport Road / Cranston Drive – Street ‘A’ South Access intersection, in the future (2023 and 2033) total horizon years will be less than 12.8 m (or less than two-car) length. It is determined that westbound left-thru-right lane is not expected to block the laneways inbound or outbound traffic. The laneways are located approximately 35 m to Airport Road / Cranston Drive – Street ‘A’ South Access, under “Stop” control at the minor street. The recommended storage lengths are based on the Peel Region’s minimum storage length requirement of 30m;
- The high pedestrian volume and delay associated with these northbound and southbound movements, in combination with various safety considerations, continue to support signalization of the proposed Street ‘A’ North Access intersection. Based on the analysis of the total eight-hour volume of pedestrians experiencing delays of ten seconds or more in crossing the road during the highest eight hours of pedestrian traffic warrant, fulfills the justification requirements identified that the pedestrian signal warrant is justified. The signalized configuration will contribute significantly to the reduction of potential unsafe driving maneuvers by eliminating excessive delays and provide a safe, direct and protected pedestrian crossing facility;
- The proposed access driveways off Airport Road is forecasted to operate well during both the weekday a.m. and p.m. peak hours;
- The proposed internal sidewalk along within the subject site will provide linkage to the north parcel of the site and aligns with the Town’s conceptual pedestrian network;
- The proposed internal streets are designated as local roadways and a 20 and 18 m right-of-way is sufficient;
- The Regional minimum spacing and the TAC normal minimum spacing between intersections and intersecting local roads are met;
- It is suggested that the existing Community Safety Zones is to be extended on Airport Road 450 m south of Cranston Drive;
- It is suggested that the gateway feature is proposed to be relocated to the southernmost portion of the subject site, defining the point of arrival to Caledon East; and,
- It is recommended to provide residents with a welcome package to inform residents with alternative travelling options using active transportation networks including information on cycling, walking and Smart Commute Program.



**Figure 1-1
Site Location**

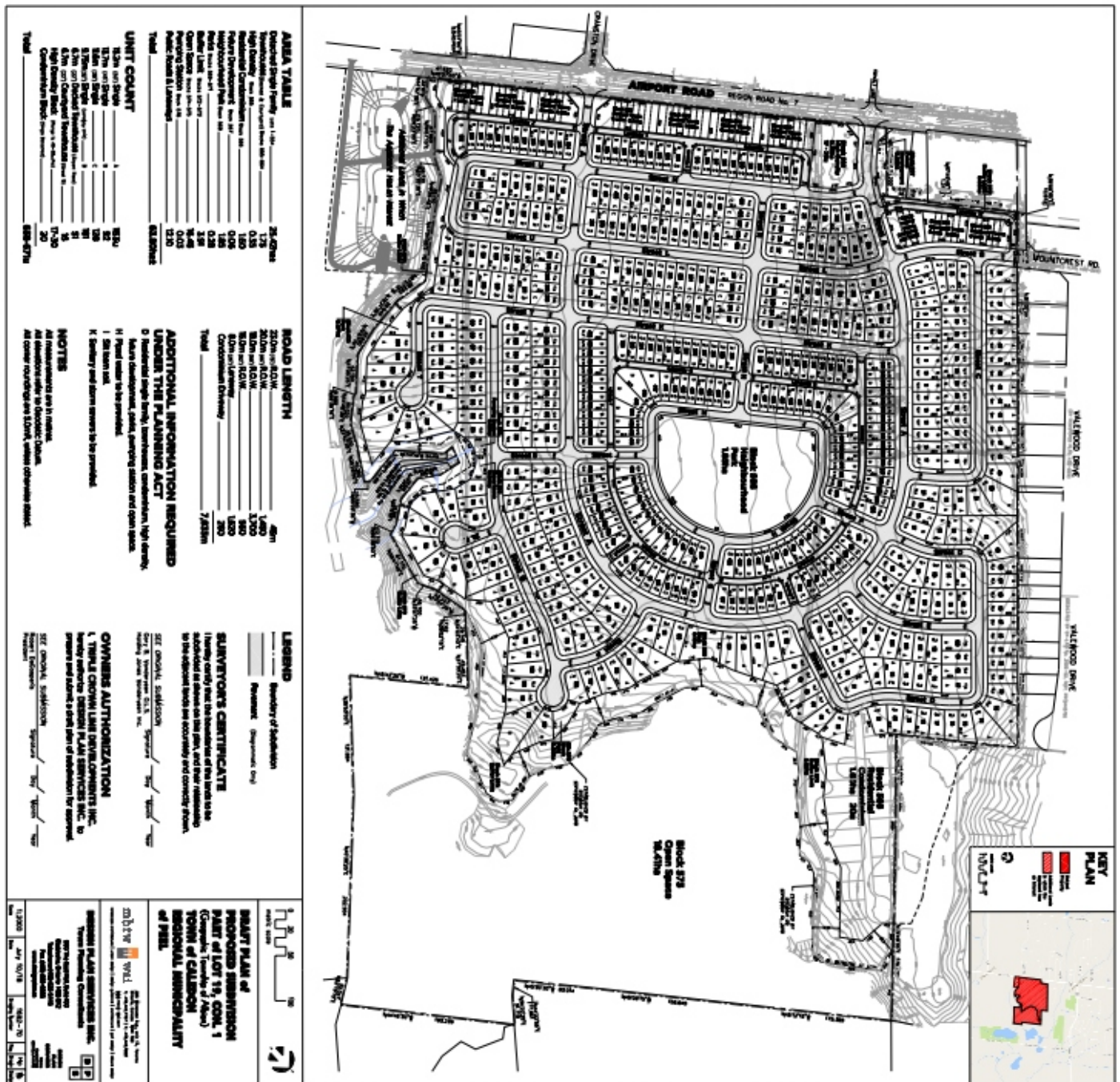
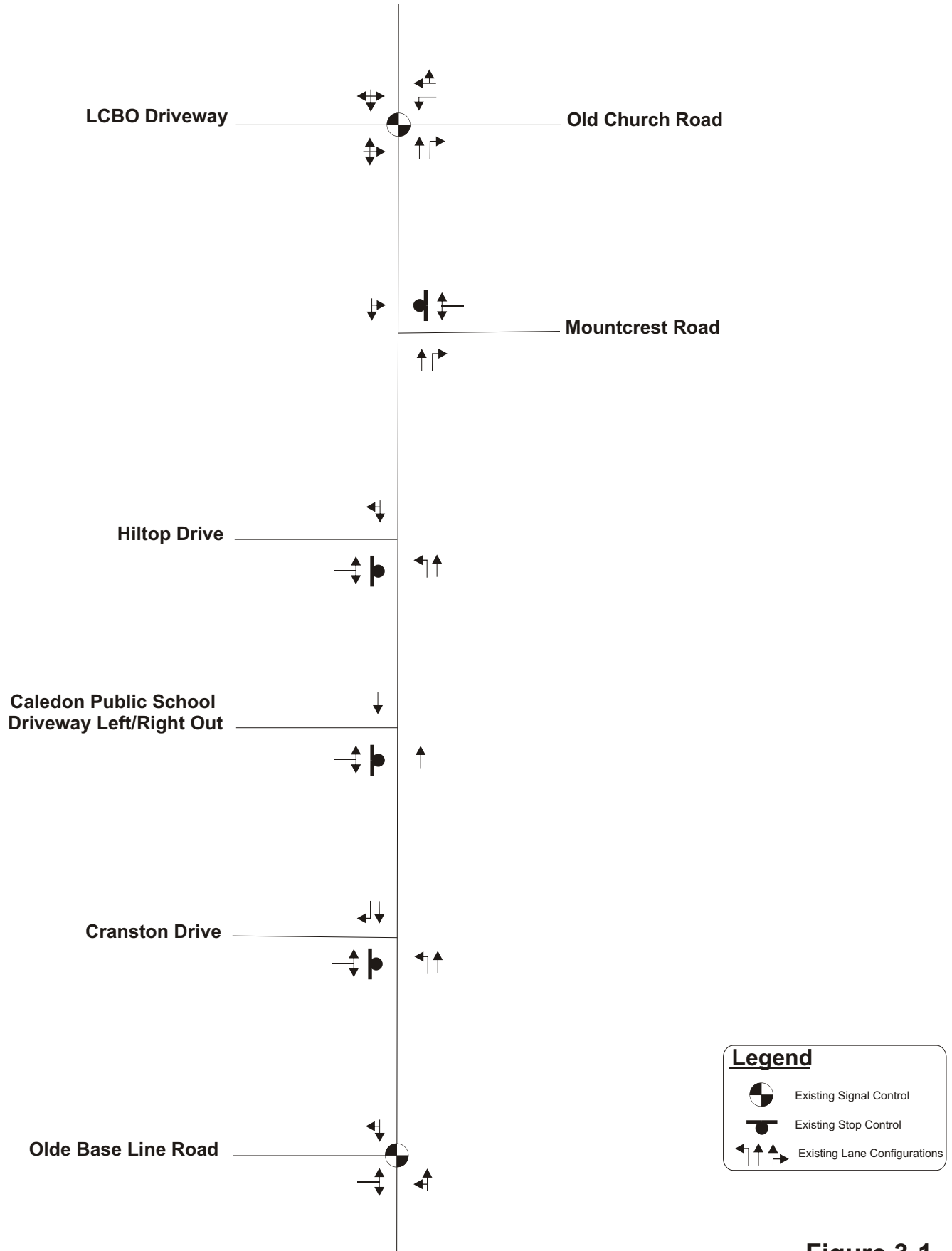





Figure 1-2
Proposed Conceptual Draft Subdivision Plan



Legend

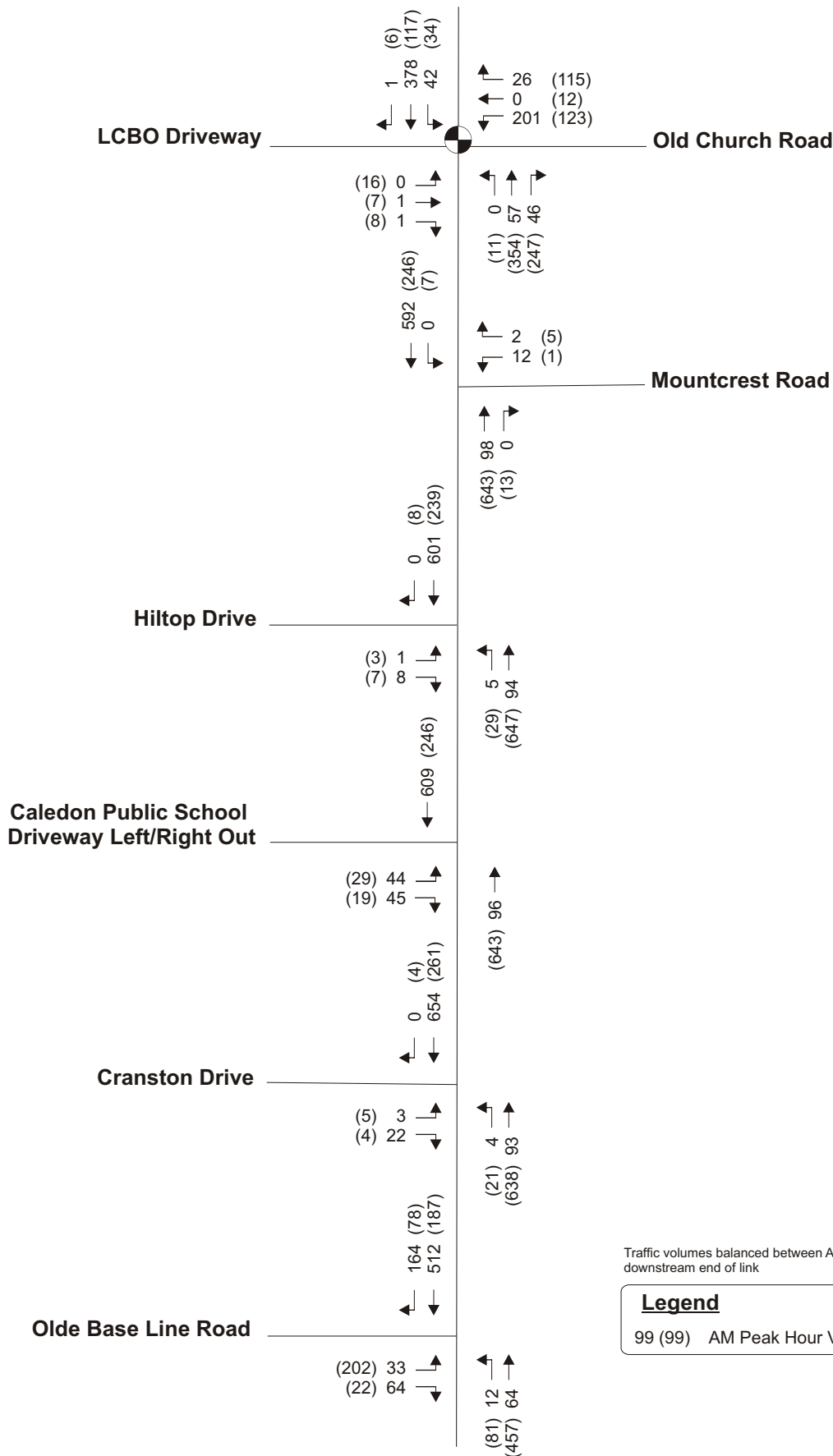
-  Existing Signal Control
-  Existing Stop Control
-  Existing Lane Configurations



N.T.S.

Figure 3-1
Existing Lane Configuration





Traffic volumes balanced between Airport Road/School Driveway L/R Out to downstream end of link

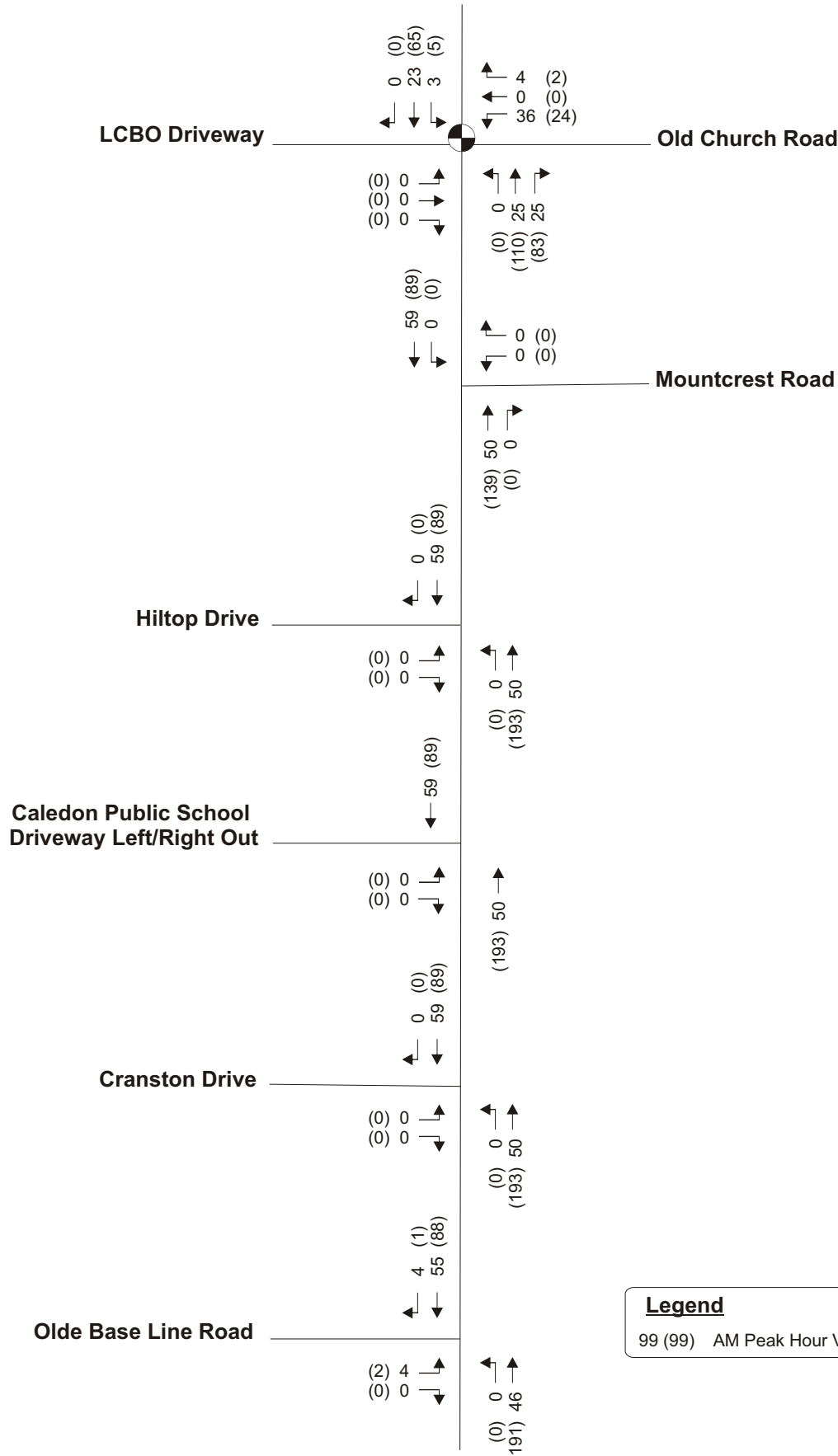
Legend
 99 (99) AM Peak Hour Volume (PM Peak Hour Volume)



N.T.S.

Figure 3-2
Balanced Existing Traffic Volumes



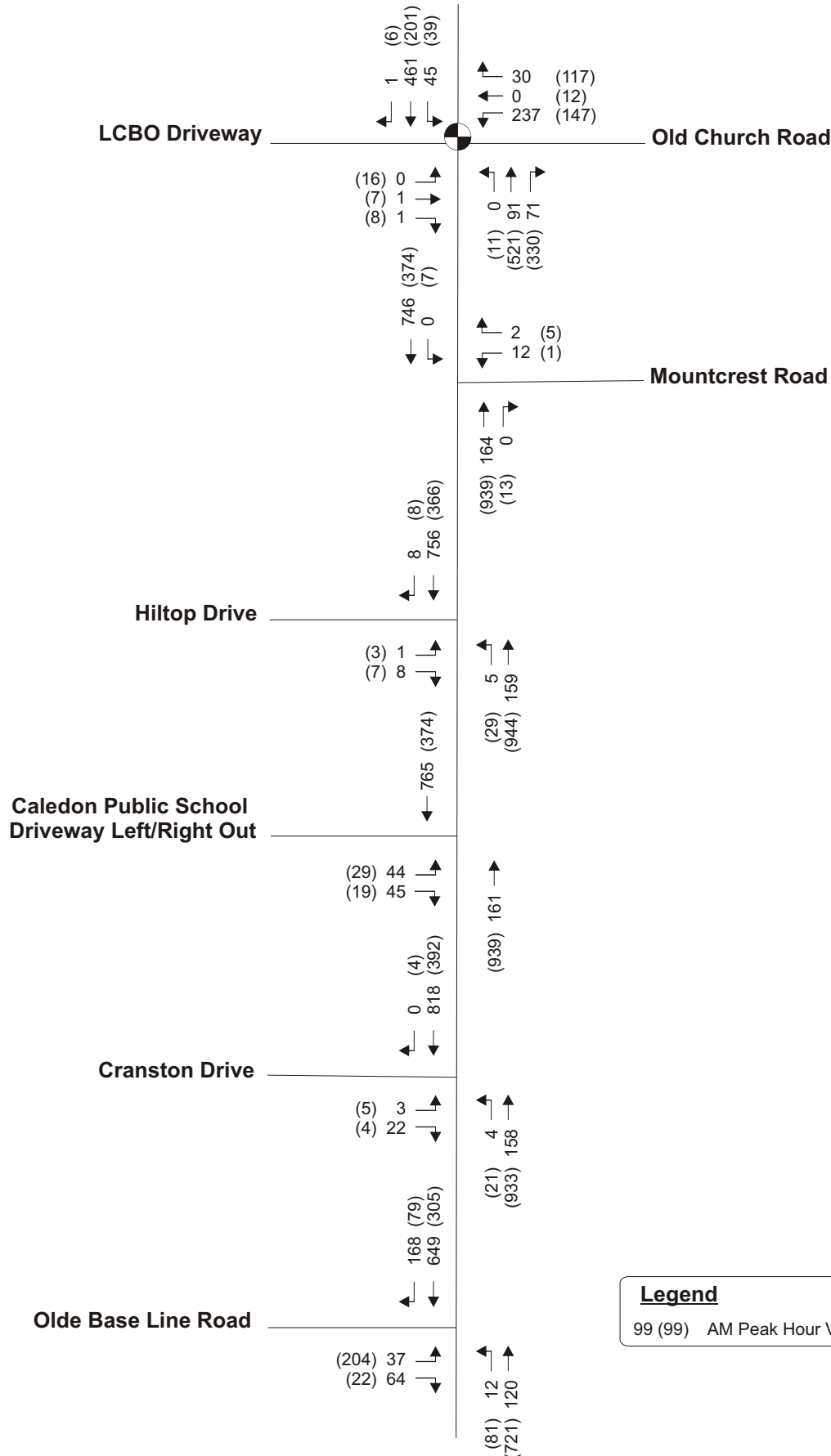


N.T.S.

Legend
 99 (99) AM Peak Hour Volume (PM Peak Hour Volume)

Figure 4-1
Future Background Developments Traffic Volumes



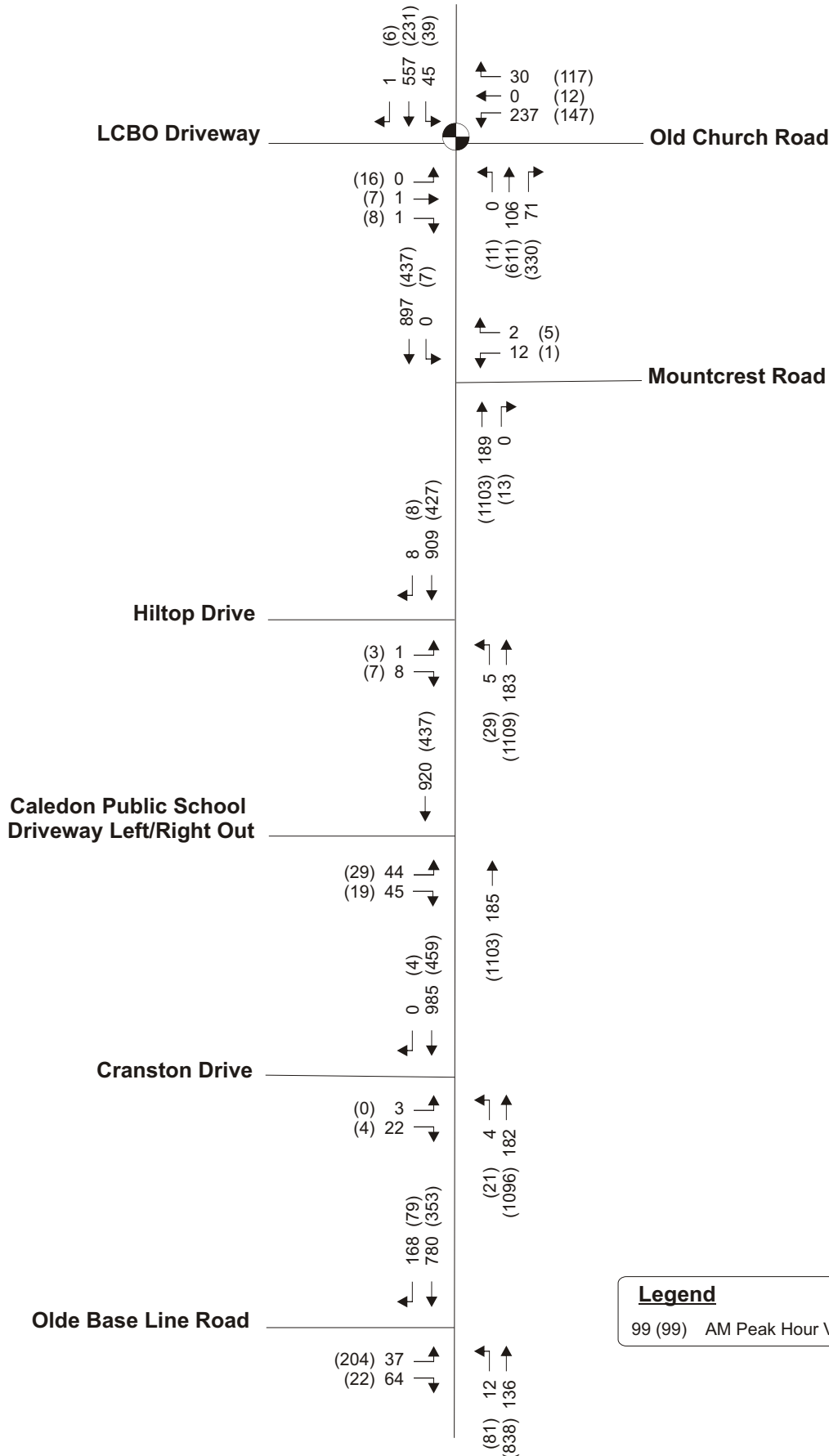


N.T.S.

Legend
 99 (99) AM Peak Hour Volume (PM Peak Hour Volume)

Figure 4-2
Future (2023) Background Traffic Volumes





N.T.S.

Figure 4-3
Future (2033) Background Traffic Volumes





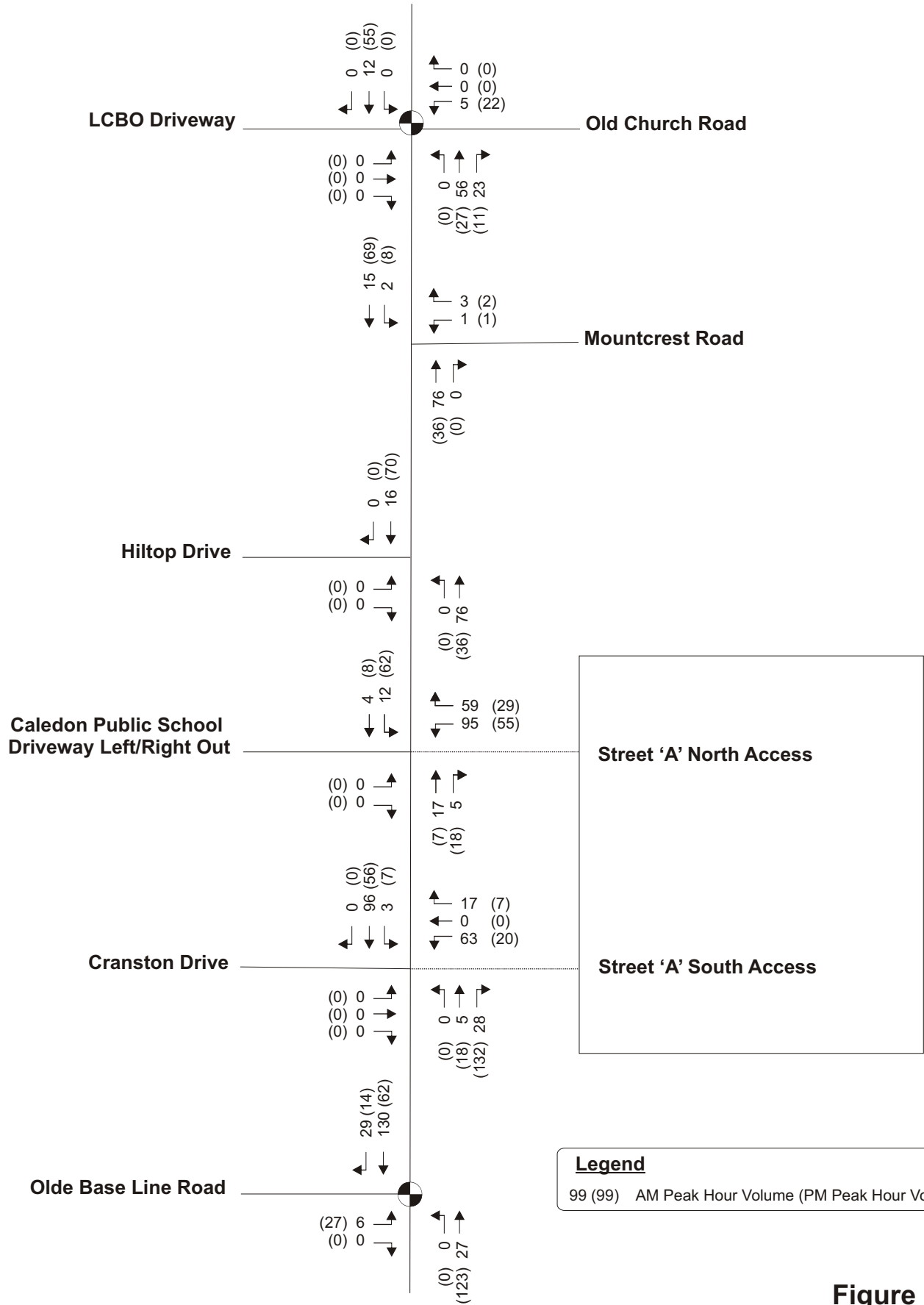
N.T.S.

Legend

- Existing Signal Control
- Existing Stop Control
- Existing Lane Configurations
- Future Signal Control
- Future Continuous Centre Turn Lane
- Future Lane Configurations

**Figure 5-1
Future Lane Configuration**

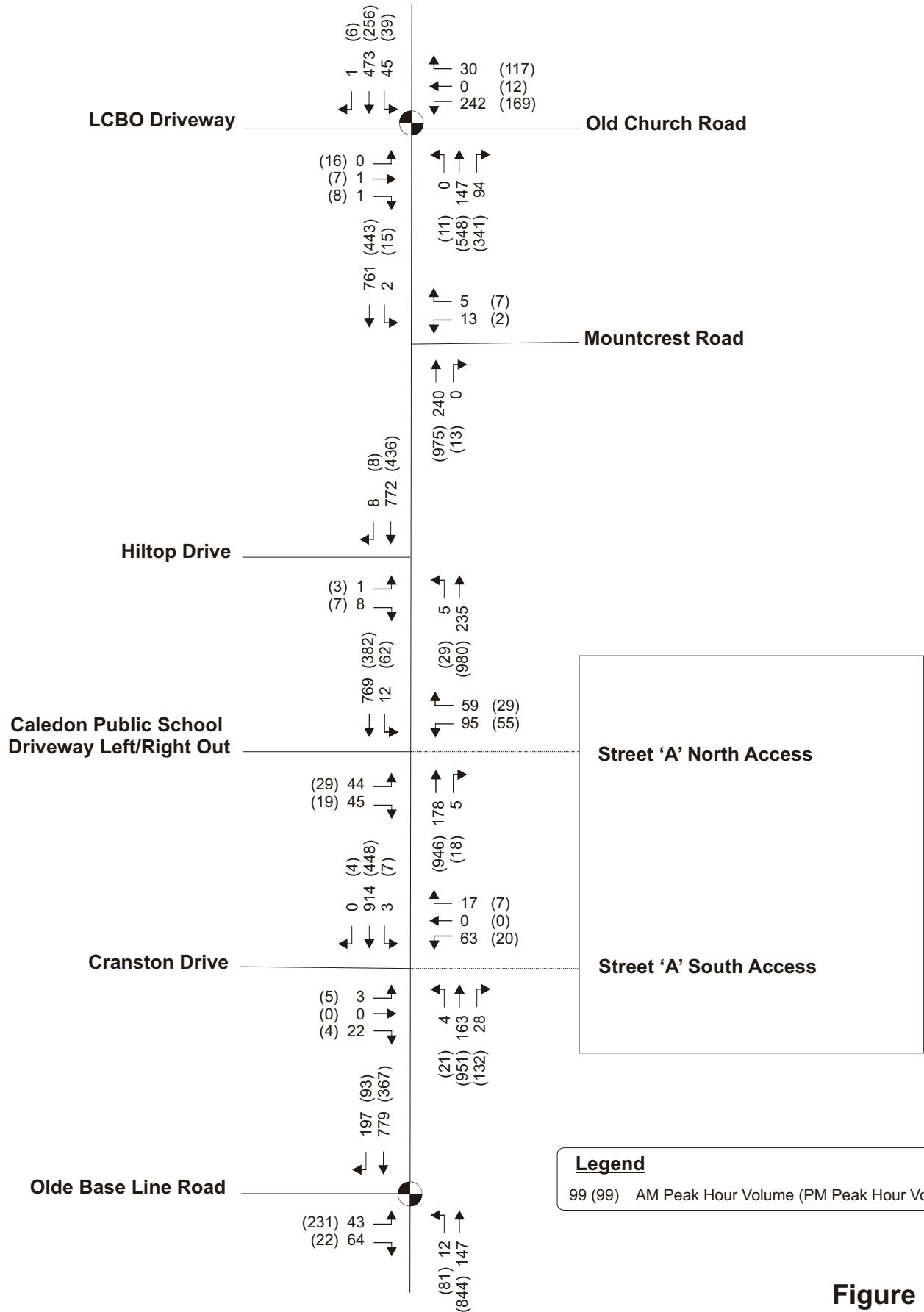




N.T.S.

Figure 5-2
Site Total Traffic Volumes

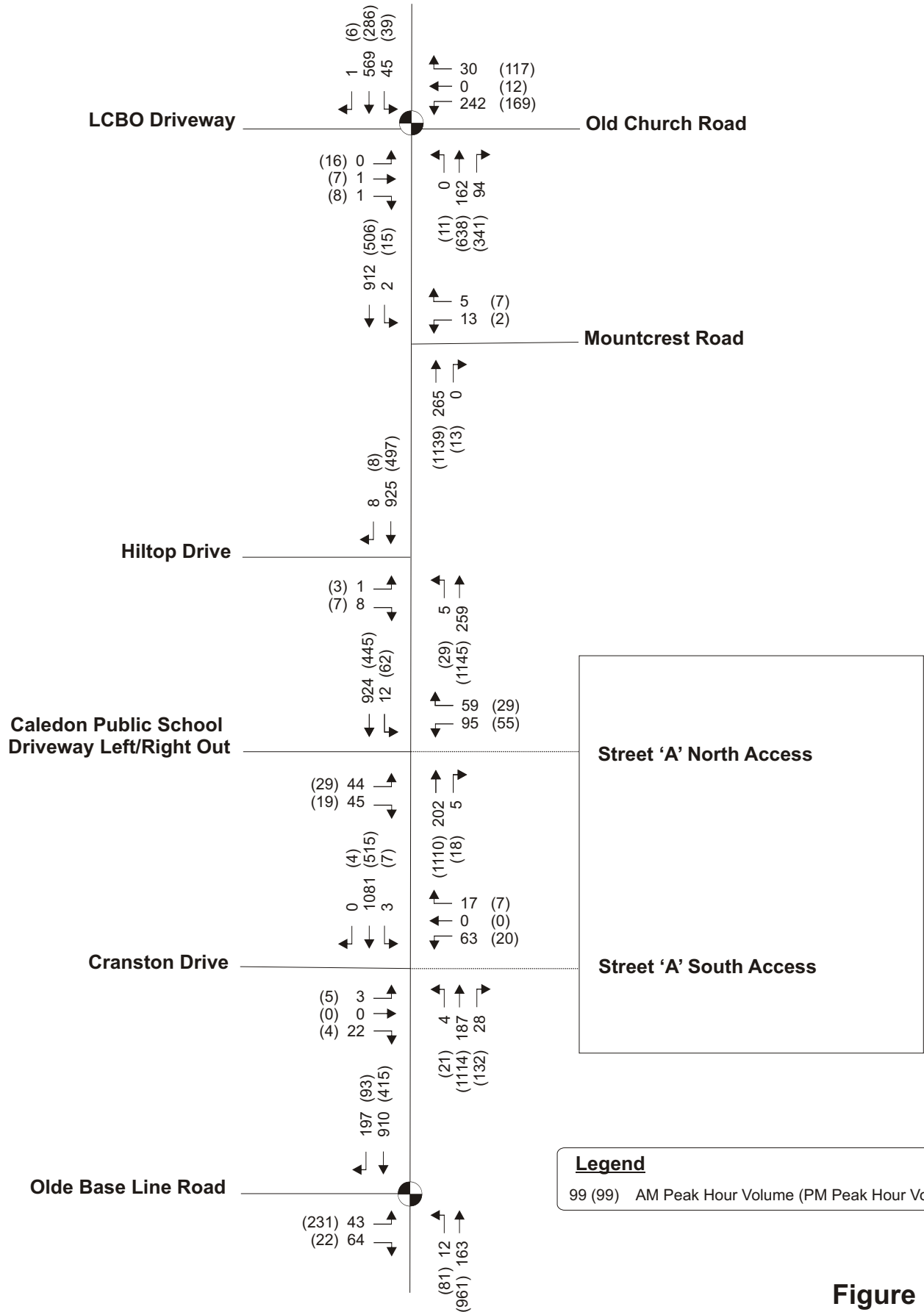




N.T.S.

Figure 6-1
Future (2023) Total Traffic Volumes





N.T.S.

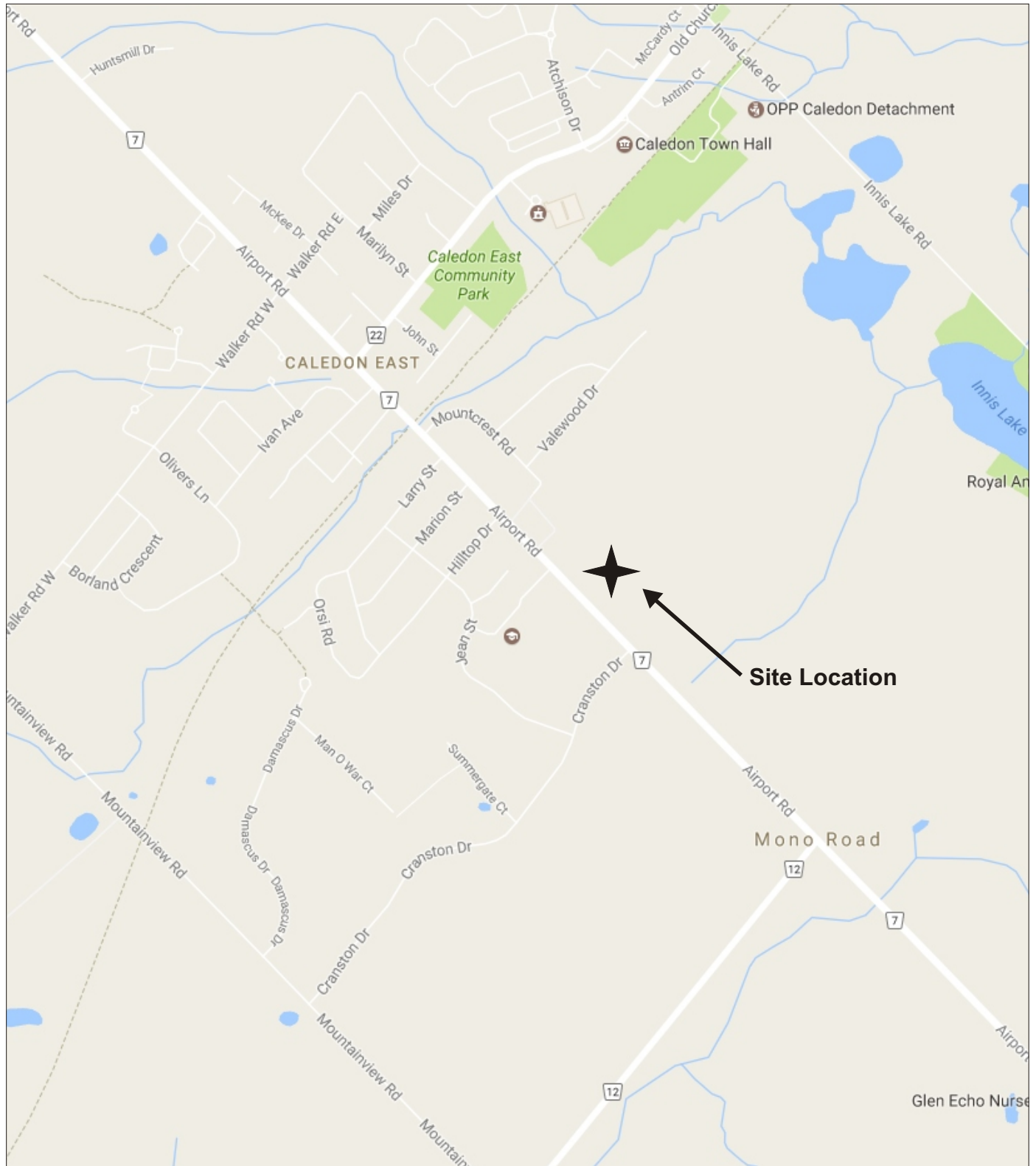
Figure 6-2
Future (2033) Total Traffic Volumes





N.T.S.

Figure 8-1
Proposed Trail, Walkway and Pedestrian Plan by MBTW



**Figure 1-1
Site Location**

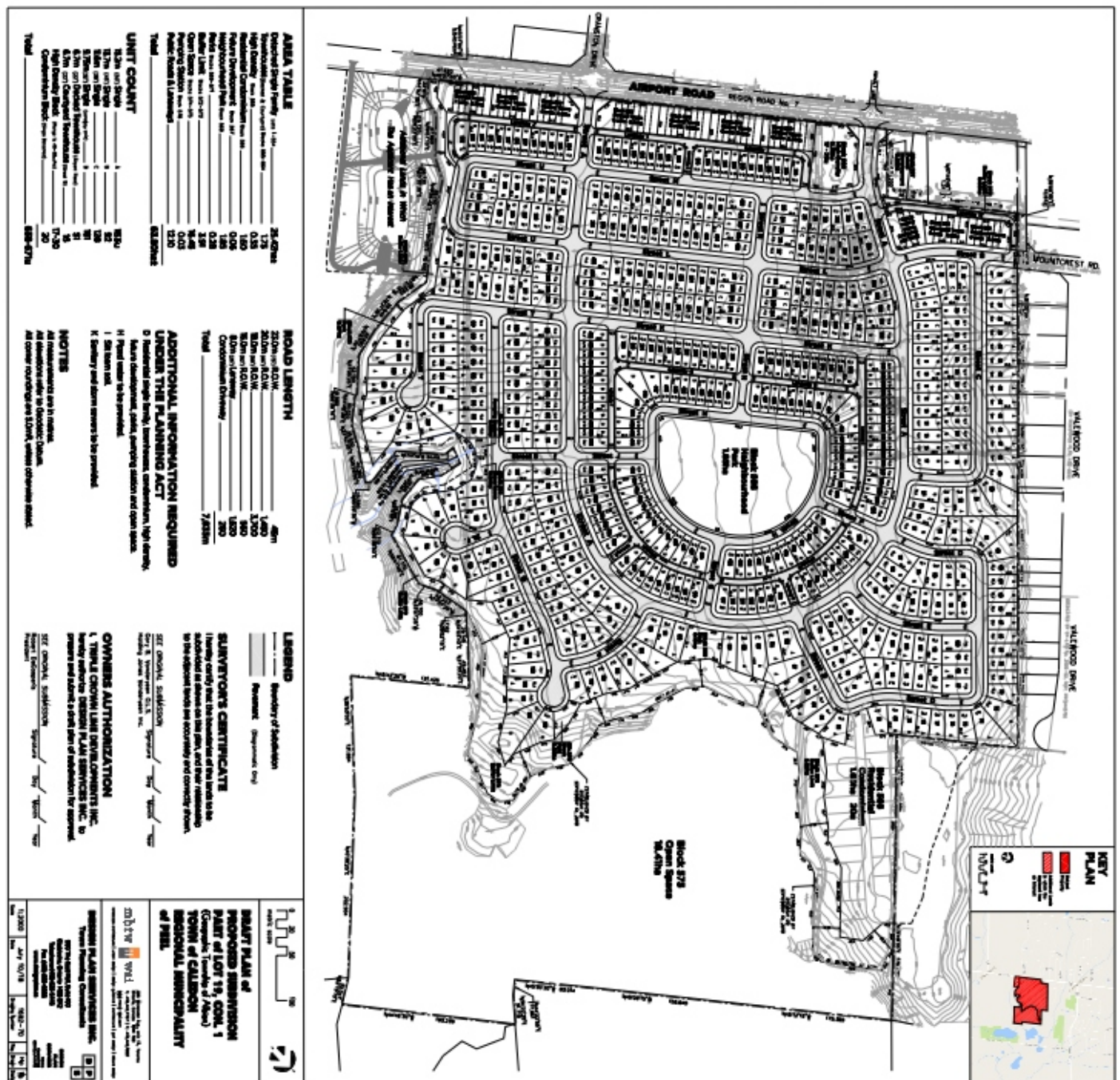
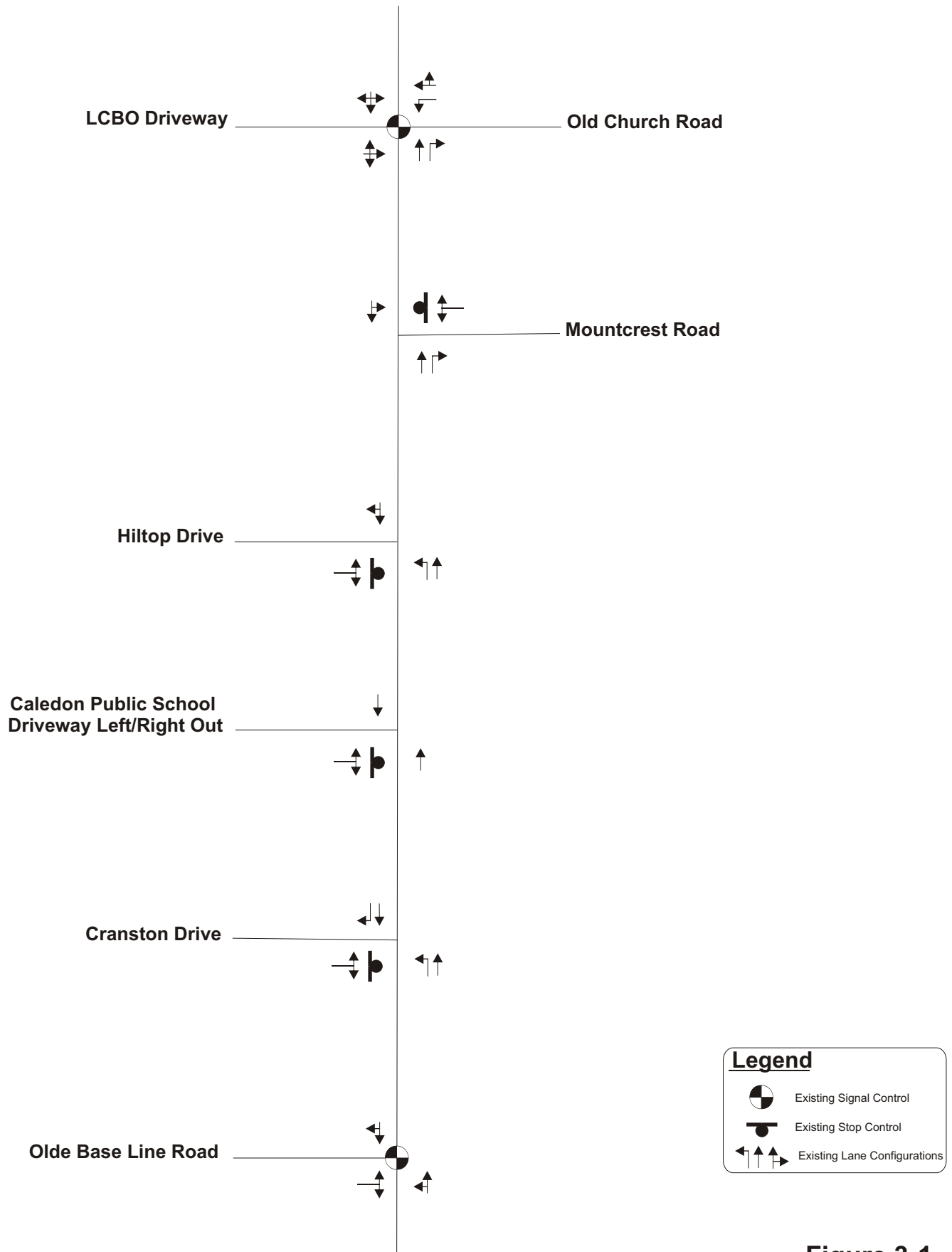


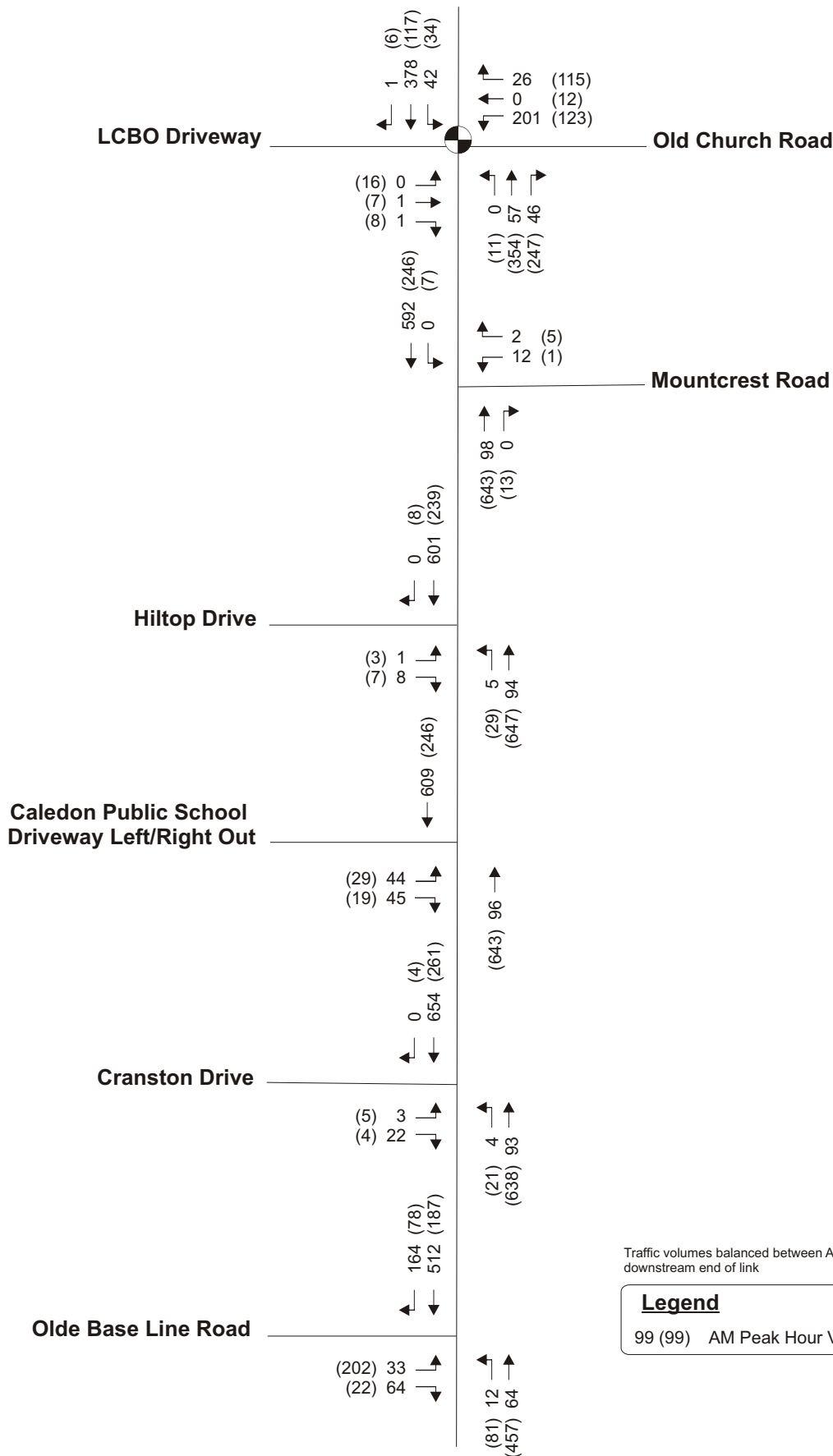
Figure 1-2 Proposed Conceptual Draft Subdivision Plan





N.T.S.

Figure 3-1
Existing Lane Configuration



Traffic volumes balanced between Airport Road/School Driveway L/R Out to downstream end of link

Legend

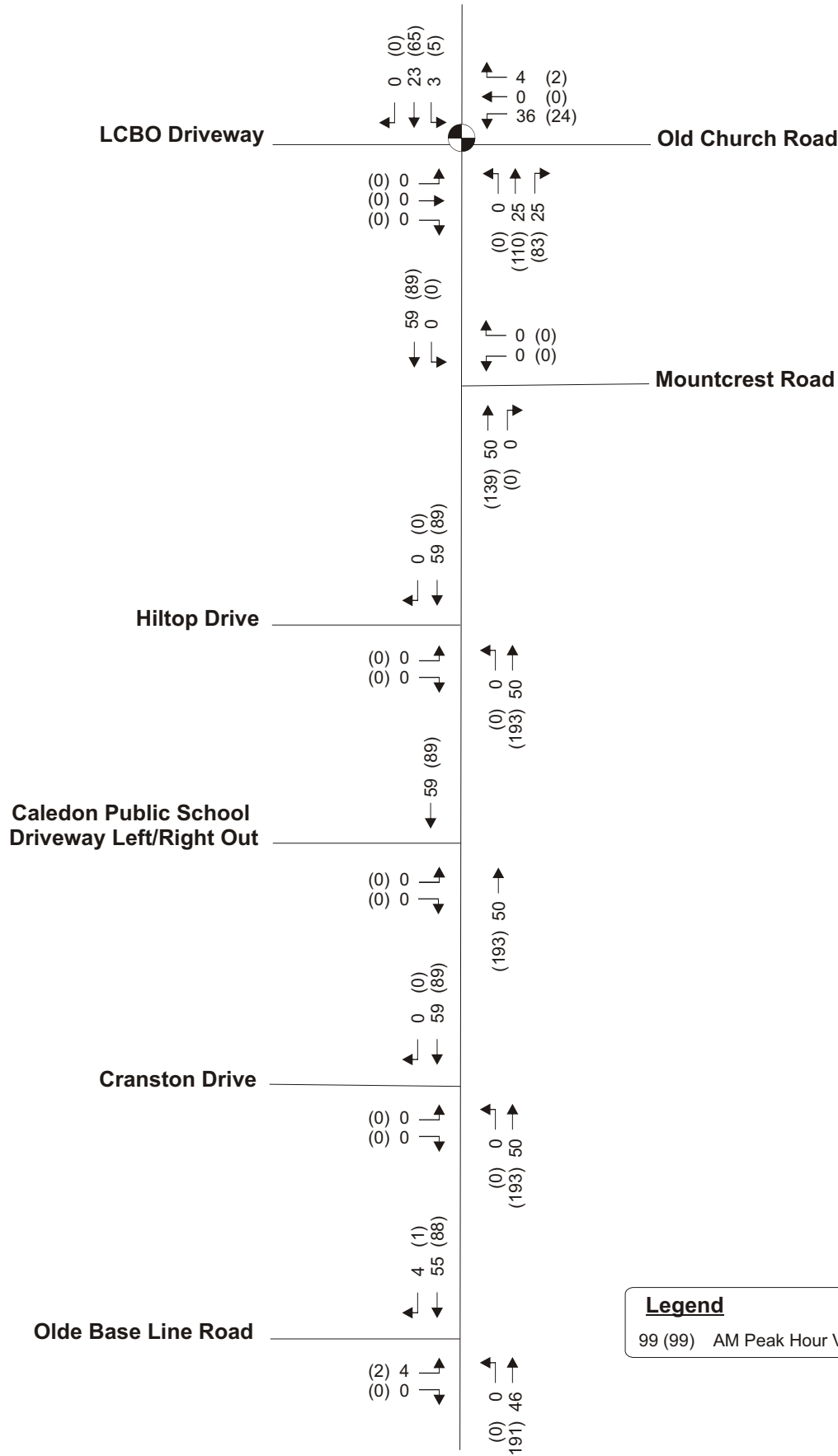
99 (99) AM Peak Hour Volume (PM Peak Hour Volume)



N.T.S.

Figure 3-2
Balanced Existing Traffic Volumes



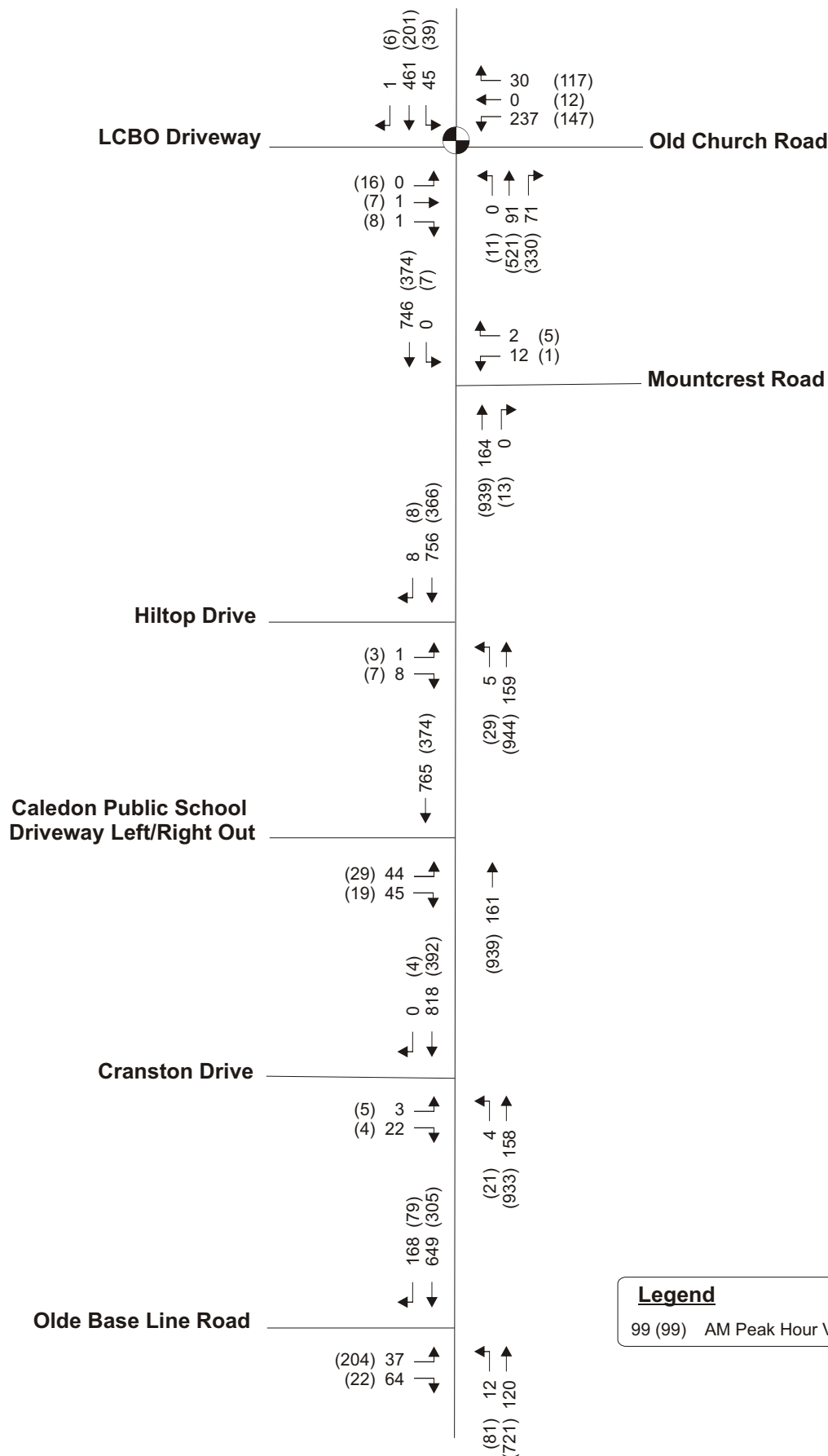


N.T.S.

Legend
 99 (99) AM Peak Hour Volume (PM Peak Hour Volume)

Figure 4-1
Future Background Developments Traffic Volumes





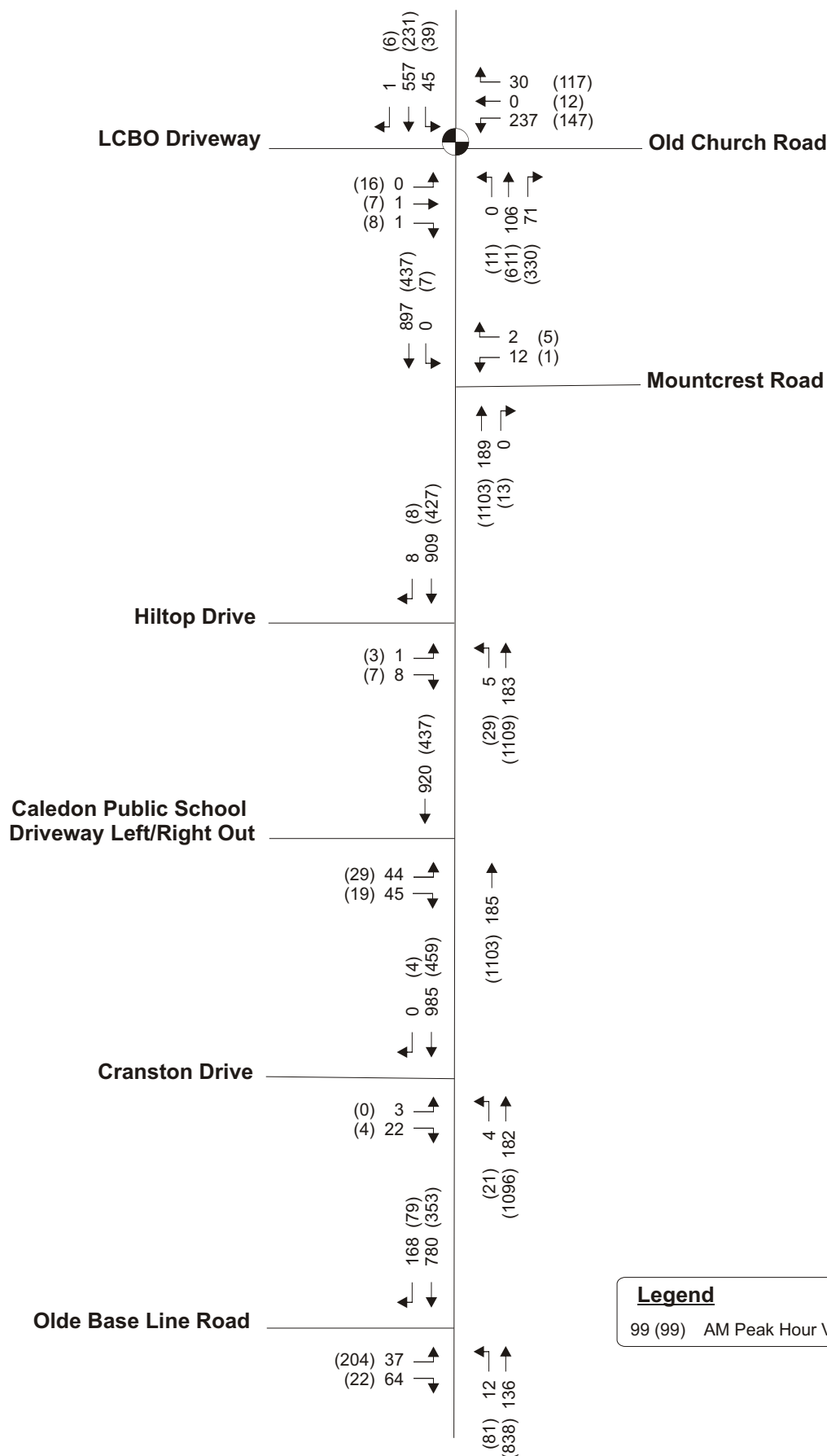
Legend
 99 (99) AM Peak Hour Volume (PM Peak Hour Volume)



N.T.S.

Figure 4-2
Future (2023) Background Traffic Volumes





Legend
 99 (99) AM Peak Hour Volume (PM Peak Hour Volume)



N.T.S.

Figure 4-3
Future (2033) Background Traffic Volumes

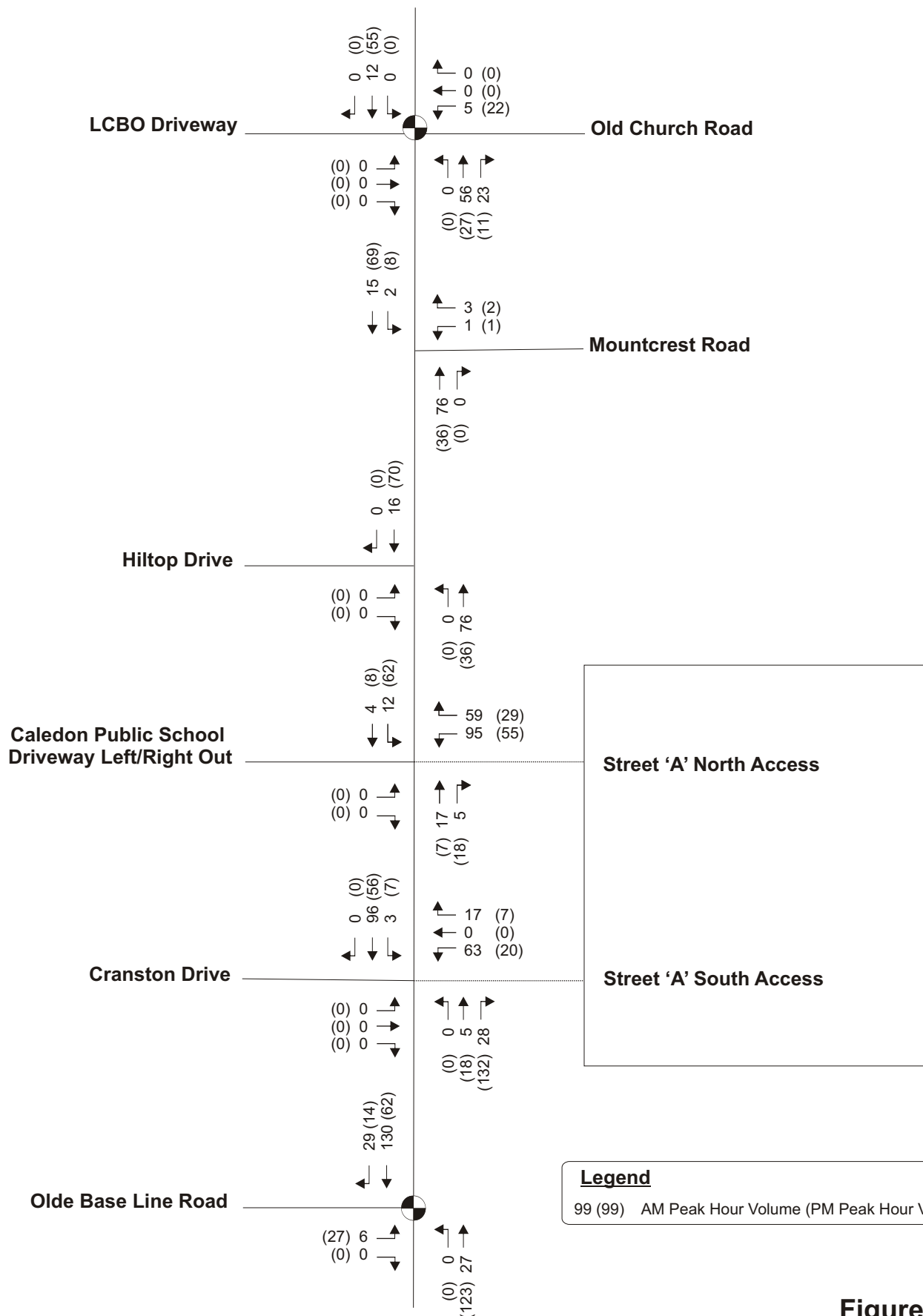




N.T.S.

Figure 5-1
Future Lane Configuration

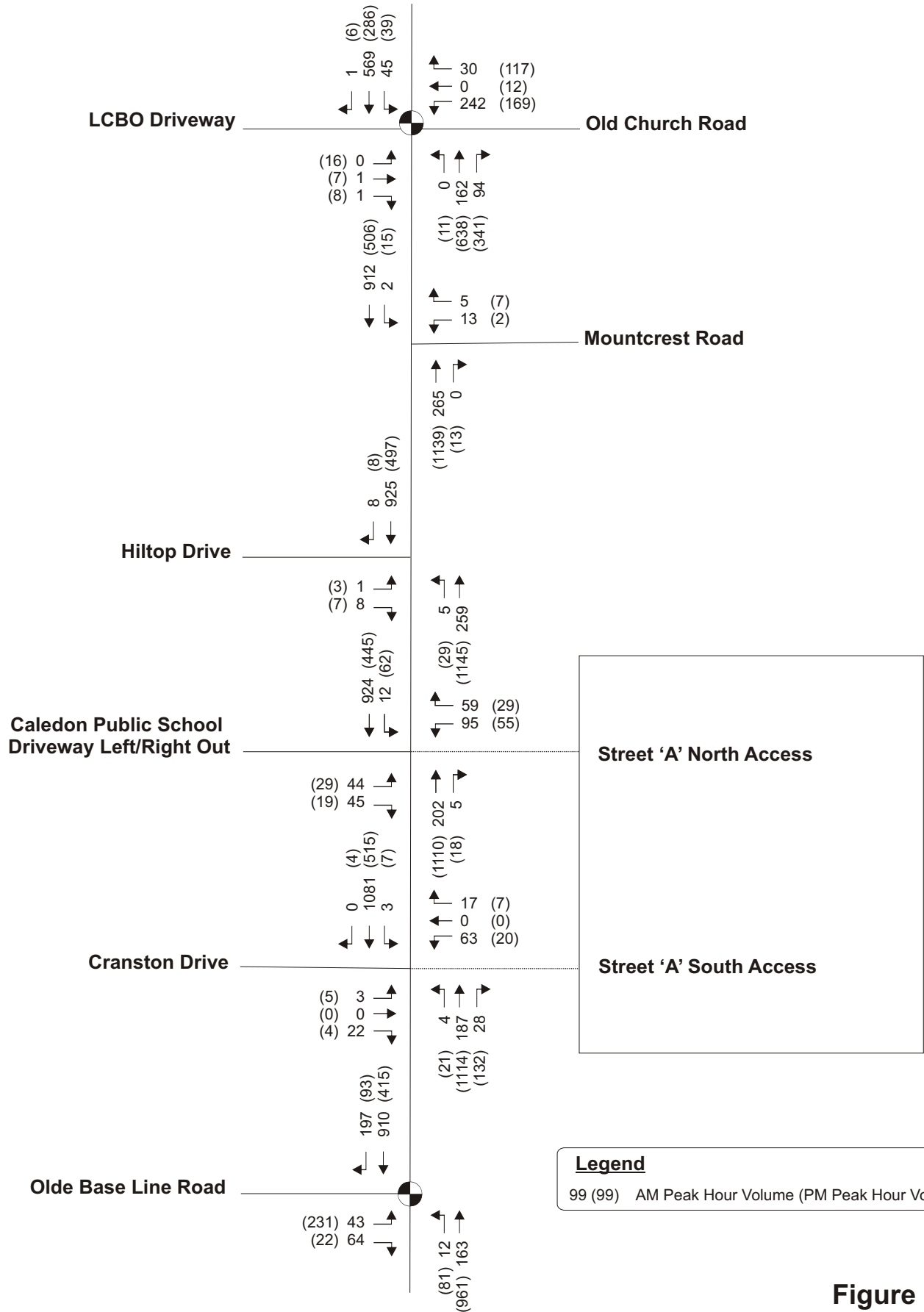




N.T.S.

Figure 5-2
Site Total Traffic Volumes





N.T.S.

Figure 6-2
Future (2033) Total Traffic Volumes





N.T.S.

Figure 8-1
Proposed Trail, Walkway and Pedestrian Plan by MBTW



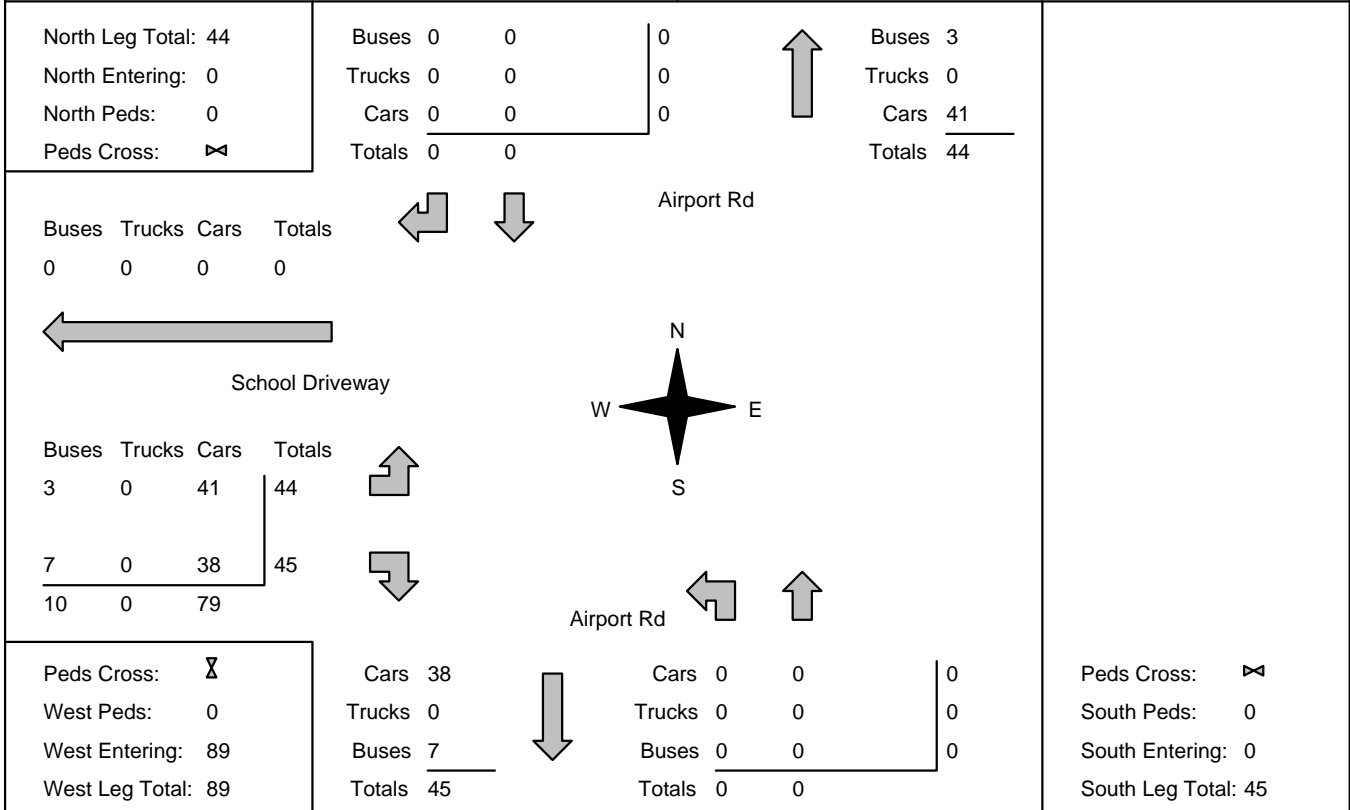
APPENDIX A
Existing Traffic Data

Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 8:00:00 To: 10:00:00	One Hour Peak From: 8:45:00 To: 9:45:00
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Municipality: Caledon Site #: 1704300001 Intersection: Airport Rd & School Driveway TFR File #: 1 Count date: 2-Mar-17	Weather conditions: Person counted: Person prepared: Person checked:
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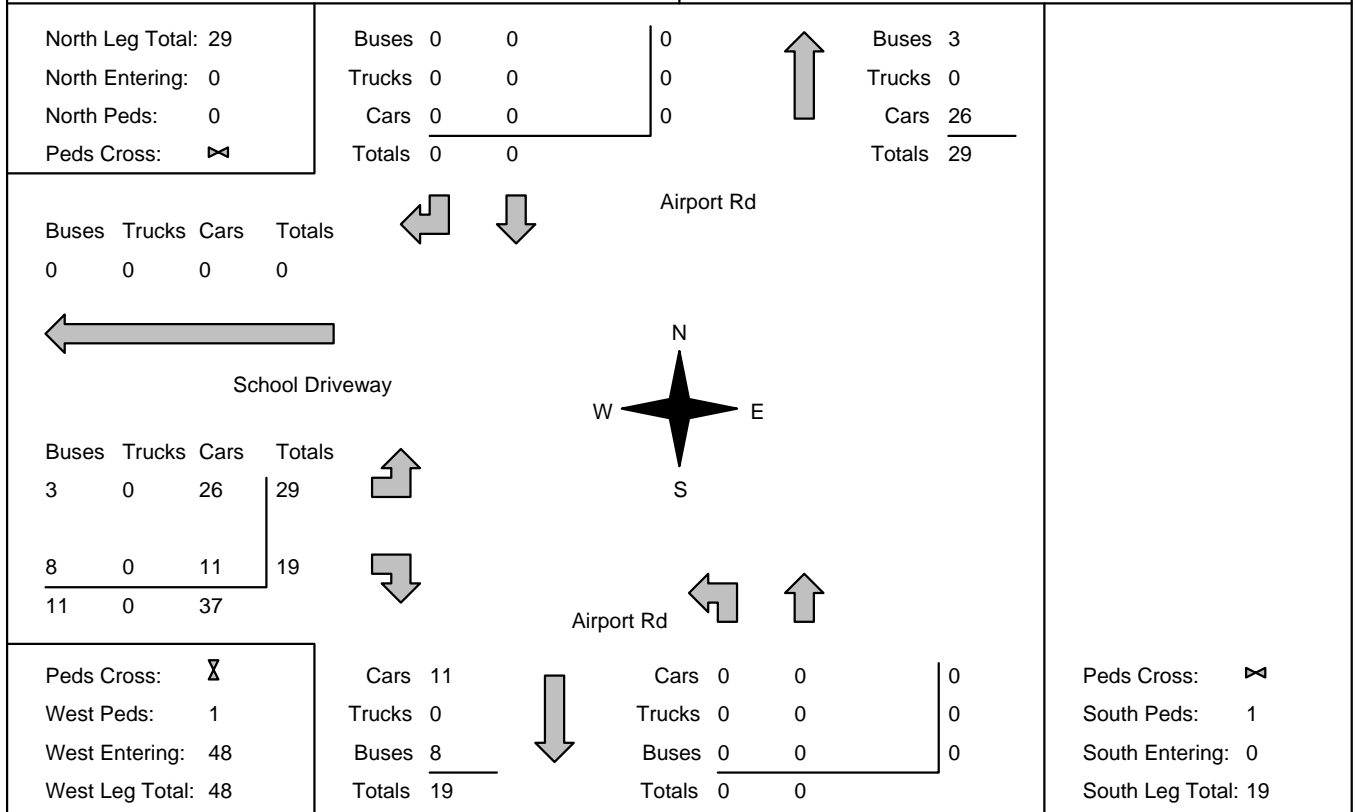
** Non-Signalized Intersection **	Major Road: Airport Rd runs N/S
--	--



Comments

Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 15:00:00 To: 17:00:00	One Hour Peak From: 15:15:00 To: 16:15:00
Municipality: Caledon Site #: 1704300001 Intersection: Airport Rd & School Driveway TFR File #: 1 Count date: 2-Mar-17	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **		Major Road: Airport Rd runs N/S



Comments

Accu-Traffic Inc.

Total Count Diagram

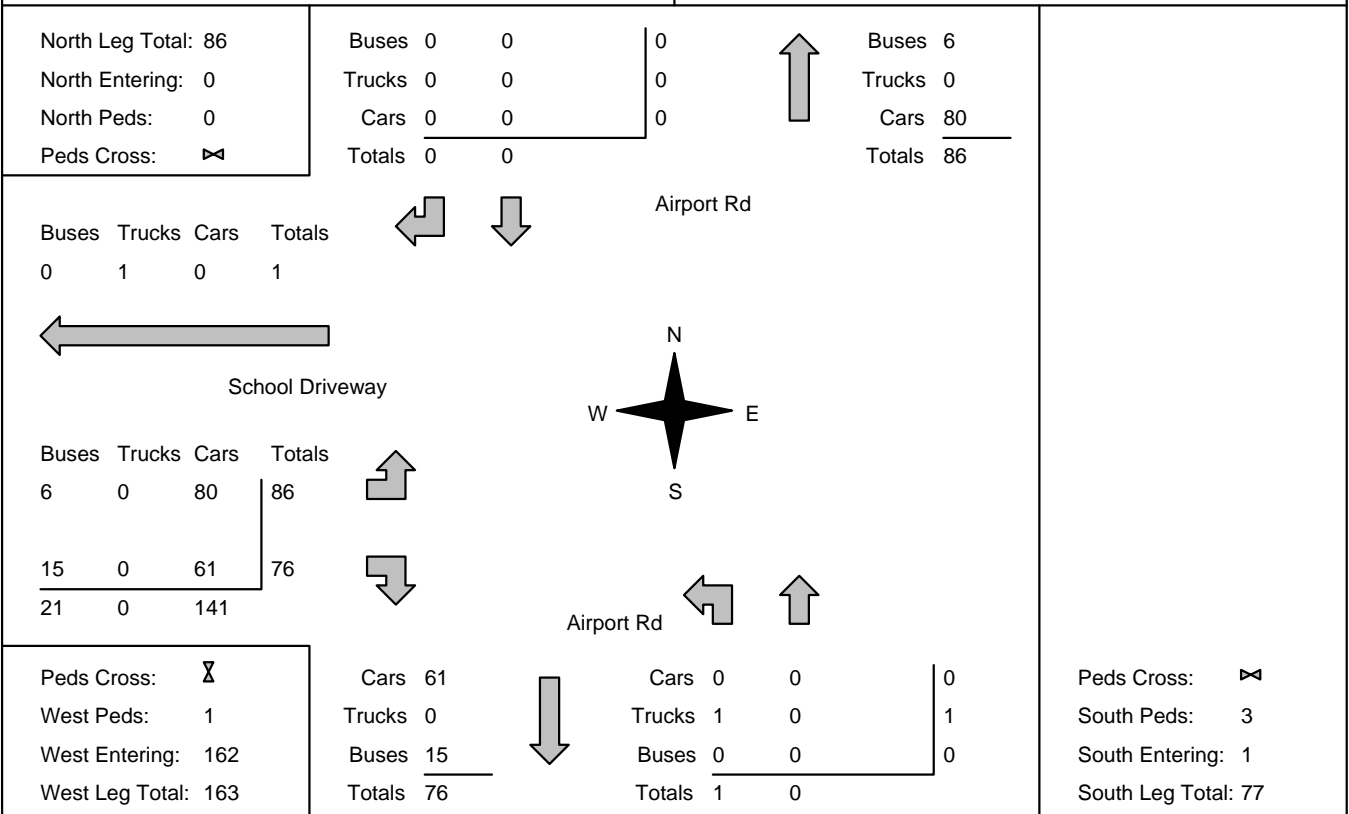
Municipality: Caledon
Site #: 1704300001
Intersection: Airport Rd & School Driveway
TFR File #: 1
Count date: 2-Mar-17

Weather conditions:

Person counted:
Person prepared:
Person checked:

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

Major Road: Airport Rd runs N/S



Comments



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

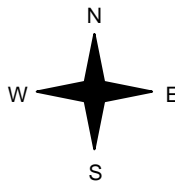
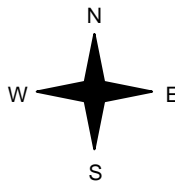
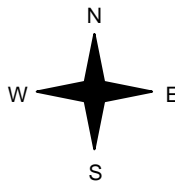
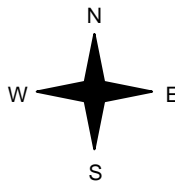
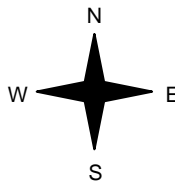
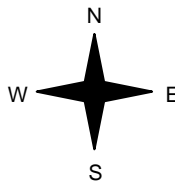
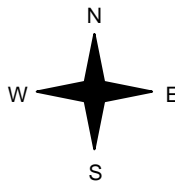
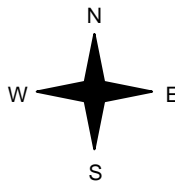
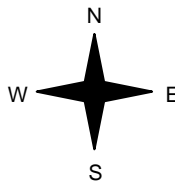
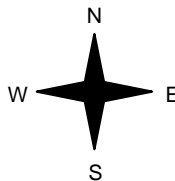
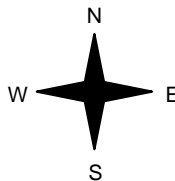
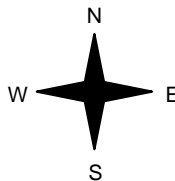
Traffic Count Summary

Intersection: Airport Rd & School Driveway Count Date: 2-Mar-17 Municipality: Caledon

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Buses				Total Peds		Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
8:00:00	0	0	0	0	0	0	8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0	1	9:00:00	1	0	0	1	2
10:00:00	0	0	0	0	0	0	10:00:00	0	0	0	0	0
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0	0	17:00:00	0	0	0	0	1
Totals:	0	0	0	0	0	1	S Totals:	1	0	0	1	3
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Buses				Total Peds		Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
8:00:00	0	0	0	0	0	0	8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0	19	9:00:00	9	0	10	19	0
10:00:00	0	0	0	0	0	87	10:00:00	43	0	44	87	0
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0	45	16:00:00	26	0	19	45	0
17:00:00	0	0	0	0	1	11	17:00:00	8	0	3	11	1
Totals:	0	0	0	0	1	162	W Totals:	86	0	76	162	1
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	8:00	9:00	10:00	15:00			16:00	17:00	0:00	0:00		
Crossing Values:	0	11	43	0			26	9	0	0		

Accu-Traffic Inc.

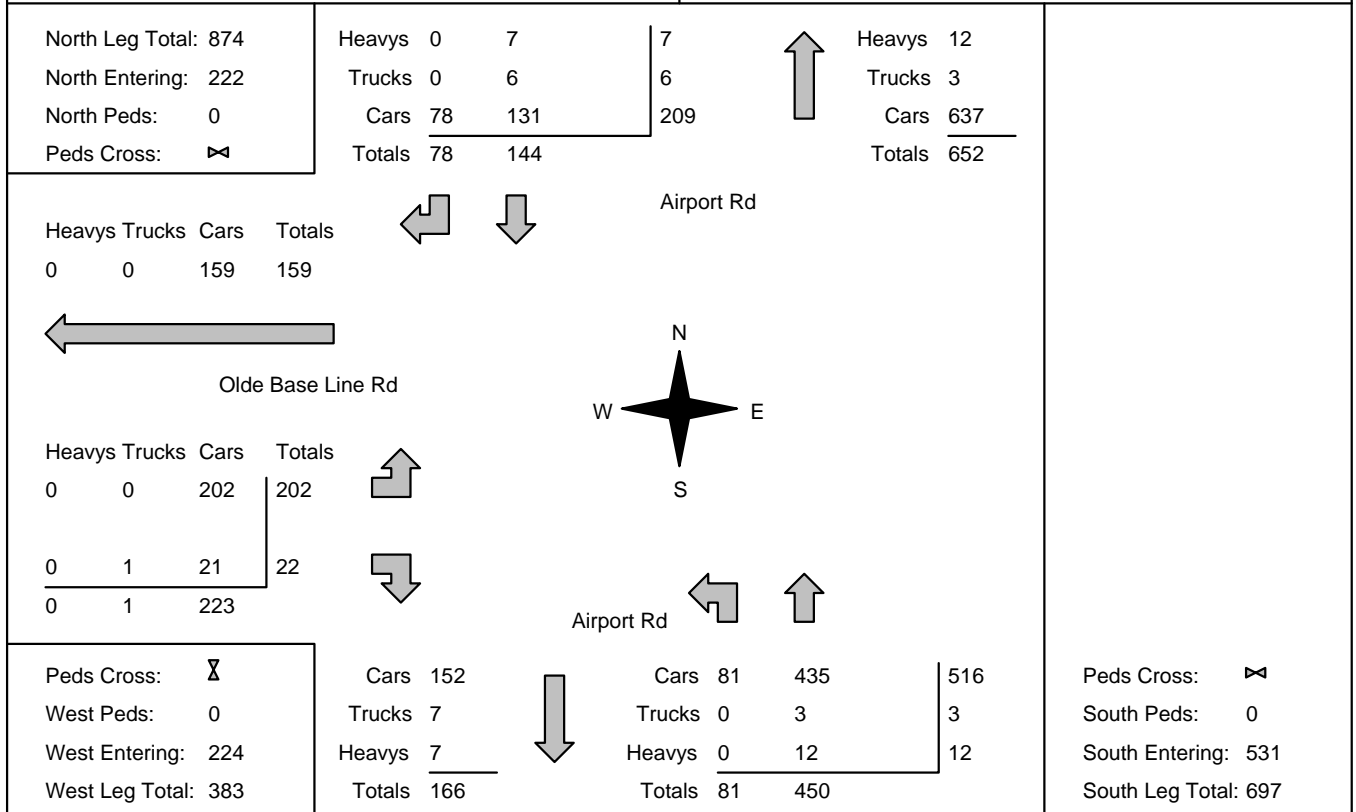
Morning Peak Diagram	Specified Period From: 6:00:00 To: 10:00:00	One Hour Peak From: 7:00:00 To: 8:00:00
Municipality: Caledon Site #: 1701000001 Intersection: Airport Rd & Olde Base Line Rd TFR File #: 1 Count date: 17-Jan-17	Weather conditions: Person counted: Person prepared: Person checked:	
** Signalized Intersection **		Major Road: Airport Rd runs N/S

North Leg Total: 736 North Entering: 641 North Peds: 0 Peds Cross: ☒	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> Heavys 0 9 Trucks 1 4 Cars 163 464 Totals 164 477 </td> <td style="width: 5%; text-align: center; vertical-align: middle;">9</td> <td style="width: 5%; text-align: center; vertical-align: middle;">5</td> <td style="width: 5%; text-align: center; vertical-align: middle;">627</td> <td style="width: 15%; text-align: center; vertical-align: middle;">↑</td> <td style="width: 10%;"> Heavys 12 Trucks 8 Cars 75 Totals 95 </td> </tr> </table>	Heavys 0 9 Trucks 1 4 Cars 163 464 Totals 164 477	9	5	627	↑	Heavys 12 Trucks 8 Cars 75 Totals 95						
Heavys 0 9 Trucks 1 4 Cars 163 464 Totals 164 477	9	5	627	↑	Heavys 12 Trucks 8 Cars 75 Totals 95								
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> Heavys 0 Trucks 1 Cars 175 Totals 176 </td> <td style="width: 5%; text-align: center; vertical-align: middle;">←</td> <td style="width: 5%; text-align: center; vertical-align: middle;">↓</td> <td style="width: 40%; text-align: center; vertical-align: middle;"> Airport Rd  </td> </tr> </table>	Heavys 0 Trucks 1 Cars 175 Totals 176	←	↓	Airport Rd 	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> Heavys 0 Trucks 1 Cars 32 Totals 33 </td> <td style="width: 5%; text-align: center; vertical-align: middle;">↑</td> <td style="width: 45%; text-align: center; vertical-align: middle;"> Olde Base Line Rd  </td> </tr> </table>	Heavys 0 Trucks 1 Cars 32 Totals 33	↑	Olde Base Line Rd 	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> Heavys 0 Trucks 0 Cars 64 Totals 64 </td> <td style="width: 5%; text-align: center; vertical-align: middle;">↓</td> <td style="width: 45%; text-align: center; vertical-align: middle;"> Airport Rd  </td> </tr> </table>	Heavys 0 Trucks 0 Cars 64 Totals 64	↓	Airport Rd 	
Heavys 0 Trucks 1 Cars 175 Totals 176	←	↓	Airport Rd 										
Heavys 0 Trucks 1 Cars 32 Totals 33	↑	Olde Base Line Rd 											
Heavys 0 Trucks 0 Cars 64 Totals 64	↓	Airport Rd 											
Peds Cross: ☒ West Peds: 0 West Entering: 97 West Leg Total: 273	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> Cars 528 Trucks 4 Heavys 9 Totals 541 </td> <td style="width: 5%; text-align: center; vertical-align: middle;">↓</td> <td style="width: 5%; text-align: center; vertical-align: middle;">Cars 12</td> <td style="width: 5%; text-align: center; vertical-align: middle;">Trucks 0</td> <td style="width: 5%; text-align: center; vertical-align: middle;">Heavys 0</td> <td style="width: 5%; text-align: center; vertical-align: middle;">Totals 12</td> <td style="width: 10%;"> Cars 43 Trucks 7 Heavys 12 Totals 62 </td> <td style="width: 10%;"> Peds Cross: ☒ South Peds: 0 South Entering: 74 South Leg Total: 615 </td> </tr> </table>	Cars 528 Trucks 4 Heavys 9 Totals 541	↓	Cars 12	Trucks 0	Heavys 0	Totals 12	Cars 43 Trucks 7 Heavys 12 Totals 62	Peds Cross: ☒ South Peds: 0 South Entering: 74 South Leg Total: 615	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> Cars 12 Trucks 0 Heavys 0 Totals 12 </td> <td style="width: 5%; text-align: center; vertical-align: middle;">↑</td> <td style="width: 45%; text-align: center; vertical-align: middle;"> Airport Rd  </td> </tr> </table>	Cars 12 Trucks 0 Heavys 0 Totals 12	↑	Airport Rd 
Cars 528 Trucks 4 Heavys 9 Totals 541	↓	Cars 12	Trucks 0	Heavys 0	Totals 12	Cars 43 Trucks 7 Heavys 12 Totals 62	Peds Cross: ☒ South Peds: 0 South Entering: 74 South Leg Total: 615						
Cars 12 Trucks 0 Heavys 0 Totals 12	↑	Airport Rd 											

Comments

Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 15:00:00 To: 19:00:00	One Hour Peak From: 16:30:00 To: 17:30:00
Municipality: Caledon Site #: 1701000001 Intersection: Airport Rd & Olde Base Line Rd TFR File #: 1 Count date: 17-Jan-17	Weather conditions: Person counted: Person prepared: Person checked:	
** Signalized Intersection **		Major Road: Airport Rd runs N/S



Comments

Accu-Traffic Inc.

Total Count Diagram

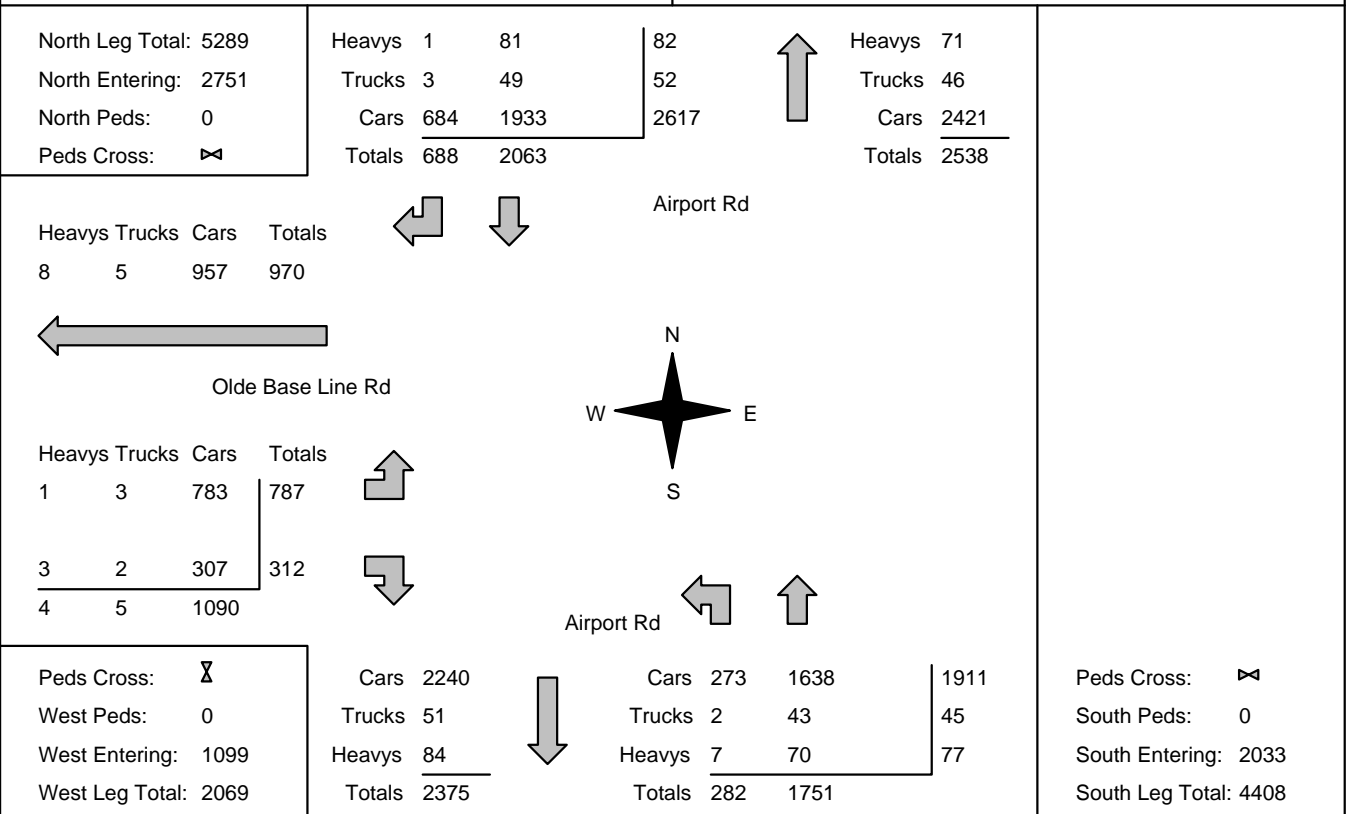
Municipality: Caledon
Site #: 1701000001
Intersection: Airport Rd & Olde Base Line Rd
TFR File #: 1
Count date: 17-Jan-17

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Airport Rd runs N/S



Comments



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

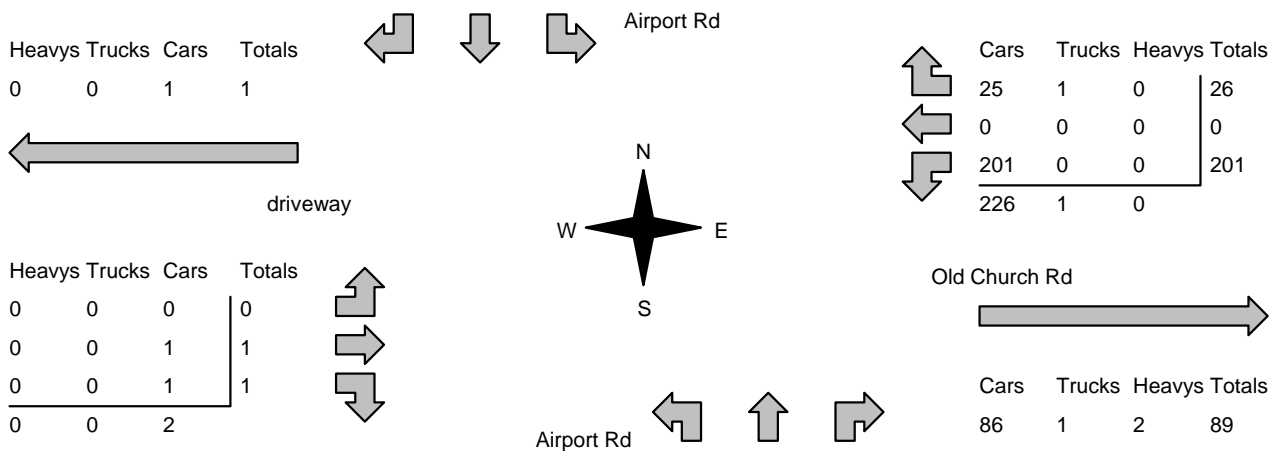
Accu-Traffic Inc.

Traffic Count Summary

Intersection: Airport Rd & Olde Base Line Rd Count Date: 17-Jan-17 Municipality: Caledon

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	0	409	109	518	0	566	7:00:00	2	46	0	48	0
8:00:00	0	477	164	641	0	715	8:00:00	12	62	0	74	0
9:00:00	0	352	82	434	0	565	9:00:00	9	122	0	131	0
10:00:00	0	265	65	330	0	452	10:00:00	19	103	0	122	0
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	0	132	61	193	0	537	16:00:00	41	303	0	344	0
17:00:00	0	170	86	256	0	739	17:00:00	85	398	0	483	0
18:00:00	0	141	67	208	0	683	18:00:00	66	409	0	475	0
19:00:00	0	117	54	171	0	526	19:00:00	48	307	0	355	0
Totals:	0	2063	688	2751	0	4783	S Totals:	282	1750	0	2032	0
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	0	0	0	0	0	88	7:00:00	20	0	68	88	0
8:00:00	0	0	0	0	0	97	8:00:00	33	0	64	97	0
9:00:00	0	0	0	0	0	144	9:00:00	80	0	64	144	0
10:00:00	0	0	0	0	0	78	10:00:00	46	0	32	78	0
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0	139	16:00:00	116	0	23	139	0
17:00:00	0	0	0	0	0	198	17:00:00	180	0	18	198	0
18:00:00	0	0	0	0	0	208	18:00:00	186	0	22	208	0
19:00:00	0	0	0	0	0	147	19:00:00	126	0	21	147	0
Totals:	0	0	0	0	0	1099	W Totals:	787	0	312	1099	0
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	7:00	8:00	9:00	10:00			16:00	17:00	18:00	19:00		
Crossing Values:	20	33	80	46			116	180	186	126		

Accu-Traffic Inc.


Morning Peak Diagram		Specified Period From: 6:00:00 To: 10:00:00	One Hour Peak From: 7:00:00 To: 8:00:00																																																												
Municipality: Caledon Site #: 1701000002 Intersection: Airport Rd & Old Church Rd TFR File #: 1 Count date: 17-Jan-17		Weather conditions: Person counted: Person prepared: Person checked:																																																													
** Signalized Intersection **		Major Road: Airport Rd runs N/S																																																													
North Leg Total: 504 North Entering: 421 North Peds: 0 Peds Cross: ☒	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>8</td><td>0</td><td style="border-left: 1px solid black;">8</td></tr> <tr><td>Trucks</td><td>0</td><td>3</td><td>0</td><td style="border-left: 1px solid black;">3</td></tr> <tr><td>Cars</td><td>1</td><td>367</td><td>42</td><td style="border-left: 1px solid black;">410</td></tr> <tr><td>Totals</td><td>1</td><td>378</td><td>42</td><td style="border-left: 1px solid black;"></td></tr> </table>	Heavys	0	8	0	8	Trucks	0	3	0	3	Cars	1	367	42	410	Totals	1	378	42		<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>7</td></tr> <tr><td>Trucks</td><td>4</td></tr> <tr><td>Cars</td><td>72</td></tr> <tr><td>Totals</td><td>83</td></tr> </table>	Heavys	7	Trucks	4	Cars	72	Totals	83	East Leg Total: 316 East Entering: 227 East Peds: 0 Peds Cross: ☒																																
Heavys	0	8	0	8																																																											
Trucks	0	3	0	3																																																											
Cars	1	367	42	410																																																											
Totals	1	378	42																																																												
Heavys	7																																																														
Trucks	4																																																														
Cars	72																																																														
Totals	83																																																														
																																																															
<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>1</td><td style="border-left: 1px solid black;">1</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td style="border-left: 1px solid black;">0</td></tr> <tr><td>Cars</td><td>0</td><td>0</td><td>1</td><td style="border-left: 1px solid black;">1</td></tr> <tr><td>Totals</td><td>0</td><td>0</td><td>2</td><td style="border-left: 1px solid black;"></td></tr> </table>	Heavys	0	0	1	1	Trucks	0	0	0	0	Cars	0	0	1	1	Totals	0	0	2		<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>25</td><td>1</td><td>0</td><td style="border-left: 1px solid black;">26</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td style="border-left: 1px solid black;">0</td></tr> <tr><td>Heavys</td><td>201</td><td>0</td><td>0</td><td style="border-left: 1px solid black;">201</td></tr> <tr><td>Totals</td><td>226</td><td>1</td><td>0</td><td style="border-left: 1px solid black;"></td></tr> </table>	Cars	25	1	0	26	Trucks	0	0	0	0	Heavys	201	0	0	201	Totals	226	1	0		<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>86</td><td>1</td><td>2</td><td style="border-left: 1px solid black;">89</td></tr> <tr><td>Trucks</td><td></td><td></td><td></td><td style="border-left: 1px solid black;"></td></tr> <tr><td>Heavys</td><td></td><td></td><td></td><td style="border-left: 1px solid black;"></td></tr> <tr><td>Totals</td><td></td><td></td><td></td><td style="border-left: 1px solid black;"></td></tr> </table>	Cars	86	1	2	89	Trucks					Heavys					Totals					Peds Cross: ☒ South Peds: 0 South Entering: 103 South Leg Total: 683
Heavys	0	0	1	1																																																											
Trucks	0	0	0	0																																																											
Cars	0	0	1	1																																																											
Totals	0	0	2																																																												
Cars	25	1	0	26																																																											
Trucks	0	0	0	0																																																											
Heavys	201	0	0	201																																																											
Totals	226	1	0																																																												
Cars	86	1	2	89																																																											
Trucks																																																															
Heavys																																																															
Totals																																																															
Peds Cross: ☒ West Peds: 0 West Entering: 2 West Leg Total: 3	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>569</td></tr> <tr><td>Trucks</td><td>3</td></tr> <tr><td>Heavys</td><td>8</td></tr> <tr><td>Totals</td><td>580</td></tr> </table>	Cars	569	Trucks	3	Heavys	8	Totals	580	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>0</td><td>47</td><td>43</td><td style="border-left: 1px solid black;">90</td></tr> <tr><td>Trucks</td><td>0</td><td>3</td><td>1</td><td style="border-left: 1px solid black;">4</td></tr> <tr><td>Heavys</td><td>0</td><td>7</td><td>2</td><td style="border-left: 1px solid black;">9</td></tr> <tr><td>Totals</td><td>0</td><td>57</td><td>46</td><td style="border-left: 1px solid black;"></td></tr> </table>	Cars	0	47	43	90	Trucks	0	3	1	4	Heavys	0	7	2	9	Totals	0	57	46		Peds Cross: ☒ South Peds: 0 South Entering: 103 South Leg Total: 683																																
Cars	569																																																														
Trucks	3																																																														
Heavys	8																																																														
Totals	580																																																														
Cars	0	47	43	90																																																											
Trucks	0	3	1	4																																																											
Heavys	0	7	2	9																																																											
Totals	0	57	46																																																												
Comments																																																															

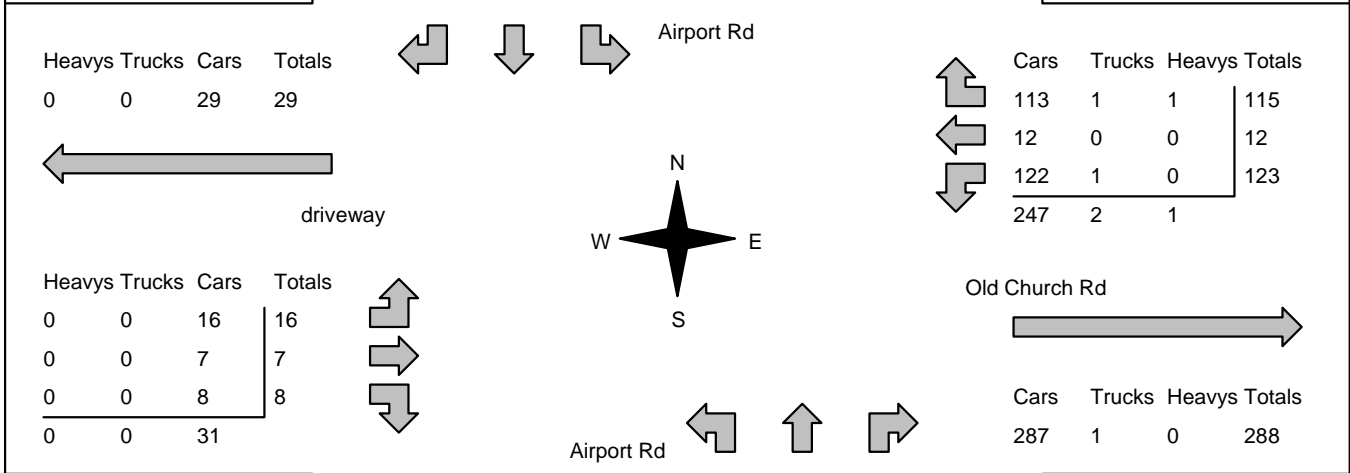
Accu-Traffic Inc.


Afternoon Peak Diagram	Specified Period From: 15:00:00 To: 19:00:00	One Hour Peak From: 16:30:00 To: 17:30:00
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Municipality: Caledon Site #: 1701000002 Intersection: Airport Rd & Old Church Rd TFR File #: 1 Count date: 17-Jan-17	Weather conditions: Person counted: Person prepared: Person checked:
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** Signalized Intersection **	Major Road: Airport Rd runs N/S
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North Leg Total: 642 North Entering: 157 North Peds: 1 Peds Cross: ☒	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>8</td><td>0</td><td>8</td></tr> <tr><td>Trucks</td><td>0</td><td>3</td><td>0</td><td>3</td></tr> <tr><td>Cars</td><td>6</td><td>106</td><td>34</td><td>146</td></tr> <tr><td>Totals</td><td>6</td><td>117</td><td>34</td><td></td></tr> </table>	Heavys	0	8	0	8	Trucks	0	3	0	3	Cars	6	106	34	146	Totals	6	117	34			<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>10</td></tr> <tr><td>Trucks</td><td>5</td></tr> <tr><td>Cars</td><td>470</td></tr> <tr><td>Totals</td><td>485</td></tr> </table>	Heavys	10	Trucks	5	Cars	470	Totals	485	East Leg Total: 538 East Entering: 250 East Peds: 1 Peds Cross: ☒
Heavys	0	8	0	8																												
Trucks	0	3	0	3																												
Cars	6	106	34	146																												
Totals	6	117	34																													
Heavys	10																															
Trucks	5																															
Cars	470																															
Totals	485																															



Peds Cross: ☒ West Peds: 0 West Entering: 31 West Leg Total: 60	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>236</td></tr> <tr><td>Trucks</td><td>4</td></tr> <tr><td>Heavys</td><td>8</td></tr> <tr><td>Totals</td><td>248</td></tr> </table>	Cars	236	Trucks	4	Heavys	8	Totals	248		<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>11</td><td>341</td><td>246</td><td>598</td></tr> <tr><td>Trucks</td><td>0</td><td>4</td><td>1</td><td>5</td></tr> <tr><td>Heavys</td><td>0</td><td>9</td><td>0</td><td>9</td></tr> <tr><td>Totals</td><td>11</td><td>354</td><td>247</td><td></td></tr> </table>	Cars	11	341	246	598	Trucks	0	4	1	5	Heavys	0	9	0	9	Totals	11	354	247		Peds Cross: ☒ South Peds: 0 South Entering: 612 South Leg Total: 860
Cars	236																															
Trucks	4																															
Heavys	8																															
Totals	248																															
Cars	11	341	246	598																												
Trucks	0	4	1	5																												
Heavys	0	9	0	9																												
Totals	11	354	247																													

Comments

Accu-Traffic Inc.

Total Count Diagram

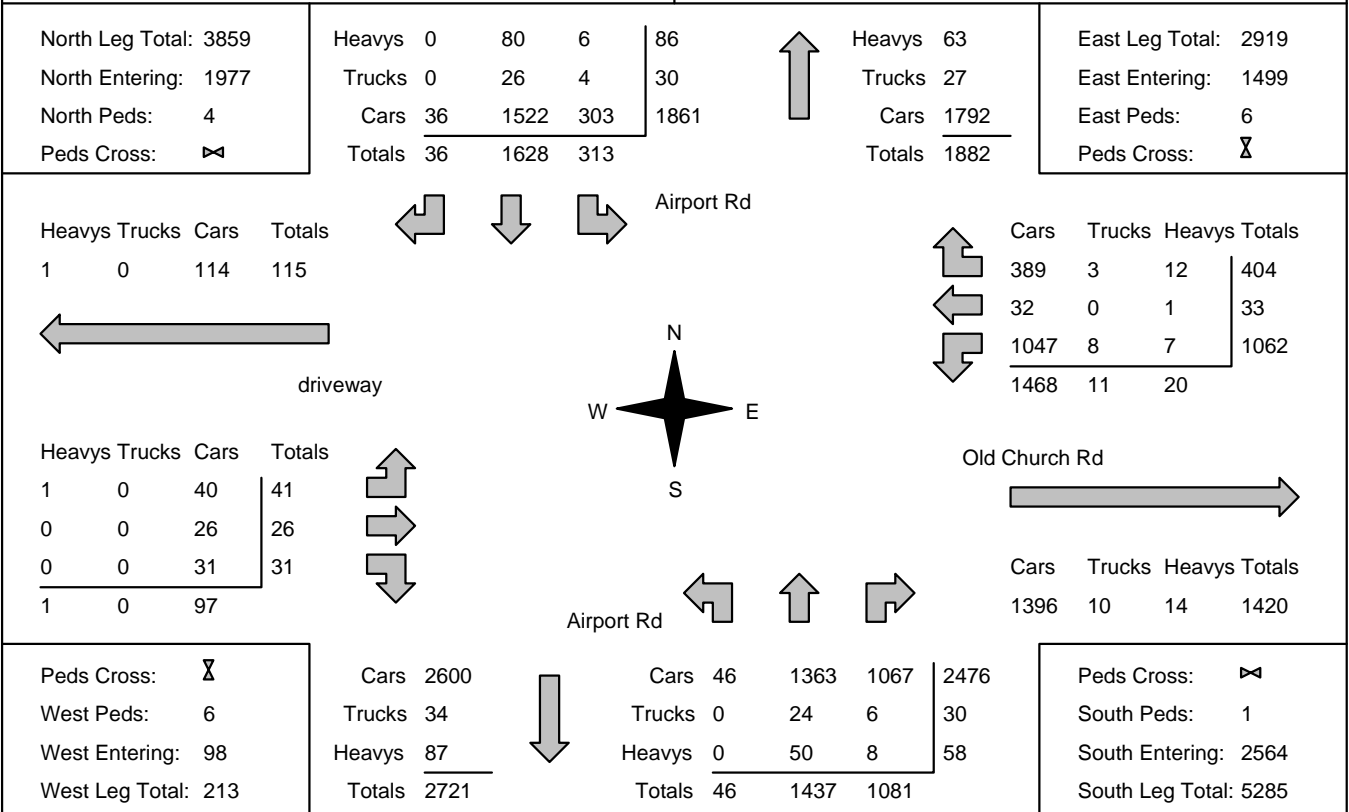
Municipality: Caledon
Site #: 1701000002
Intersection: Airport Rd & Old Church Rd
TFR File #: 1
Count date: 17-Jan-17

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Airport Rd runs N/S



Comments



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Airport Rd & Old Church Rd Count Date: 17-Jan-17 Municipality: Caledon

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	26	334	1	361	0	427	7:00:00	0	34	32	66	0
8:00:00	42	378	1	421	0	524	8:00:00	0	57	46	103	0
9:00:00	71	244	1	316	0	524	9:00:00	0	90	118	208	0
10:00:00	49	211	2	262	0	429	10:00:00	1	83	83	167	0
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	34	120	7	161	3	584	16:00:00	7	275	141	423	0
17:00:00	29	126	11	166	1	736	17:00:00	8	347	215	570	0
18:00:00	30	109	6	145	0	737	18:00:00	18	331	243	592	0
19:00:00	32	106	7	145	0	580	19:00:00	12	220	203	435	1
Totals:	313	1628	36	1977	4	4541	S Totals:	46	1437	1081	2564	1
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	122	0	21	143	0	144	7:00:00	0	1	0	1	0
8:00:00	201	0	26	227	0	229	8:00:00	0	1	1	2	0
9:00:00	187	0	15	202	0	207	9:00:00	1	3	1	5	0
10:00:00	121	3	39	163	2	166	10:00:00	1	1	1	3	0
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	99	4	60	163	0	175	16:00:00	4	1	7	12	0
17:00:00	136	13	102	251	3	274	17:00:00	11	5	7	23	4
18:00:00	113	9	86	208	0	243	18:00:00	18	9	8	35	2
19:00:00	83	4	55	142	1	159	19:00:00	6	5	6	17	0
Totals:	1062	33	404	1499	6	1597	W Totals:	41	26	31	98	6
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	7:00	8:00	9:00	10:00			16:00	17:00	18:00	19:00		
Crossing Values:	123	202	191	125			110	161	140	95		



Accu-Traffic Inc.

Count Date: 17-Jan-17 Site #: 1701000002

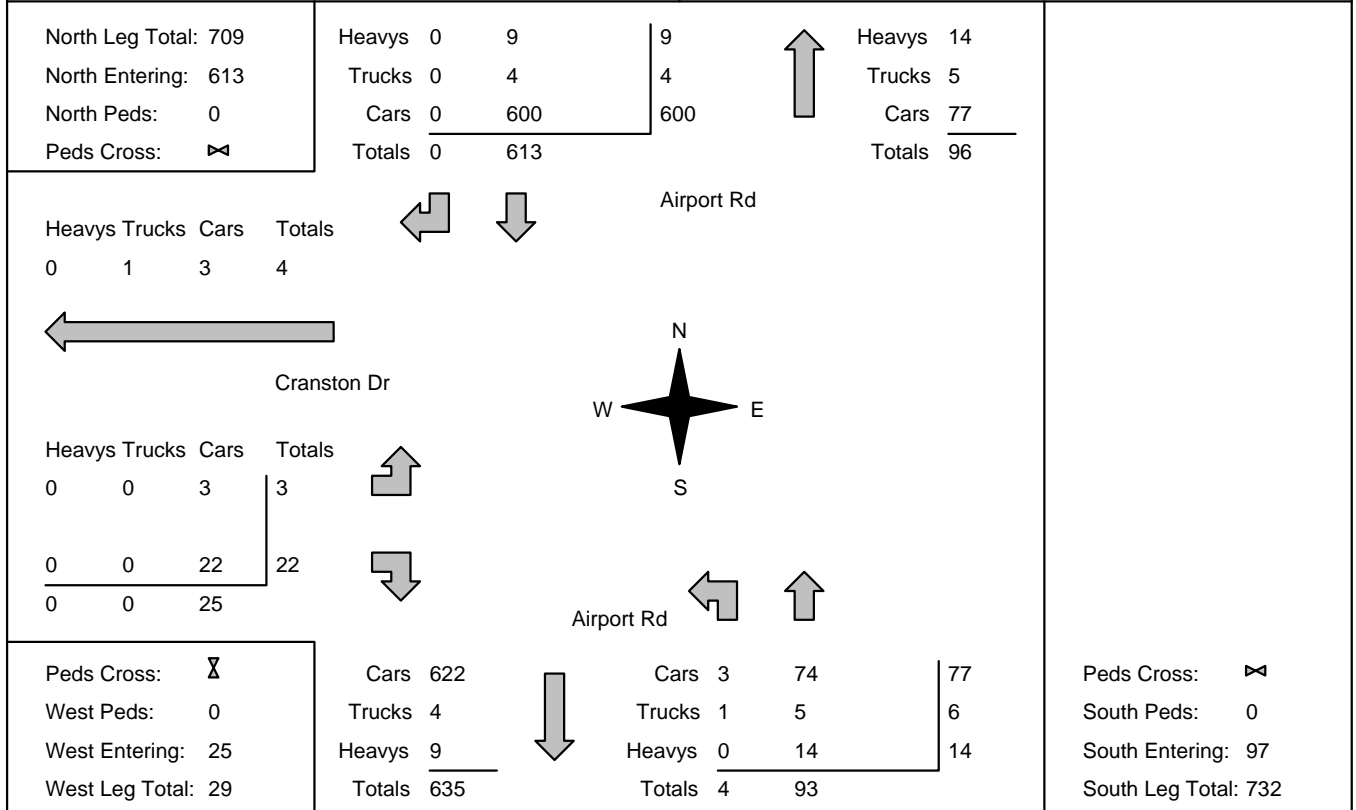
Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	4	4	86	86	0	0	0	0	3	3	0	0	0	0	2	2	0	0	0	0
6:30:00	7	3	151	65	0	0	0	0	4	1	0	0	1	1	2	0	0	0	0	0
6:45:00	16	9	254	103	0	0	0	0	4	0	0	0	1	0	6	4	0	0	0	0
7:00:00	25	9	324	70	1	1	0	0	4	0	0	0	1	0	6	0	0	0	0	0
7:15:00	39	14	427	103	2	1	0	0	4	0	0	0	1	0	9	3	0	0	0	0
7:30:00	47	8	510	83	2	0	0	0	6	2	0	0	1	0	11	2	0	0	0	0
7:45:00	54	7	612	102	2	0	0	0	7	1	0	0	1	0	13	2	0	0	0	0
8:00:00	67	13	691	79	2	0	0	0	7	0	0	0	1	0	14	1	0	0	0	0
8:15:00	81	14	764	73	2	0	0	0	7	0	0	0	1	0	15	1	0	0	0	0
8:30:00	94	13	816	52	2	0	0	0	9	2	0	0	1	0	19	4	0	0	0	0
8:45:00	111	17	868	52	2	0	1	1	10	1	0	0	4	3	21	2	0	0	0	0
9:00:00	134	23	921	53	3	1	1	0	11	1	0	0	4	0	24	3	0	0	0	0
9:15:00	154	20	977	56	3	0	1	0	14	3	0	0	4	0	26	2	0	0	0	0
9:30:00	166	12	1022	45	4	1	1	0	15	1	0	0	4	0	30	4	0	0	0	0
9:45:00	173	7	1066	44	5	1	1	0	16	1	0	0	4	0	32	2	0	0	0	0
10:00:00	182	9	1117	51	5	0	2	1	17	1	0	0	4	0	33	1	0	0	0	0
10:15:00	182	0	1117	0	5	0	2	0	17	0	0	0	4	0	33	0	0	0	0	0
15:00:00	182	0	1117	0	5	0	2	0	17	0	0	0	4	0	33	0	0	0	0	0
15:15:00	186	4	1143	26	7	2	2	0	19	2	0	0	4	0	38	5	0	0	0	0
15:30:00	193	7	1169	26	9	2	2	0	20	1	0	0	4	0	41	3	0	0	3	3
15:45:00	208	15	1195	26	12	3	3	1	21	1	0	0	4	0	44	3	0	0	3	0
16:00:00	215	7	1214	19	12	0	3	0	22	1	0	0	4	0	51	7	0	0	3	0
16:15:00	221	6	1237	23	14	2	4	1	22	0	0	0	5	1	54	3	0	0	3	0
16:30:00	226	5	1267	30	19	5	4	0	22	0	0	0	5	0	60	6	0	0	3	0
16:45:00	236	10	1296	29	21	2	4	0	22	0	0	0	5	0	62	2	0	0	3	0
17:00:00	242	6	1326	30	23	2	4	0	23	1	0	0	5	0	64	2	0	0	4	1
17:15:00	252	10	1348	22	25	2	4	0	24	1	0	0	5	0	66	2	0	0	4	0
17:30:00	260	8	1373	25	25	0	4	0	25	1	0	0	5	0	68	2	0	0	4	0
17:45:00	266	6	1402	29	27	2	4	0	25	0	0	0	5	0	69	1	0	0	4	0
18:00:00	272	6	1425	23	29	2	4	0	25	0	0	0	5	0	72	3	0	0	4	0
18:15:00	279	7	1447	22	31	2	4	0	25	0	0	0	5	0	74	2	0	0	4	0
18:30:00	287	8	1476	29	32	1	4	0	26	1	0	0	5	0	75	1	0	0	4	0
18:45:00	295	8	1499	23	34	2	4	0	26	0	0	0	5	0	77	2	0	0	4	0
19:00:00	303	8	1522	23	36	2	4	0	26	0	0	0	6	1	80	3	0	0	4	0
19:15:00	303	0	1522	0	36	0	4	0	26	0	0	0	6	0	80	0	0	0	4	0
19:15:15	303	0	1522	0	36	0	4	0	26	0	0	0	6	0	80	0	0	0	4	0

Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 6:00:00 To: 10:00:00	One Hour Peak From: 7:00:00 To: 8:00:00
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Municipality: Caledon Site #: 1701000003 Intersection: Airport Rd & Cranston Dr TFR File #: 1 Count date: 17-Jan-17	Weather conditions: Person counted: Person prepared: Person checked:
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** Non-Signalized Intersection **	Major Road: Airport Rd runs N/S
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Comments

Accu-Traffic Inc.

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 19:00:00

One Hour Peak

From: 16:30:00

To: 17:30:00

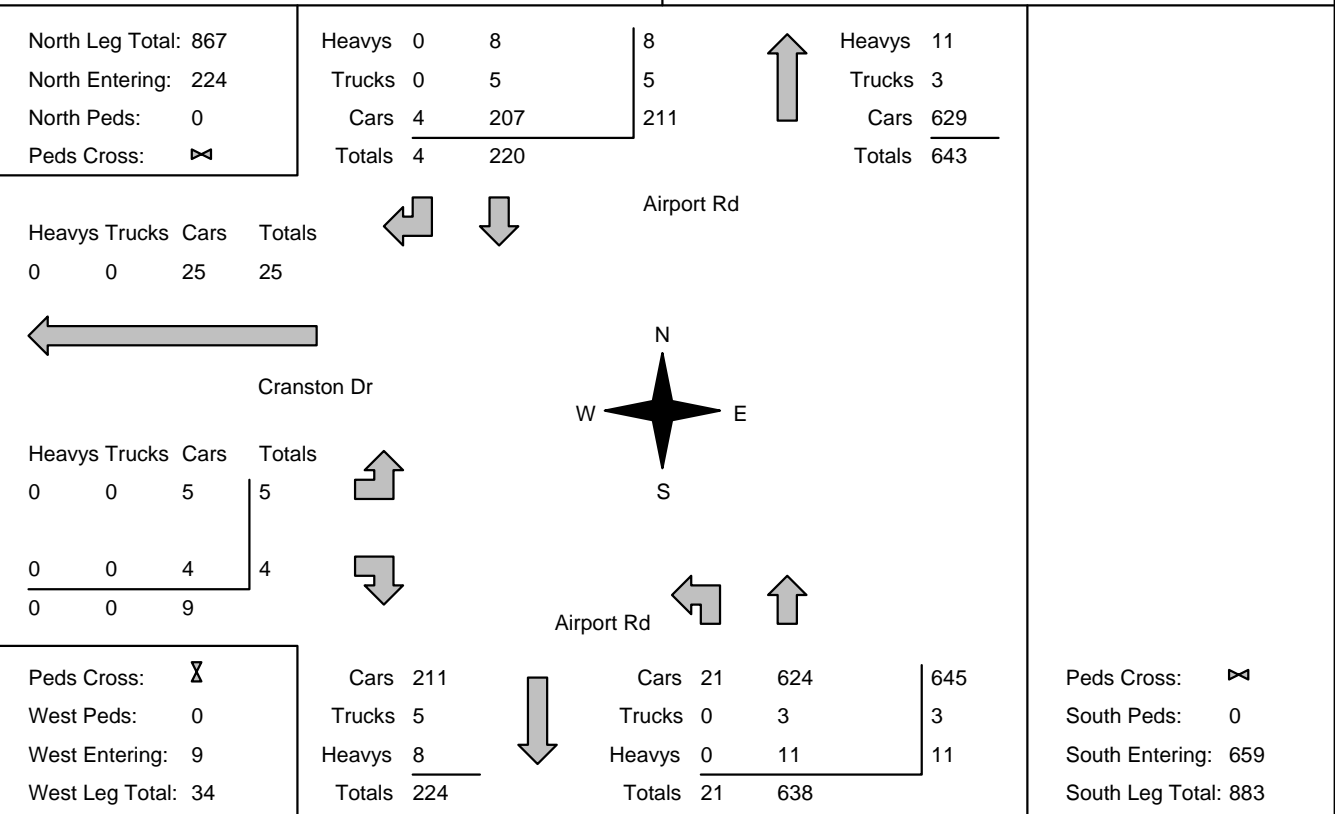
Municipality: Caledon
Site #: 1701000003
Intersection: Airport Rd & Cranston Dr
TFR File #: 1
Count date: 17-Jan-17

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

Major Road: Airport Rd runs N/S



Comments

Accu-Traffic Inc.

Total Count Diagram

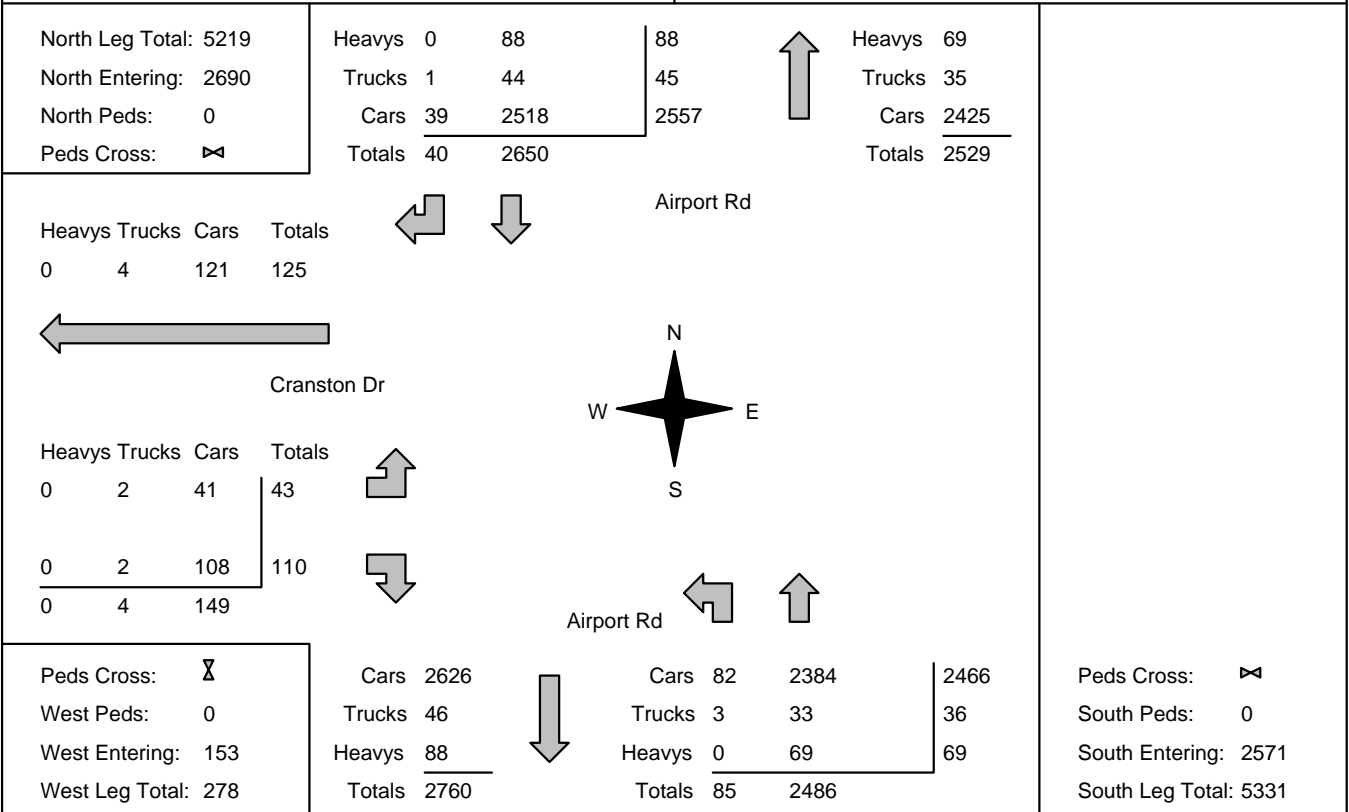
Municipality: Caledon
Site #: 1701000003
Intersection: Airport Rd & Cranston Dr
TFR File #: 1
Count date: 17-Jan-17

Weather conditions:

Person counted:
Person prepared:
Person checked:

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

Major Road: Airport Rd runs N/S



Comments



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Airport Rd & Cranston Dr Count Date: 17-Jan-17 Municipality: Caledon

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	0	494	1	495	0	563	7:00:00	3	65	0	68	0
8:00:00	0	613	0	613	0	710	8:00:00	4	93	0	97	0
9:00:00	0	431	4	435	0	635	9:00:00	7	193	0	200	0
10:00:00	0	306	8	314	0	464	10:00:00	5	145	0	150	0
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	0	193	5	198	0	621	16:00:00	14	409	0	423	0
17:00:00	0	252	4	256	0	843	17:00:00	11	576	0	587	0
18:00:00	0	200	8	208	0	812	18:00:00	21	583	0	604	0
19:00:00	0	161	10	171	0	612	19:00:00	20	421	0	441	0
Totals:	0	2650	40	2690	0	5260	S Totals:	85	2485	0	2570	0
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	0	0	0	0	0	25	7:00:00	1	0	24	25	0
8:00:00	0	0	0	0	0	25	8:00:00	3	0	22	25	0
9:00:00	0	0	0	0	0	21	9:00:00	11	0	10	21	0
10:00:00	0	0	0	0	0	29	10:00:00	5	0	24	29	0
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0	13	16:00:00	6	0	7	13	0
17:00:00	0	0	0	0	0	13	17:00:00	5	0	8	13	0
18:00:00	0	0	0	0	0	16	18:00:00	6	0	10	16	0
19:00:00	0	0	0	0	0	11	19:00:00	6	0	5	11	0
Totals:	0	0	0	0	0	153	W Totals:	43	0	110	153	0
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	7:00	8:00	9:00	10:00			16:00	17:00	18:00	19:00		
Crossing Values:	1	3	11	5			6	5	6	6		



Accu-Traffic Inc.

Count Date: 17-Jan-17 Site #: 1701000003

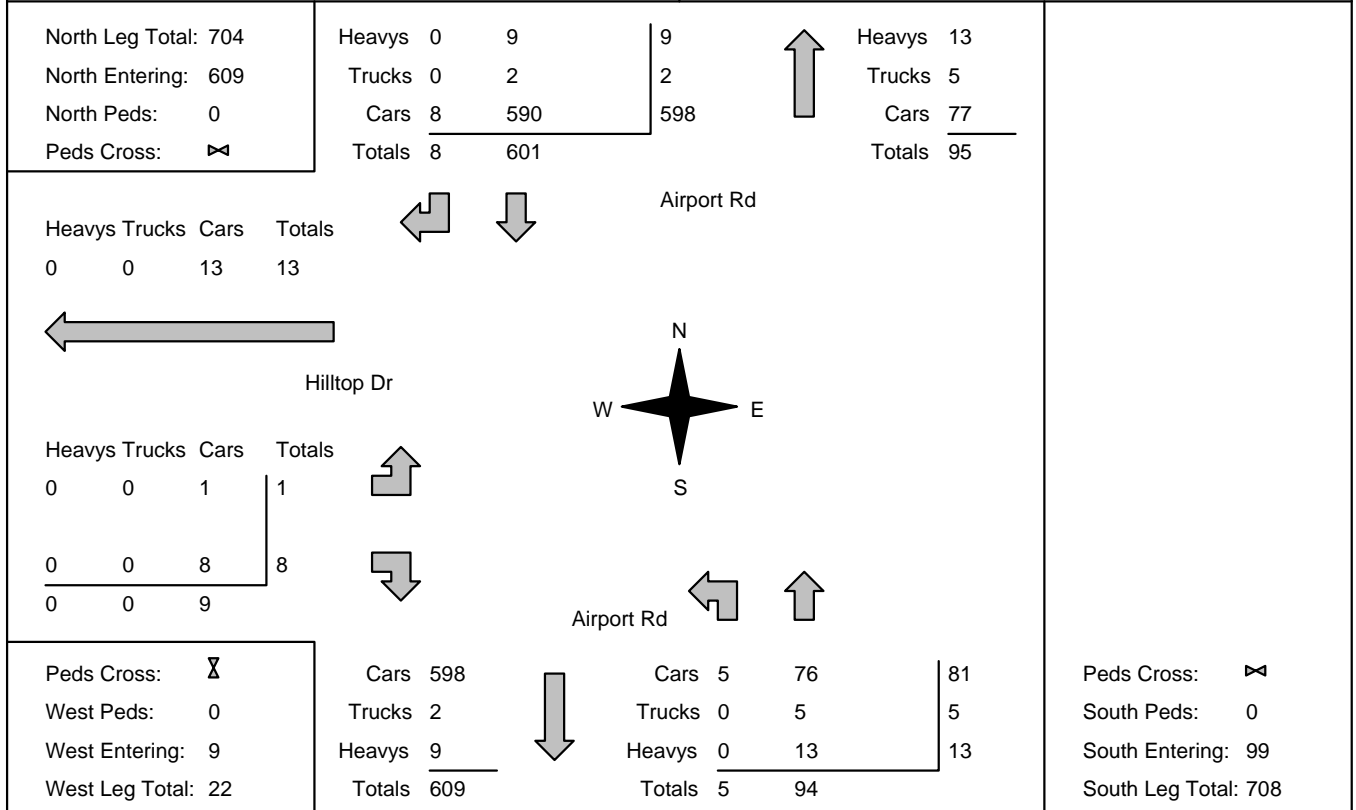
Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	0	0	110	110	1	1	0	0	2	2	0	0	0	0	4	4	0	0	0	0
6:30:00	0	0	210	100	1	0	0	0	3	1	0	0	0	0	5	1	0	0	0	0
6:45:00	0	0	359	149	1	0	0	0	4	1	0	0	0	0	8	3	0	0	0	0
7:00:00	0	0	480	121	1	0	0	0	5	1	0	0	0	0	9	1	0	0	0	0
7:15:00	0	0	631	151	1	0	0	0	5	0	0	0	0	0	12	3	0	0	0	0
7:30:00	0	0	772	141	1	0	0	0	5	0	0	0	0	0	15	3	0	0	0	0
7:45:00	0	0	942	170	1	0	0	0	8	3	0	0	0	0	17	2	0	0	0	0
8:00:00	0	0	1080	138	1	0	0	0	9	1	0	0	0	0	18	1	0	0	0	0
8:15:00	0	0	1197	117	2	1	0	0	9	0	0	0	0	0	19	1	0	0	0	0
8:30:00	0	0	1308	111	3	1	0	0	11	2	0	0	0	0	23	4	0	0	0	0
8:45:00	0	0	1410	102	4	1	0	0	12	1	0	0	0	0	25	2	0	0	0	0
9:00:00	0	0	1494	84	5	1	0	0	16	4	0	0	0	0	28	3	0	0	0	0
9:15:00	0	0	1567	73	9	4	0	0	19	3	1	1	0	0	31	3	0	0	0	0
9:30:00	0	0	1650	83	10	1	0	0	22	3	1	0	0	0	35	4	0	0	0	0
9:45:00	0	0	1718	68	10	0	0	0	24	2	1	0	0	0	38	3	0	0	0	0
10:00:00	0	0	1780	62	12	2	0	0	25	1	1	0	0	0	39	1	0	0	0	0
10:15:00	0	0	1780	0	12	0	0	0	25	0	1	0	0	0	39	0	0	0	0	0
15:00:00	0	0	1780	0	12	0	0	0	25	0	1	0	0	0	39	0	0	0	0	0
15:15:00	0	0	1819	39	12	0	0	0	26	1	1	0	0	0	43	4	0	0	0	0
15:30:00	0	0	1857	38	13	1	0	0	29	3	1	0	0	0	47	4	0	0	0	0
15:45:00	0	0	1902	45	16	3	0	0	30	1	1	0	0	0	50	3	0	0	0	0
16:00:00	0	0	1947	45	17	1	0	0	33	3	1	0	0	0	57	7	0	0	0	0
16:15:00	0	0	2008	61	18	1	0	0	35	2	1	0	0	0	61	4	0	0	0	0
16:30:00	0	0	2063	55	20	2	0	0	37	2	1	0	0	0	66	5	0	0	0	0
16:45:00	0	0	2122	59	20	0	0	0	38	1	1	0	0	0	68	2	0	0	0	0
17:00:00	0	0	2179	57	21	1	0	0	40	2	1	0	0	0	70	2	0	0	0	0
17:15:00	0	0	2224	45	22	1	0	0	41	1	1	0	0	0	72	2	0	0	0	0
17:30:00	0	0	2270	46	24	2	0	0	42	1	1	0	0	0	74	2	0	0	0	0
17:45:00	0	0	2317	47	27	3	0	0	42	0	1	0	0	0	76	2	0	0	0	0
18:00:00	0	0	2368	51	29	2	0	0	42	0	1	0	0	0	79	3	0	0	0	0
18:15:00	0	0	2407	39	34	5	0	0	42	0	1	0	0	0	81	2	0	0	0	0
18:30:00	0	0	2452	45	38	4	0	0	44	2	1	0	0	0	83	2	0	0	0	0
18:45:00	0	0	2476	24	39	1	0	0	44	0	1	0	0	0	85	2	0	0	0	0
19:00:00	0	0	2518	42	39	0	0	0	44	0	1	0	0	0	88	3	0	0	0	0
19:15:00	0	0	2518	0	39	0	0	0	44	0	1	0	0	0	88	0	0	0	0	0
19:15:15	0	0	2518	0	39	0	0	0	44	0	1	0	0	0	88	0	0	0	0	0

Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 6:00:00 To: 10:00:00	One Hour Peak From: 7:00:00 To: 8:00:00
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Municipality: Caledon Site #: 1701000004 Intersection: Airport Rd & Hilltop Dr TFR File #: 1 Count date: 17-Jan-17	Weather conditions: Person counted: Person prepared: Person checked:
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** Non-Signalized Intersection **	Major Road: Airport Rd runs N/S
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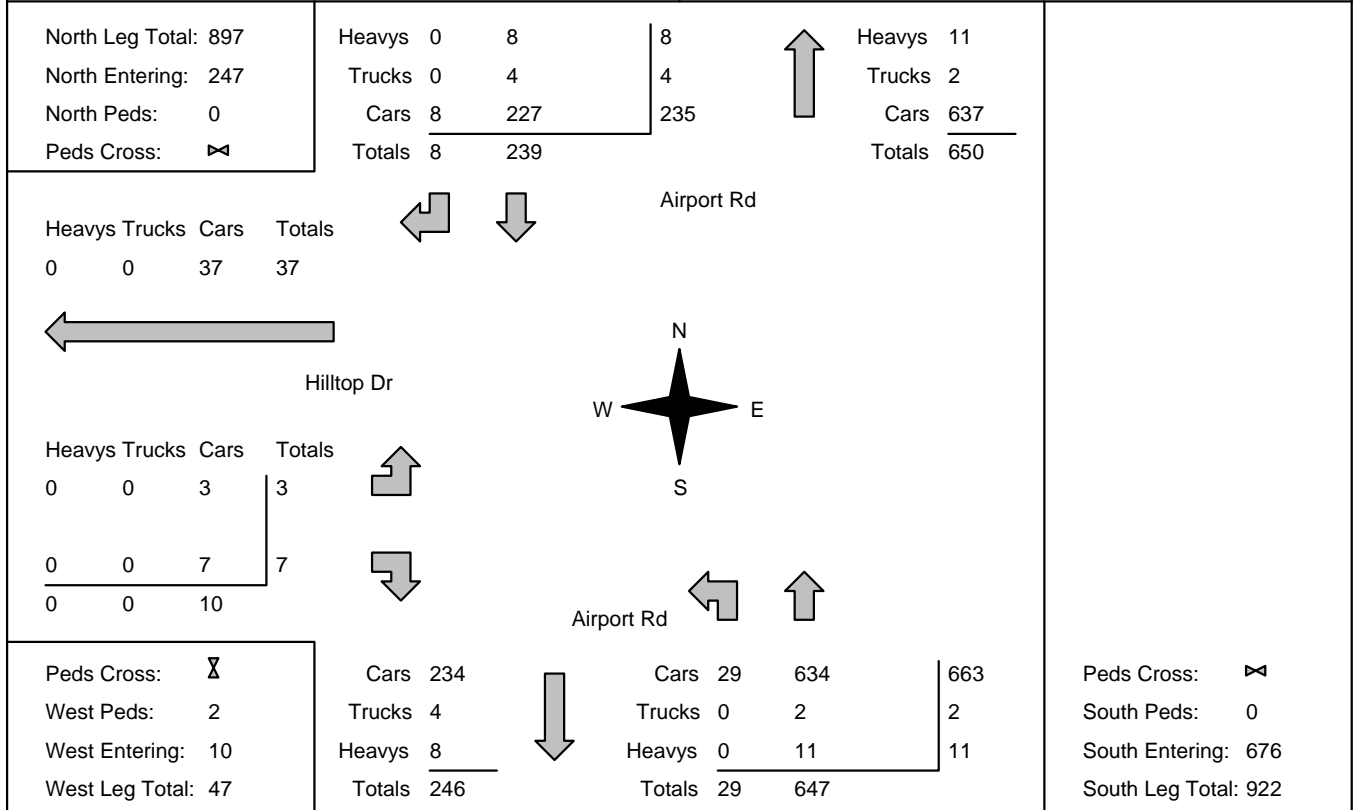
Comments

Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 15:00:00 To: 19:00:00	One Hour Peak From: 16:30:00 To: 17:30:00
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Municipality: Caledon Site #: 1701000004 Intersection: Airport Rd & Hilltop Dr TFR File #: 1 Count date: 17-Jan-17	Weather conditions: Person counted: Person prepared: Person checked:
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** Non-Signalized Intersection **	Major Road: Airport Rd runs N/S
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Comments

Accu-Traffic Inc.

Total Count Diagram

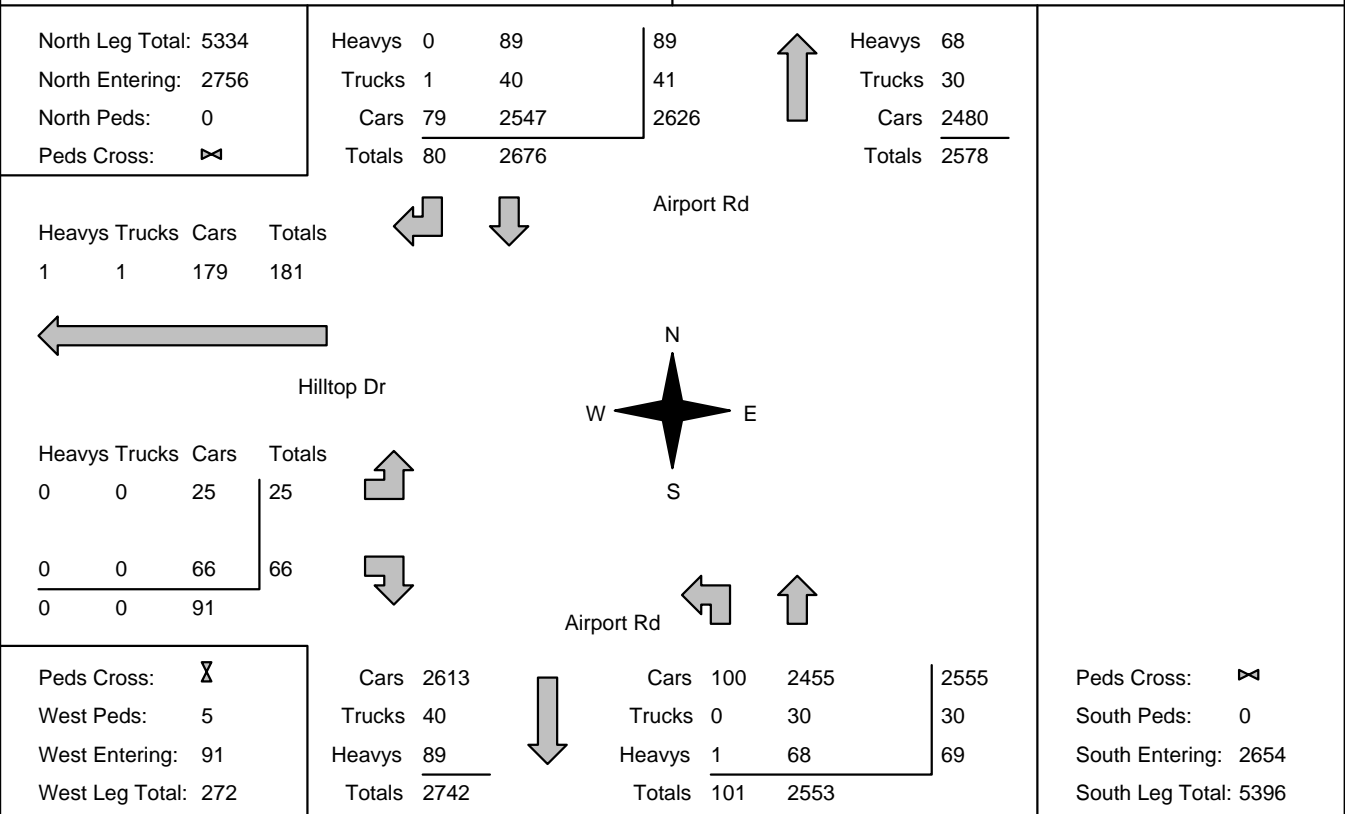
Municipality: Caledon
Site #: 1701000004
Intersection: Airport Rd & Hilltop Dr
TFR File #: 1
Count date: 17-Jan-17

Weather conditions:

Person counted:
Person prepared:
Person checked:

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

Major Road: Airport Rd runs N/S



Comments



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Airport Rd & Hilltop Dr Count Date: 17-Jan-17 Municipality: Caledon

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	0	482	1	483	0	552	7:00:00	1	68	0	69	0
8:00:00	0	601	8	609	0	708	8:00:00	5	94	0	99	0
9:00:00	0	422	23	445	0	653	9:00:00	6	202	0	208	0
10:00:00	0	313	8	321	0	475	10:00:00	11	143	0	154	0
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	0	200	11	211	0	653	16:00:00	19	423	0	442	0
17:00:00	0	261	8	269	0	879	17:00:00	16	594	0	610	0
18:00:00	0	219	11	230	0	849	18:00:00	28	591	0	619	0
19:00:00	0	178	10	188	0	641	19:00:00	15	438	0	453	0
Totals:	0	2676	80	2756	0	5410	S Totals:	101	2553	0	2654	0
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	0	0	0	0	0	14	7:00:00	1	0	13	14	0
8:00:00	0	0	0	0	0	9	8:00:00	1	0	8	9	0
9:00:00	0	0	0	0	0	18	9:00:00	2	0	16	18	1
10:00:00	0	0	0	0	0	6	10:00:00	3	0	3	6	0
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0	14	16:00:00	9	0	5	14	0
17:00:00	0	0	0	0	0	9	17:00:00	1	0	8	9	2
18:00:00	0	0	0	0	0	9	18:00:00	3	0	6	9	2
19:00:00	0	0	0	0	0	12	19:00:00	5	0	7	12	0
Totals:	0	0	0	0	0	91	W Totals:	25	0	66	91	5
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	7:00	8:00	9:00	10:00			16:00	17:00	18:00	19:00		
Crossing Values:	1	1	2	3			9	1	3	5		



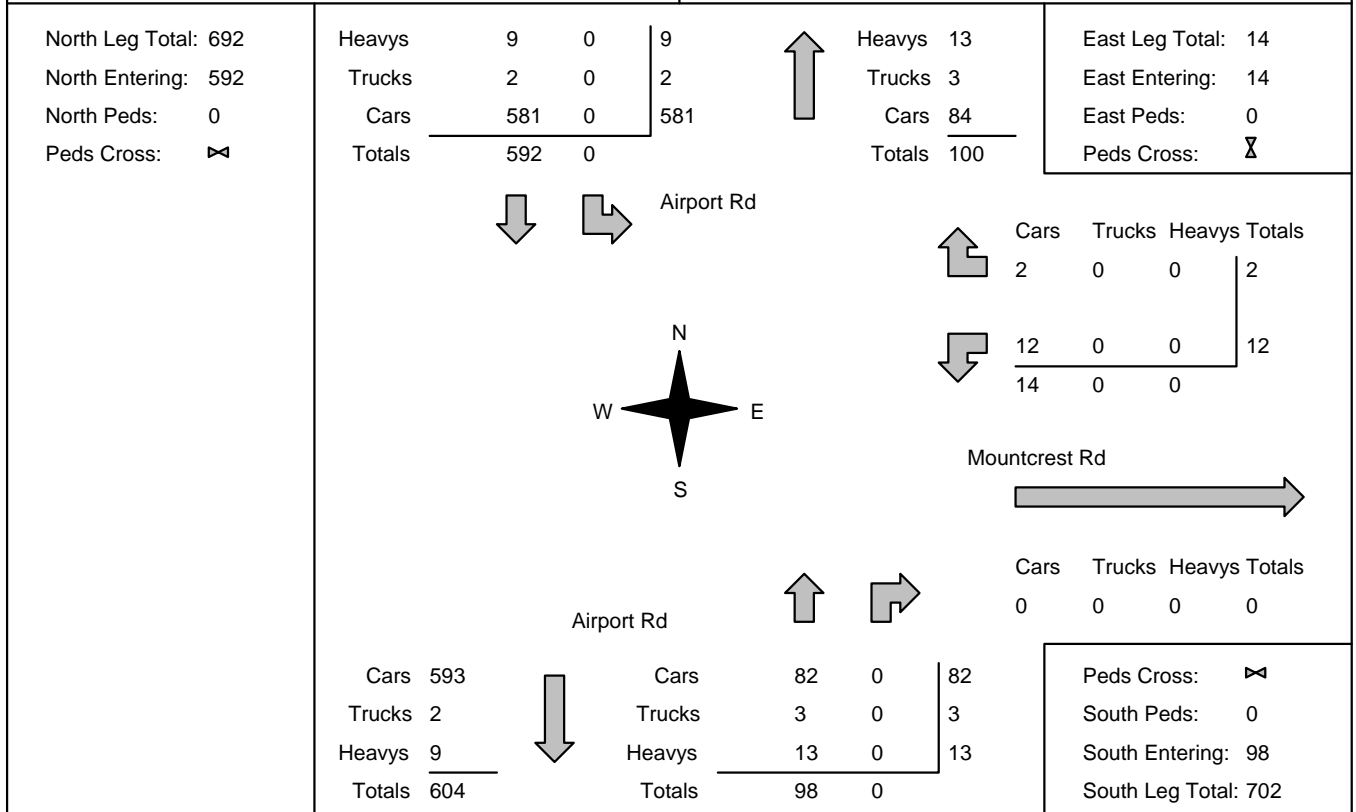
Accu-Traffic Inc.

Count Date: 17-Jan-17 Site #: 1701000004

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	0	0	109	109	0	0	0	0	2	2	0	0	0	0	4	4	0	0	0	0
6:30:00	0	0	207	98	0	0	0	0	3	1	0	0	0	0	5	1	0	0	0	0
6:45:00	0	0	352	145	0	0	0	0	4	1	0	0	0	0	8	3	0	0	0	0
7:00:00	0	0	468	116	1	1	0	0	5	1	0	0	0	0	9	1	0	0	0	0
7:15:00	0	0	618	150	3	2	0	0	5	0	0	0	0	0	13	4	0	0	0	0
7:30:00	0	0	758	140	6	3	0	0	5	0	0	0	0	0	15	2	0	0	0	0
7:45:00	0	0	927	169	6	0	0	0	7	2	0	0	0	0	17	2	0	0	0	0
8:00:00	0	0	1058	131	9	3	0	0	7	0	0	0	0	0	18	1	0	0	0	0
8:15:00	0	0	1175	117	12	3	0	0	8	1	0	0	0	0	20	2	0	0	0	0
8:30:00	0	0	1277	102	15	3	0	0	11	3	0	0	0	0	24	4	0	0	0	0
8:45:00	0	0	1374	97	22	7	0	0	14	3	0	0	0	0	26	2	0	0	0	0
9:00:00	0	0	1459	85	32	10	0	0	17	3	0	0	0	0	29	3	0	0	0	0
9:15:00	0	0	1537	78	38	6	0	0	20	3	0	0	0	0	32	3	0	0	0	0
9:30:00	0	0	1620	83	39	1	0	0	21	1	0	0	0	0	36	4	0	0	0	0
9:45:00	0	0	1688	68	40	1	0	0	23	2	0	0	0	0	39	3	0	0	0	0
10:00:00	0	0	1754	66	40	0	0	0	24	1	0	0	0	0	40	1	0	0	0	0
10:15:00	0	0	1754	0	40	0	0	0	24	0	0	0	0	0	40	0	0	0	0	0
15:00:00	0	0	1754	0	40	0	0	0	24	0	0	0	0	0	40	0	0	0	0	0
15:15:00	0	0	1792	38	40	0	0	0	25	1	0	0	0	0	45	5	0	0	0	0
15:30:00	0	0	1831	39	44	4	0	0	29	4	0	0	0	0	48	3	0	0	0	0
15:45:00	0	0	1876	45	46	2	0	0	31	2	1	1	0	0	51	3	0	0	0	0
16:00:00	0	0	1928	52	50	4	0	0	32	1	1	0	0	0	58	7	0	0	0	0
16:15:00	0	0	1984	56	53	3	0	0	33	1	1	0	0	0	62	4	0	0	0	0
16:30:00	0	0	2046	62	55	2	0	0	35	2	1	0	0	0	67	5	0	0	0	0
16:45:00	0	0	2112	66	56	1	0	0	36	1	1	0	0	0	69	2	0	0	0	0
17:00:00	0	0	2170	58	58	2	0	0	38	2	1	0	0	0	71	2	0	0	0	0
17:15:00	0	0	2224	54	59	1	0	0	38	0	1	0	0	0	73	2	0	0	0	0
17:30:00	0	0	2273	49	63	4	0	0	39	1	1	0	0	0	75	2	0	0	0	0
17:45:00	0	0	2329	56	66	3	0	0	39	0	1	0	0	0	77	2	0	0	0	0
18:00:00	0	0	2379	50	69	3	0	0	39	0	1	0	0	0	80	3	0	0	0	0
18:15:00	0	0	2428	49	72	3	0	0	39	0	1	0	0	0	82	2	0	0	0	0
18:30:00	0	0	2478	50	74	2	0	0	40	1	1	0	0	0	84	2	0	0	0	0
18:45:00	0	0	2506	28	77	3	0	0	40	0	1	0	0	0	86	2	0	0	0	0
19:00:00	0	0	2547	41	79	2	0	0	40	0	1	0	0	0	89	3	0	0	0	0
19:15:00	0	0	2547	0	79	0	0	0	40	0	1	0	0	0	89	0	0	0	0	0
19:15:15	0	0	2547	0	79	0	0	0	40	0	1	0	0	0	89	0	0	0	0	0

Accu-Traffic Inc.




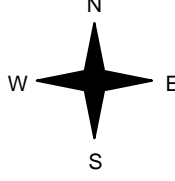






Morning Peak Diagram	Specified Period From: 6:00:00 To: 10:00:00	One Hour Peak From: 7:00:00 To: 8:00:00
Municipality: Caledon Site #: 1701000005 Intersection: Airport Rd & Mountcrest Rd TFR File #: 1 Count date: 17-Jan-17	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **	Major Road: Airport Rd runs N/S	



Comments

Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 15:00:00 To: 19:00:00	One Hour Peak From: 16:45:00 To: 17:45:00
Municipality: Caledon Site #: 1701000005 Intersection: Airport Rd & Mountcrest Rd TFR File #: 1 Count date: 17-Jan-17	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **	Major Road: Airport Rd runs N/S	

North Leg Total: 901 North Entering: 253 North Peds: 0 Peds Cross: ☒	<table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;">Heavys</td><td style="text-align: center;">8</td><td style="text-align: center;">0</td><td style="border-left: 1px solid black; text-align: center;">8</td></tr> <tr> <td style="text-align: right;">Trucks</td><td style="text-align: center;">3</td><td style="text-align: center;">0</td><td style="border-left: 1px solid black; text-align: center;">3</td></tr> <tr> <td style="text-align: right;">Cars</td><td style="text-align: center;">235</td><td style="text-align: center;">7</td><td style="border-left: 1px solid black; text-align: center;">242</td></tr> <tr> <td style="text-align: right;">Totals</td><td style="text-align: center;">246</td><td style="text-align: center;">7</td><td style="border-left: 1px solid black;"></td></tr> </table> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">   </div> <div style="text-align: center;">  Airport Rd </div> </div> <div style="display: flex; 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Comments

Accu-Traffic Inc.

Total Count Diagram

Municipality: Caledon
Site #: 1701000005
Intersection: Airport Rd & Mountcrest Rd
TFR File #: 1
Count date: 17-Jan-17

Weather conditions:

Person counted:
Person prepared:
Person checked:

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

Major Road: Airport Rd runs N/S

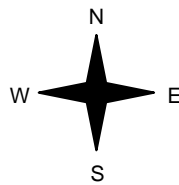
North Leg Total: 5317
 North Entering: 2730
 North Peds: 0
 Peds Cross:

Heavys	87	0	87
Trucks	39	1	40
Cars	2582	21	2603
Totals	2708	22	

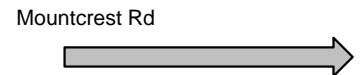


Heavys	65
Trucks	29
Cars	2493
Totals	2587

East Leg Total: 146
 East Entering: 80
 East Peds: 7
 Peds Cross:



	Cars	Trucks	Heavys	Totals
Northbound	25	1	0	26
Southbound	53	1	0	54
Totals	78	2	0	



Cars	2635	Cars	2468	43	2511
Trucks	40	Trucks	28	1	29
Heavys	87	Heavys	65	0	65
Totals	2762	Totals	2561	44	

Cars	Trucks	Heavys	Totals
64	2	0	66

Peds Cross:
 South Peds: 1
 South Entering: 2605
 South Leg Total: 5367

Comments



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Airport Rd & Mountcrest Rd Count Date: 17-Jan-17 Municipality: Caledon

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	0	466	0	466	0	536	7:00:00	0	69	1	70	0
8:00:00	0	592	0	592	0	690	8:00:00	0	98	0	98	0
9:00:00	3	432	0	435	0	637	9:00:00	0	200	2	202	0
10:00:00	2	318	0	320	0	472	10:00:00	0	152	0	152	0
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	3	212	0	215	0	653	16:00:00	0	428	10	438	0
17:00:00	6	267	0	273	0	870	17:00:00	0	587	10	597	1
18:00:00	3	234	0	237	0	837	18:00:00	0	589	11	600	0
19:00:00	5	187	0	192	0	640	19:00:00	0	438	10	448	0
Totals:	22	2708	0	2730	0	5335	S Totals:	0	2561	44	2605	1
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	10	0	0	10	0	10	7:00:00	0	0	0	0	0
8:00:00	12	0	2	14	0	14	8:00:00	0	0	0	0	0
9:00:00	10	0	4	14	0	14	9:00:00	0	0	0	0	0
10:00:00	3	0	0	3	2	3	10:00:00	0	0	0	0	0
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	8	0	5	13	1	13	16:00:00	0	0	0	0	0
17:00:00	5	0	3	8	1	8	17:00:00	0	0	0	0	0
18:00:00	1	0	5	6	3	6	18:00:00	0	0	0	0	0
19:00:00	5	0	7	12	0	12	19:00:00	0	0	0	0	0
Totals:	54	0	26	80	7	80	W Totals:	0	0	0	0	0
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	7:00	8:00	9:00	10:00			16:00	17:00	18:00	19:00		
Crossing Values:	10	12	10	3			8	6	1	5		

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date		September 22, 2014		Prepared Date:		February 2, 2017				
Database Rev		2		Completed By:		RC/ AP				
Timing Card / Field rev		-		Checked By:		RS				
Location							TIME PERIOD			
Airport Road at Caledon Trailway							(sec.)			
Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)		Amber (sec.)	All Red (sec.)	(Green+Amber+All Red)			
			WALK	FDWALK			AM MAX	OFF MAX	PM MAX	
1										
2	Airport Road - Southbound	8.0			4.0	2.0	49.0	31.0	49.0	
3										
4	Caledon Trail Crossing - Westbound	8.0	8.0	10.0	4.0	2.0	21.0	14.0 (min), 24.0 (max)	21.0	
5										
6	Airport Road - Northbound	8.0			4.0	2.0	49.0	31.0	49.0	
7										
8	Caledon Trail Crossing - Eastbound	8.0	8.0	10.0	4.0	2.0	21.0	14.0 (min), 24.0 (max)	21.0	
System Control		Yes								
Local Control		No								
Semi-Actuated Mode		Yes								
				TIME (M-F)		PEAK	CYCLE LENGTH (sec.)		OFFSET (sec.)	
				06:30 - 08:00		AM	70		29	
				8:00 - 15:00		OFF	Free		0	
				15:00 - 18:30		PM	70		29	

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date		September 22, 2014				Prepared Date:		February 2, 2017	
Database Rev		19				Completed By:		RC/ AP	
Timing Card / Field rev		-				Checked By:		RS	
Location	Airport Road at Old Church Road					TIME PERIOD (sec.) (Green+Amber+All Red)			
Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)		Amber (sec.)	All Red (sec.)			
			WALK	FDWALK			AM MAX	OFF MAX	PM MAX
1	Airport Road - N/S	8.0	8.0	17.0	4.0	3.1	42.0	49.1	42.0
2	Old Church Road - WB	8.0	8.0	10.0	4.0	2.6	28.0	14.6 (min), 26.6 (max)	28.0
System Control		Yes							
Local Control		No							
Semi-Actuated Mode		Yes							
		TIME (M-F)		PEAK		CYCLE LENGTH (sec.)		OFFSET (sec.)	
		06:30-09:00		AM		70		19	
		9:00 - 15:00		OFF		Free		0	
		15:00 - 18:30		PM		70		45	

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date		December 18, 2000		Prepared Date:		February 2, 2017	
Database Rev		1		Completed By:		RC/ AP	
Timing Card / Field rev		-		Checked By:		RS	
Location:		Airport Road at Olde Base Line Road				TIME PERIOD (sec.) (Green+Amber+All Red)	
Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)		Amber (sec.)	All Red (sec.)	AM/OFF/PM
			WALK	FDWALK			
1	Not in Use						
2	Airport Road - N/S	12.0	8.0	6.0	4.0	2.0	62.0 (max)
3	Not in Use						
4	Olde Base Line Road - EB	8.0	8.0	5.0	4.0	2.6	14.6 (min), 26.6 (max)
System Control		Yes					
Local Control		No		TIME		CYCLE LENGTH	
Semi-Actuated Mode		Yes		AM/OFF/PM		FREE	



APPENDIX B
Existing Traffic Level of Service Outputs

Queues

AM Peak Hour

1: Airport Road & LCBO Driveway/Old Church Road



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	1	201	0	57	46	42	378
Future Volume (vph)	1	201	0	57	46	42	378
Lane Group Flow (vph)	2	201	26	57	46	0	421
Turn Type	NA	Perm	NA	NA	Perm	Perm	NA
Protected Phases	2		2	1			1
Permitted Phases		2			1	1	
Detector Phase	2	2	2	1	1	1	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.6	24.6	24.6	32.1	32.1	32.1	32.1
Total Split (s)	28.0	28.0	28.0	42.0	42.0	42.0	42.0
Total Split (%)	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	3.1	3.1	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.6	6.6	6.6	7.1	7.1		7.1
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.00	0.46	0.02	0.07	0.06		0.47
Control Delay	15.0	23.9	0.0	9.5	2.7		13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	15.0	23.9	0.0	9.5	2.7		13.6
Queue Length 50th (m)	0.1	22.2	0.0	3.8	0.0		35.5
Queue Length 95th (m)	1.5	40.9	0.0	9.2	3.8		57.6
Internal Link Dist (m)	54.2		143.8	214.0			592.7
Turn Bay Length (m)					45.0		
Base Capacity (vph)	547	434	1154	811	772		902
Starvation Cap Reductn	0	0	0	0	0		0
Spillback Cap Reductn	0	0	0	0	0		0
Storage Cap Reductn	0	0	0	0	0		0
Reduced v/c Ratio	0.00	0.46	0.02	0.07	0.06		0.47

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 70

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Splits and Phases: 1: Airport Road & LCBO Driveway/Old Church Road



HCM Signalized Intersection Capacity Analysis

1: Airport Road & LCBO Driveway/Old Church Road

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (vph)	0	1	1	201	0	26	0	57	46	42	378	1
Future Volume (vph)	0	1	1	201	0	26	0	57	46	42	378	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.93		1.00	0.85			1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00			1.00	1.00		1.00	
Satd. Flow (prot)		1791		1785	1633			1628	1493		1861	
Flt Permitted		1.00		0.76	1.00			1.00	1.00		0.97	
Satd. Flow (perm)		1791		1421	1633			1628	1493		1810	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1	1	201	0	26	0	57	46	42	378	1
RTOR Reduction (vph)	0	1	0	0	18	0	0	0	23	0	0	0
Lane Group Flow (vph)	0	1	0	201	8	0	0	57	23	0	421	0
Heavy Vehicles (%)	4%	0%	0%	0%	0%	0%	0%	18%	7%	0%	3%	0%
Turn Type		NA		Perm	NA			NA	Perm	Perm	NA	
Protected Phases		2			2			1		1		1
Permitted Phases	2			2			1		1	1		
Actuated Green, G (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Effective Green, g (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Actuated g/C Ratio		0.31		0.31	0.31			0.50	0.50		0.50	
Clearance Time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		547		434	499			811	744		902	
v/s Ratio Prot		0.00			0.00			0.04				
v/s Ratio Perm				c0.14					0.02		c0.23	
v/c Ratio		0.00		0.46	0.02			0.07	0.03		0.47	
Uniform Delay, d1		16.9		19.7	17.0			9.1	8.9		11.5	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.0		3.5	0.1			0.2	0.1		1.7	
Delay (s)		16.9		23.2	17.0			9.3	9.0		13.2	
Level of Service		B		C	B			A	A		B	
Approach Delay (s)		16.9			22.5			9.2			13.2	
Approach LOS		B			C			A			B	

Intersection Summary











HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

2: Airport Road & Mountcrest Rd

AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	2	98	0	0	592
Future Volume (Veh/h)	12	2	98	0	0	592
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	12	2	98	0	0	592
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh	2					
Upstream signal (m)				40		
pX, platoon unblocked						
vC, conflicting volume	690	98			98	
vC1, stage 1 conf vol	98					
vC2, stage 2 conf vol	592					
vCu, unblocked vol	690	98			98	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	536	963			1508	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1		
Volume Total	14	98	0	592		
Volume Left	12	0	0	0		
Volume Right	2	0	0	0		
cSH	572	1700	1700	1508		
Volume to Capacity	0.02	0.06	0.00	0.00		
Queue Length 95th (m)	0.6	0.0	0.0	0.0		
Control Delay (s)	11.5	0.0	0.0	0.0		
Lane LOS	B					
Approach Delay (s)	11.5	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			41.2%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Airport Road & Hiltop Dr

AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	8	5	94	601	0
Future Volume (Veh/h)	1	8	5	94	601	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	8	5	94	601	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
TWLTL TWLTL						
Median storage veh				2	2	
Upstream signal (m)				345		
pX, platoon unblocked						
vC, conflicting volume	705	601	601			
vC1, stage 1 conf vol	601					
vC2, stage 2 conf vol	104					
vCu, unblocked vol	705	601	601			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	99			
cM capacity (veh/h)	530	504	986			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	9	5	94	601		
Volume Left	1	5	0	0		
Volume Right	8	0	0	0		
cSH	507	986	1700	1700		
Volume to Capacity	0.02	0.01	0.06	0.35		
Queue Length 95th (m)	0.4	0.1	0.0	0.0		
Control Delay (s)	12.2	8.7	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	12.2	0.4				
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			41.6%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Airport Road & School Driveway - R/L out

AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	44	45	0	96	609	0
Future Volume (Veh/h)	44	45	0	96	609	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	44	45	0	96	609	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
TWLTL TWLTL						
Median storage veh						
2 2						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	705	609	609			
vC1, stage 1 conf vol	609					
vC2, stage 2 conf vol	96					
vCu, unblocked vol	705	609	609			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	91	100			
cM capacity (veh/h)	526	499	979			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	89	96	609			
Volume Left	44	0	0			
Volume Right	45	0	0			
cSH	512	1700	1700			
Volume to Capacity	0.17	0.06	0.36			
Queue Length 95th (m)	5.0	0.0	0.0			
Control Delay (s)	13.5	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	13.5	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization		43.9%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: Airport Road & Cranston Dr

AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	22	4	93	613	0
Future Volume (Veh/h)	3	22	4	93	613	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	22	4	93	613	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None TWLTL		
Median storage (veh)				2		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	714	613	613			
vC1, stage 1 conf vol	613					
vC2, stage 2 conf vol	101					
vCu, unblocked vol	714	613	613			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.4			
p0 queue free %	99	96	100			
cM capacity (veh/h)	523	496	864			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	25	4	93	613	0	
Volume Left	3	4	0	0	0	
Volume Right	22	0	0	0	0	
cSH	499	864	1700	1700	1700	
Volume to Capacity	0.05	0.00	0.05	0.36	0.00	
Queue Length 95th (m)	1.3	0.1	0.0	0.0	0.0	
Control Delay (s)	12.6	9.2	0.0	0.0	0.0	
Lane LOS	B	A				
Approach Delay (s)	12.6	0.4		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			42.3%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

AM Peak Hour

6: Airport Road & Olde Base Line Rd



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	33	12	62	477
Future Volume (vph)	33	12	62	477
Lane Group Flow (vph)	97	0	74	641
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	2
Permitted Phases		2		
Detector Phase	4	2	2	2
Switch Phase				
Minimum Initial (s)	8.0	12.0	12.0	12.0
Minimum Split (s)	19.6	20.0	20.0	20.0
Total Split (s)	26.6	62.0	62.0	62.0
Total Split (%)	30.0%	70.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	6.6		6.0	6.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
v/c Ratio	0.41		0.07	0.44
Control Delay	20.4		3.3	4.8
Queue Delay	0.0		0.0	0.0
Total Delay	20.4		3.3	4.8
Queue Length 50th (m)	5.5		2.5	29.5
Queue Length 95th (m)	18.1		6.6	55.6
Internal Link Dist (m)	373.9		480.2	717.9
Turn Bay Length (m)				
Base Capacity (vph)	454		1085	1449
Starvation Cap Reductn	0		0	0
Spillback Cap Reductn	0		0	0
Storage Cap Reductn	0		0	0
Reduced v/c Ratio	0.21		0.07	0.44

Intersection Summary

Cycle Length: 88.6
 Actuated Cycle Length: 83.4
 Natural Cycle: 50
 Control Type: Semi Act-Uncoord

Splits and Phases: 6: Airport Road & Olde Base Line Rd



HCM Signalized Intersection Capacity Analysis

6: Airport Road & Olde Base Line Rd

AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	33	64	12	62	477	164
Future Volume (vph)	33	64	12	62	477	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.5	3.7	3.5
Total Lost time (s)	6.6			6.0	6.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.91			1.00	0.97	
Flt Protected	0.98			0.99	1.00	
Satd. Flow (prot)	1687			1480	1810	
Flt Permitted	0.98			0.91	1.00	
Satd. Flow (perm)	1687			1362	1810	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	33	64	12	62	477	164
RTOR Reduction (vph)	59	0	0	0	9	0
Lane Group Flow (vph)	38	0	0	74	632	0
Heavy Vehicles (%)	0%	3%	0%	31%	3%	1%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	7.0			65.2	65.2	
Effective Green, g (s)	7.0			65.2	65.2	
Actuated g/C Ratio	0.08			0.77	0.77	
Clearance Time (s)	6.6			6.0	6.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	139			1047	1391	
v/s Ratio Prot	c0.02				c0.35	
v/s Ratio Perm				0.05		
v/c Ratio	0.28			0.07	0.45	
Uniform Delay, d1	36.5			2.4	3.5	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.1			0.1	1.1	
Delay (s)	37.6			2.5	4.6	
Level of Service	D			A	A	
Approach Delay (s)	37.6			2.5	4.6	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	84.8	Sum of lost time (s)	12.6
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues

AM Peak Hour

7: Airport Road & Caledon Trail Pathway

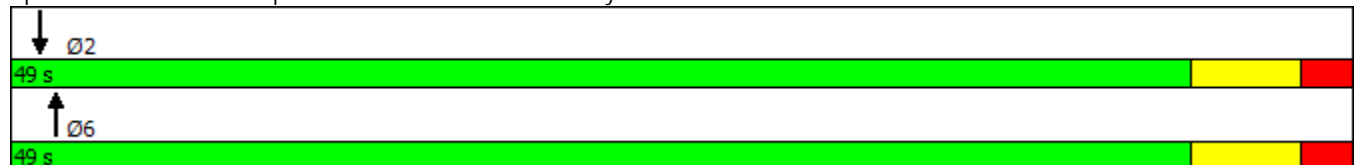


Lane Group	NBT	SBT
Lane Configurations	↑	↑
Traffic Volume (vph)	100	592
Future Volume (vph)	100	592
Lane Group Flow (vph)	100	592
Turn Type	NA	NA
Protected Phases	6	2
Permitted Phases		
Detector Phase	6	2
Switch Phase		
Minimum Initial (s)	8.0	8.0
Minimum Split (s)	24.0	24.0
Total Split (s)	49.0	49.0
Total Split (%)	100.0%	100.0%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	2.0	2.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	6.0	6.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Max	Max
v/c Ratio	0.06	0.31
Control Delay	0.1	0.4
Queue Delay	0.0	0.0
Total Delay	0.1	0.4
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	0.0	0.0
Internal Link Dist (m)	16.1	214.0
Turn Bay Length (m)		
Base Capacity (vph)	1671	1883
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.06	0.31

Intersection Summary

Cycle Length: 49
 Actuated Cycle Length: 64
 Natural Cycle: 40
 Control Type: Semi Act-Uncoord















Splits and Phases: 7: Airport Road & Caledon Trail Pathway



HCM Signalized Intersection Capacity Analysis

7: Airport Road & Caledon Trail Pathway

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	100	0	0	592	0
Future Volume (vph)	0	0	0	0	0	0	0	100	0	0	592	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)								6.0			6.0	
Lane Util. Factor								1.00			1.00	
Frt								1.00			1.00	
Flt Protected								1.00			1.00	
Satd. Flow (prot)								1671			1883	
Flt Permitted								1.00			1.00	
Satd. Flow (perm)								1671			1883	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	0	0	0	100	0	0	592	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	100	0	0	592	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	15%	0%	0%	2%	0%
Turn Type								NA			NA	
Protected Phases								6			2	
Permitted Phases												
Actuated Green, G (s)								64.0			64.0	
Effective Green, g (s)								64.0			64.0	
Actuated g/C Ratio								1.00			1.00	
Clearance Time (s)								6.0			6.0	
Vehicle Extension (s)								3.0			3.0	
Lane Grp Cap (vph)								1671			1883	
v/s Ratio Prot								0.06			0.31	
v/s Ratio Perm												
v/c Ratio								0.06			0.31	
Uniform Delay, d1								0.0			0.0	
Progression Factor								1.00			1.00	
Incremental Delay, d2								0.1			0.4	
Delay (s)								0.1			0.4	
Level of Service								A			A	
Approach Delay (s)		0.0			0.0			0.1			0.4	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			0.4					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			64.0					Sum of lost time (s)			6.0	
Intersection Capacity Utilization			36.2%					ICU Level of Service			A	
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Airport Road & LCBO Driveway/Old Church Road

PM Peak Hour
Existing Traffic

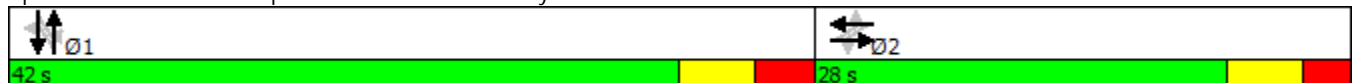


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕	↗	↘		↖	↗		↕
Traffic Volume (vph)	16	7	123	12	11	354	247	34	117
Future Volume (vph)	16	7	123	12	11	354	247	34	117
Lane Group Flow (vph)	0	31	123	127	0	365	247	0	157
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		2		2		1			1
Permitted Phases	2		2		1		1	1	
Detector Phase	2	2	2	2	1	1	1	1	1
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.6	24.6	24.6	24.6	32.1	32.1	32.1	32.1	32.1
Total Split (s)	28.0	28.0	28.0	28.0	42.0	42.0	42.0	42.0	42.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	2.6	3.1	3.1	3.1	3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)		6.6	6.6	6.6		7.1	7.1		7.1
Lead/Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio		0.06	0.29	0.22		0.40	0.27		0.20
Control Delay		14.5	20.9	6.0		12.7	2.3		10.4
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		14.5	20.9	6.0		12.7	2.3		10.4
Queue Length 50th (m)		2.2	12.8	1.2		29.5	0.0		11.0
Queue Length 95th (m)		7.9	26.0	12.2		48.4	10.1		21.2
Internal Link Dist (m)		54.2		143.8		214.0			592.7
Turn Bay Length (m)							45.0		
Base Capacity (vph)		488	419	578		913	920		785
Starvation Cap Reductn		0	0	0		0	0		0
Spillback Cap Reductn		0	0	0		0	0		0
Storage Cap Reductn		0	0	0		0	0		0
Reduced v/c Ratio		0.06	0.29	0.22		0.40	0.27		0.20

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Natural Cycle: 60
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Airport Road & LCBO Driveway/Old Church Road



HCM Signalized Intersection Capacity Analysis
 1: Airport Road & LCBO Driveway/Old Church Road

PM Peak Hour
 Existing Traffic



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (vph)	16	7	8	123	12	115	11	354	247	34	117	6
Future Volume (vph)	16	7	8	123	12	115	11	354	247	34	117	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.97		1.00	0.86			1.00	0.85		0.99	
Flt Protected		0.97		0.95	1.00			1.00	1.00		0.99	
Satd. Flow (prot)		1808		1767	1631			1847	1597		1772	
Flt Permitted		0.85		0.74	1.00			0.99	1.00		0.88	
Satd. Flow (perm)		1580		1371	1631			1833	1597		1570	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	16	7	8	123	12	115	11	354	247	34	117	6
RTOR Reduction (vph)	0	6	0	0	80	0	0	0	124	0	2	0
Lane Group Flow (vph)	0	25	0	123	47	0	0	365	123	0	155	0
Heavy Vehicles (%)	0%	0%	0%	1%	0%	2%	0%	4%	0%	0%	9%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			2			1		1		1
Permitted Phases	2			2			1		1	1		
Actuated Green, G (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Effective Green, g (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Actuated g/C Ratio		0.31		0.31	0.31			0.50	0.50		0.50	
Clearance Time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		483		419	498			913	796		782	
v/s Ratio Prot					0.03							
v/s Ratio Perm		0.02		c0.09				c0.20	0.08		0.10	
v/c Ratio		0.05		0.29	0.09			0.40	0.15		0.20	
Uniform Delay, d1		17.1		18.5	17.4			11.0	9.5		9.8	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.2		1.8	0.4			1.3	0.4		0.6	
Delay (s)		17.4		20.3	17.8			12.3	9.9		10.3	
Level of Service		B		C	B			B	A		B	
Approach Delay (s)		17.4			19.0			11.3			10.3	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

2: Airport Road & Mountcrest Rd

PM Peak Hour
Existing Traffic



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	5	643	13	7	246
Future Volume (Veh/h)	1	5	643	13	7	246
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	5	643	13	7	246
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage (veh)	2					
Upstream signal (m)				40		
pX, platoon unblocked						
vC, conflicting volume	903	643			656	
vC1, stage 1 conf vol	643					
vC2, stage 2 conf vol	260					
vCu, unblocked vol	903	643			656	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			99	
cM capacity (veh/h)	487	477			941	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1		
Volume Total	6	643	13	253		
Volume Left	1	0	0	7		
Volume Right	5	0	13	0		
cSH	479	1700	1700	941		
Volume to Capacity	0.01	0.38	0.01	0.01		
Queue Length 95th (m)	0.3	0.0	0.0	0.2		
Control Delay (s)	12.6	0.0	0.0	0.3		
Lane LOS	B			A		
Approach Delay (s)	12.6	0.0		0.3		
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			43.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Airport Road & Hiltop Dr

PM Peak Hour
Existing Traffic



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	7	29	647	239	0
Future Volume (Veh/h)	3	7	29	647	239	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	7	29	647	239	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
TWLTL TWLTL						
Median storage veh						
2 2						
Upstream signal (m)						
345						
pX, platoon unblocked						
vC, conflicting volume	944	239	239			
vC1, stage 1 conf vol	239					
vC2, stage 2 conf vol	705					
vCu, unblocked vol	944	239	239			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	98			
cM capacity (veh/h)	453	805	1340			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	10	29	647	239		
Volume Left	3	29	0	0		
Volume Right	7	0	0	0		
cSH	653	1340	1700	1700		
Volume to Capacity	0.02	0.02	0.38	0.14		
Queue Length 95th (m)	0.4	0.5	0.0	0.0		
Control Delay (s)	10.6	7.7	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	10.6	0.3		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			44.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Airport Road & School Driveway - R/L out

PM Peak Hour
Existing Traffic



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	19	0	643	246	0
Future Volume (Veh/h)	29	19	0	643	246	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	29	19	0	643	246	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
TWLTL TWLTL						
Median storage veh						
2 2						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	889	246	246			
vC1, stage 1 conf vol	246					
vC2, stage 2 conf vol	643					
vCu, unblocked vol	889	246	246			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	98	100			
cM capacity (veh/h)	491	798	1332			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	48	643	246			
Volume Left	29	0	0			
Volume Right	19	0	0			
cSH	579	1700	1700			
Volume to Capacity	0.08	0.38	0.14			
Queue Length 95th (m)	2.2	0.0	0.0			
Control Delay (s)	11.8	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	11.8	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization		43.8%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: Airport Road & Cranston Dr

PM Peak Hour
Existing Traffic



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	4	21	638	220	4
Future Volume (Veh/h)	5	4	21	638	220	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	4	21	638	220	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None TWLTL		
Median storage (veh)				2		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	900	220	224			
vC1, stage 1 conf vol	220					
vC2, stage 2 conf vol	680					
vCu, unblocked vol	900	220	224			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	98			
cM capacity (veh/h)	470	825	1357			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	9	21	638	220	4	
Volume Left	5	21	0	0	0	
Volume Right	4	0	0	0	4	
cSH	581	1357	1700	1700	1700	
Volume to Capacity	0.02	0.02	0.38	0.13	0.00	
Queue Length 95th (m)	0.4	0.4	0.0	0.0	0.0	
Control Delay (s)	11.3	7.7	0.0	0.0	0.0	
Lane LOS	B	A				
Approach Delay (s)	11.3	0.2		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			43.6%	ICU Level of Service	A	
Analysis Period (min)			15			

Queues
6: Airport Road & Olde Base Line Rd

PM Peak Hour
Existing Traffic



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	202	81	450	144
Future Volume (vph)	202	81	450	144
Lane Group Flow (vph)	224	0	531	222
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	2
Permitted Phases		2		
Detector Phase	4	2	2	2
Switch Phase				
Minimum Initial (s)	8.0	12.0	12.0	12.0
Minimum Split (s)	19.6	20.0	20.0	20.0
Total Split (s)	26.6	62.0	62.0	62.0
Total Split (%)	30.0%	70.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	6.6		6.0	6.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
v/c Ratio	0.69		0.47	0.19
Control Delay	43.2		8.9	4.6
Queue Delay	0.0		0.0	0.0
Total Delay	43.2		8.9	4.6
Queue Length 50th (m)	34.6		37.7	8.7
Queue Length 95th (m)	57.8		70.5	19.8
Internal Link Dist (m)	373.9		480.2	717.9
Turn Bay Length (m)				
Base Capacity (vph)	426		1134	1188
Starvation Cap Reductn	0		0	0
Spillback Cap Reductn	0		0	0
Storage Cap Reductn	0		0	0
Reduced v/c Ratio	0.53		0.47	0.19

Intersection Summary

Cycle Length: 88.6
 Actuated Cycle Length: 85.7
 Natural Cycle: 50
 Control Type: Semi Act-Uncoord

Splits and Phases: 6: Airport Road & Olde Base Line Rd



HCM Signalized Intersection Capacity Analysis

6: Airport Road & Olde Base Line Rd

PM Peak Hour
Existing Traffic



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	202	22	81	450	144	78
Future Volume (vph)	202	22	81	450	144	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.5	3.7	3.5
Total Lost time (s)	6.6			6.0	6.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.99			1.00	0.95	
Flt Protected	0.96			0.99	1.00	
Satd. Flow (prot)	1805			1818	1729	
Flt Permitted	0.96			0.92	1.00	
Satd. Flow (perm)	1805			1678	1729	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	202	22	81	450	144	78
RTOR Reduction (vph)	5	0	0	0	19	0
Lane Group Flow (vph)	219	0	0	531	203	0
Heavy Vehicles (%)	0%	5%	0%	3%	9%	0%
Turn Type	Prot		Perm		NA	NA
Protected Phases	4				2	2
Permitted Phases			2			
Actuated Green, G (s)	15.2				57.9	57.9
Effective Green, g (s)	15.2				57.9	57.9
Actuated g/C Ratio	0.18				0.68	0.68
Clearance Time (s)	6.6				6.0	6.0
Vehicle Extension (s)	3.0				3.0	3.0
Lane Grp Cap (vph)	320				1133	1168
v/s Ratio Prot	c0.12					0.12
v/s Ratio Perm					c0.32	
v/c Ratio	0.68				0.47	0.17
Uniform Delay, d1	33.0				6.6	5.1
Progression Factor	1.00				1.00	1.00
Incremental Delay, d2	6.0				1.4	0.3
Delay (s)	39.0				8.0	5.4
Level of Service	D				A	A
Approach Delay (s)	39.0				8.0	5.4
Approach LOS	D				A	A

Intersection Summary

HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	85.7	Sum of lost time (s)	12.6
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
7: Airport Road & Caledon Trail Pathway

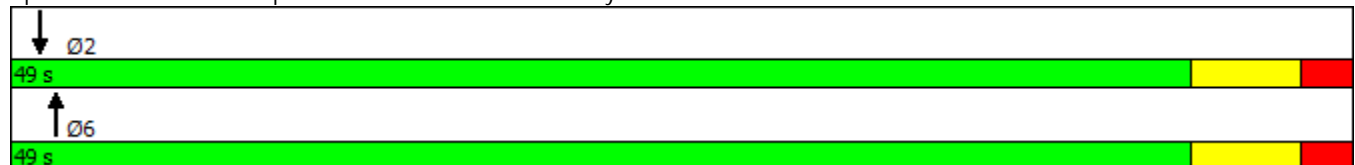
PM Peak Hour
Existing Traffic

	↑	↓
Lane Group	NBT	SBT
Lane Configurations	↑	↑
Traffic Volume (vph)	648	253
Future Volume (vph)	648	253
Lane Group Flow (vph)	648	253
Turn Type	NA	NA
Protected Phases	6	2
Permitted Phases		
Detector Phase	6	2
Switch Phase		
Minimum Initial (s)	8.0	8.0
Minimum Split (s)	24.0	24.0
Total Split (s)	49.0	49.0
Total Split (%)	100.0%	100.0%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	2.0	2.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	6.0	6.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Max	Max
v/c Ratio	0.34	0.14
Control Delay	0.5	0.2
Queue Delay	0.0	0.0
Total Delay	0.5	0.2
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	0.0	0.0
Internal Link Dist (m)	16.1	214.0
Turn Bay Length (m)		
Base Capacity (vph)	1883	1762
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.34	0.14

Intersection Summary

Cycle Length: 49
 Actuated Cycle Length: 64
 Natural Cycle: 40
 Control Type: Semi Act-Uncoord

Splits and Phases: 7: Airport Road & Caledon Trail Pathway



HCM Signalized Intersection Capacity Analysis

7: Airport Road & Caledon Trail Pathway

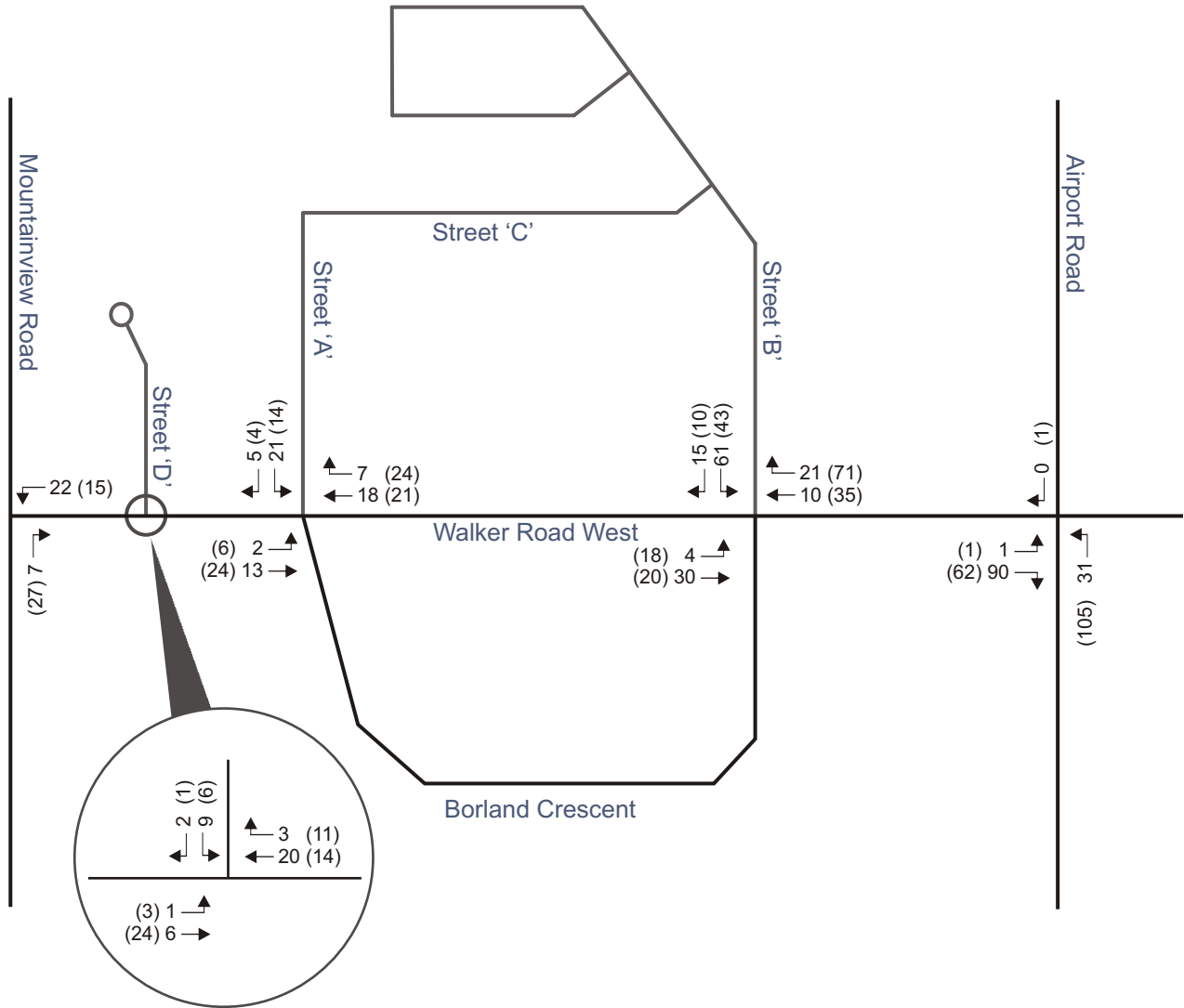
PM Peak Hour
Existing Traffic



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								↑			↑	
Traffic Volume (vph)	0	0	0	0	0	0	0	648	0	0	253	0
Future Volume (vph)	0	0	0	0	0	0	0	648	0	0	253	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)								6.0			6.0	
Lane Util. Factor								1.00			1.00	
Frt								1.00			1.00	
Flt Protected								1.00			1.00	
Satd. Flow (prot)								1883			1762	
Flt Permitted								1.00			1.00	
Satd. Flow (perm)								1883			1762	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	0	0	0	648	0	0	253	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	648	0	0	253	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	9%	0%
Turn Type								NA			NA	
Protected Phases								6			2	
Permitted Phases												
Actuated Green, G (s)								64.0			64.0	
Effective Green, g (s)								64.0			64.0	
Actuated g/C Ratio								1.00			1.00	
Clearance Time (s)								6.0			6.0	
Vehicle Extension (s)								3.0			3.0	
Lane Grp Cap (vph)								1883			1762	
v/s Ratio Prot								0.34			0.14	
v/s Ratio Perm												
v/c Ratio								0.34			0.14	
Uniform Delay, d1								0.0			0.0	
Progression Factor								1.00			1.00	
Incremental Delay, d2								0.5			0.2	
Delay (s)								0.5			0.2	
Level of Service								A			A	
Approach Delay (s)		0.0				0.0		0.5			0.2	
Approach LOS		A				A		A			A	
Intersection Summary												
HCM 2000 Control Delay			0.4					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			64.0					Sum of lost time (s)			6.0	
Intersection Capacity Utilization			39.1%					ICU Level of Service			A	
Analysis Period (min)			15									
c Critical Lane Group												



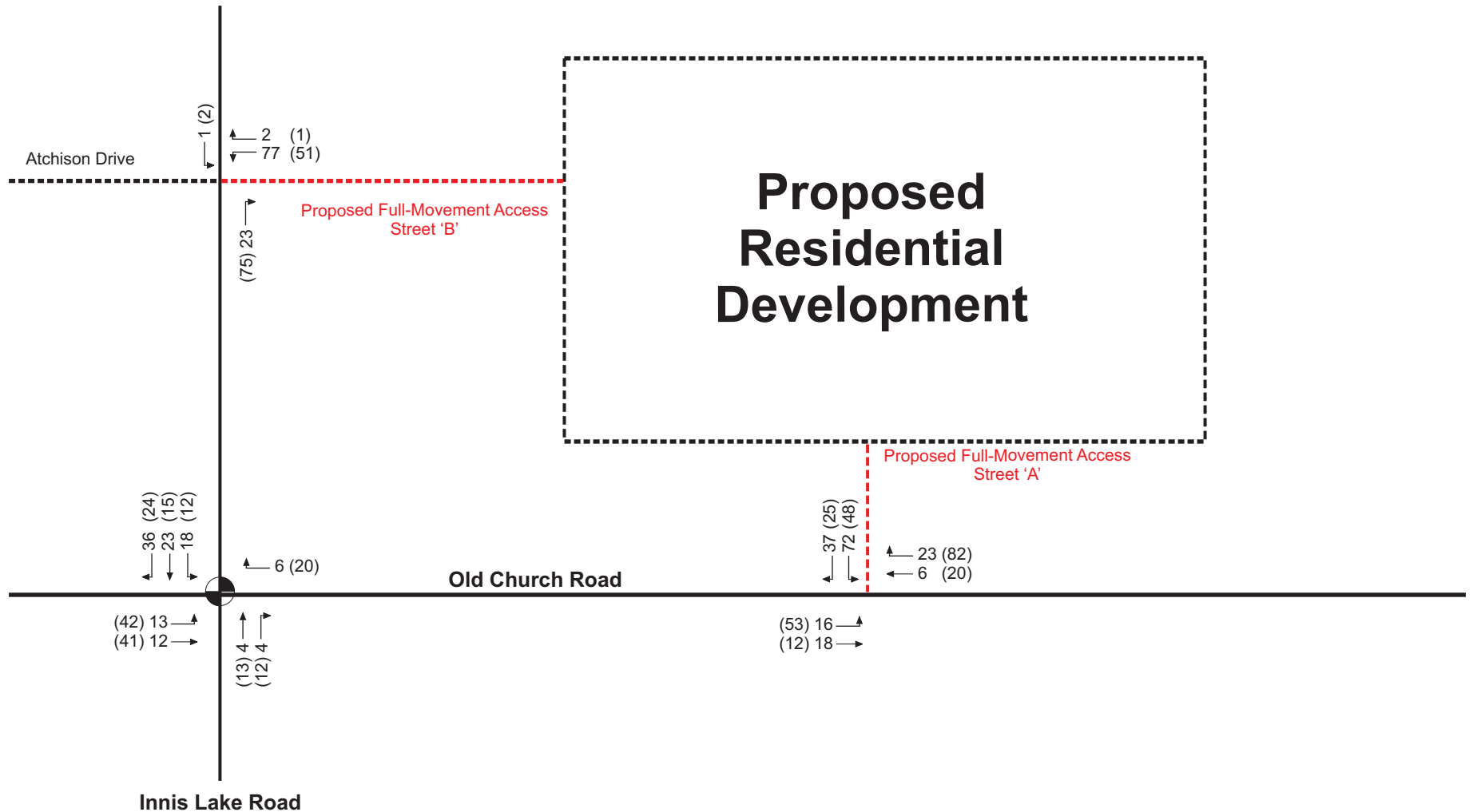
APPENDIX C
Background Development Site Traffic Volumes



Legend
XX (XX) WEEKDAY AM (WEEKDAY PM) PEAK HOUR



**Figure 5-1
Site Traffic Volumes**



Legend	
XX	Weekday AM Peak Hour
(XX)	Weekday PM Peak Hour

Figure 5-1
Site Traffic Volumes



APPENDIX D
Future (2023) Background Traffic - Level of Service Outputs

Queues
1: Airport Road & LCBO Driveway/Old Church Road

AM Peak Hour
FB 2022

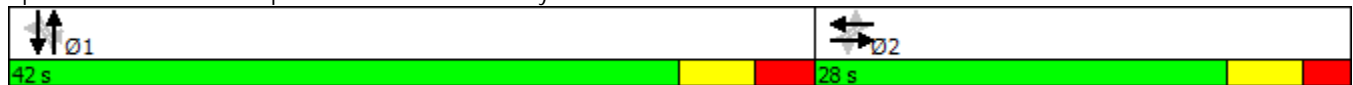


Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	1	237	0	91	71	45	461
Future Volume (vph)	1	237	0	91	71	45	461
Lane Group Flow (vph)	2	237	30	91	71	0	507
Turn Type	NA	Perm	NA	NA	Perm	Perm	NA
Protected Phases	2		2	1			1
Permitted Phases		2			1	1	
Detector Phase	2	2	2	1	1	1	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.6	24.6	24.6	32.1	32.1	32.1	32.1
Total Split (s)	28.0	28.0	28.0	42.0	42.0	42.0	42.0
Total Split (%)	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	3.1	3.1	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.6	6.6	6.6	7.1	7.1		7.1
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.00	0.55	0.03	0.11	0.09		0.56
Control Delay	15.0	25.9	0.0	9.8	3.0		15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	15.0	25.9	0.0	9.8	3.0		15.3
Queue Length 50th (m)	0.1	26.9	0.0	6.3	0.0		45.6
Queue Length 95th (m)	1.5	48.6	0.0	13.4	5.6		73.2
Internal Link Dist (m)	54.2		143.8	214.0			592.7
Turn Bay Length (m)					45.0		
Base Capacity (vph)	547	434	1099	811	779		901
Starvation Cap Reductn	0	0	0	0	0		0
Spillback Cap Reductn	0	0	0	0	0		0
Storage Cap Reductn	0	0	0	0	0		0
Reduced v/c Ratio	0.00	0.55	0.03	0.11	0.09		0.56

Intersection Summary

Cycle Length: 70
 Actuated Cycle Length: 70
 Natural Cycle: 60
 Control Type: Semi Act-Uncoord

Splits and Phases: 1: Airport Road & LCBO Driveway/Old Church Road



HCM Signalized Intersection Capacity Analysis

1: Airport Road & LCBO Driveway/Old Church Road

AM Peak Hour
FB 2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (vph)	0	1	1	237	0	30	0	91	71	45	461	1
Future Volume (vph)	0	1	1	237	0	30	0	91	71	45	461	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.93		1.00	0.85			1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00			1.00	1.00		1.00	
Satd. Flow (prot)		1791		1785	1633			1628	1493		1861	
Flt Permitted		1.00		0.76	1.00			1.00	1.00		0.97	
Satd. Flow (perm)		1791		1421	1633			1628	1493		1808	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1	1	237	0	30	0	91	71	45	461	1
RTOR Reduction (vph)	0	1	0	0	21	0	0	0	36	0	0	0
Lane Group Flow (vph)	0	1	0	237	9	0	0	91	35	0	507	0
Heavy Vehicles (%)	4%	0%	0%	0%	0%	0%	0%	18%	7%	0%	3%	0%
Turn Type		NA		Perm	NA			NA	Perm	Perm	NA	
Protected Phases		2			2			1		1		1
Permitted Phases	2			2			1		1	1		
Actuated Green, G (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Effective Green, g (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Actuated g/C Ratio		0.31		0.31	0.31			0.50	0.50		0.50	
Clearance Time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		547		434	499			811	744		901	
v/s Ratio Prot		0.00			0.01			0.06				
v/s Ratio Perm				c0.17					0.02		c0.28	
v/c Ratio		0.00		0.55	0.02			0.11	0.05		0.56	
Uniform Delay, d1		16.9		20.3	17.0			9.3	9.0		12.2	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.0		4.9	0.1			0.3	0.1		2.5	
Delay (s)		16.9		25.1	17.0			9.6	9.1		14.8	
Level of Service		B		C	B			A	A		B	
Approach Delay (s)		16.9			24.2			9.4			14.8	
Approach LOS		B			C			A			B	

Intersection Summary

HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

2: Airport Road & Mountcrest Rd

AM Peak Hour
FB 2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	2	164	0	0	746
Future Volume (Veh/h)	12	2	164	0	0	746
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	12	2	164	0	0	746
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage (veh)	2					
Upstream signal (m)				40		
pX, platoon unblocked						
vC, conflicting volume	910	164			164	
vC1, stage 1 conf vol	164					
vC2, stage 2 conf vol	746					
vCu, unblocked vol	910	164			164	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	451	886			1427	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1		
Volume Total	14	164	0	746		
Volume Left	12	0	0	0		
Volume Right	2	0	0	0		
cSH	485	1700	1700	1427		
Volume to Capacity	0.03	0.10	0.00	0.00		
Queue Length 95th (m)	0.7	0.0	0.0	0.0		
Control Delay (s)	12.6	0.0	0.0	0.0		
Lane LOS	B					
Approach Delay (s)	12.6	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			49.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Airport Road & Hiltop Dr

AM Peak Hour
FB 2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	8	5	159	756	0
Future Volume (Veh/h)	1	8	5	159	756	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	8	5	159	756	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
				TWLTL	TWLTL	
Median storage veh				2	2	
Upstream signal (m)				345		
pX, platoon unblocked						
vC, conflicting volume	925	756	756			
vC1, stage 1 conf vol	756					
vC2, stage 2 conf vol	169					
vCu, unblocked vol	925	756	756			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	99			
cM capacity (veh/h)	446	411	864			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	9	5	159	756		
Volume Left	1	5	0	0		
Volume Right	8	0	0	0		
cSH	415	864	1700	1700		
Volume to Capacity	0.02	0.01	0.09	0.44		
Queue Length 95th (m)	0.5	0.1	0.0	0.0		
Control Delay (s)	13.9	9.2	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	13.9	0.3				
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			49.8%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Airport Road & School Driveway - R/L out

AM Peak Hour
FB 2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘			↑	↑	
Traffic Volume (veh/h)	44	45	0	161	765	0
Future Volume (Veh/h)	44	45	0	161	765	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	44	45	0	161	765	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
TWLTL TWLTL						
Median storage veh						
2 2						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	926	765	765			
vC1, stage 1 conf vol	765					
vC2, stage 2 conf vol	161					
vCu, unblocked vol	926	765	765			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	89	100			
cM capacity (veh/h)	443	406	857			
Direction, Lane #						
	EB 1	NB 1	SB 1			
Volume Total	89	161	765			
Volume Left	44	0	0			
Volume Right	45	0	0			
cSH	424	1700	1700			
Volume to Capacity	0.21	0.09	0.45			
Queue Length 95th (m)	6.3	0.0	0.0			
Control Delay (s)	15.7	0.0	0.0			
Lane LOS	C					
Approach Delay (s)	15.7	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization		52.1%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: Airport Road & Cranston Dr

AM Peak Hour
FB 2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	22	4	158	818	0
Future Volume (Veh/h)	3	22	4	158	818	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	22	4	158	818	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None TWLTL		
Median storage (veh)				2		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	984	818	818			
vC1, stage 1 conf vol	818					
vC2, stage 2 conf vol	166					
vCu, unblocked vol	984	818	818			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.4			
p0 queue free %	99	94	99			
cM capacity (veh/h)	418	379	719			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	25	4	158	818	0	
Volume Left	3	4	0	0	0	
Volume Right	22	0	0	0	0	
cSH	383	719	1700	1700	1700	
Volume to Capacity	0.07	0.01	0.09	0.48	0.00	
Queue Length 95th (m)	1.7	0.1	0.0	0.0	0.0	
Control Delay (s)	15.0	10.0	0.0	0.0	0.0	
Lane LOS	C	B				
Approach Delay (s)	15.0	0.2		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			53.1%	ICU Level of Service	A	
Analysis Period (min)			15			

Queues
6: Airport Road & Olde Base Line Rd

AM Peak Hour
FB 2022



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	37	12	120	649
Future Volume (vph)	37	12	120	649
Lane Group Flow (vph)	101	0	132	817
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	2
Permitted Phases		2		
Detector Phase	4	2	2	2
Switch Phase				
Minimum Initial (s)	8.0	12.0	12.0	12.0
Minimum Split (s)	19.6	20.0	20.0	20.0
Total Split (s)	26.6	62.0	62.0	62.0
Total Split (%)	30.0%	70.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	6.6		6.0	6.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
v/c Ratio	0.43		0.12	0.56
Control Delay	21.1		3.5	6.4
Queue Delay	0.0		0.0	0.0
Total Delay	21.1		3.5	6.4
Queue Length 50th (m)	6.1		4.7	45.8
Queue Length 95th (m)	19.1		11.1	87.9
Internal Link Dist (m)	373.9		480.2	717.9
Turn Bay Length (m)				
Base Capacity (vph)	456		1087	1452
Starvation Cap Reductn	0		0	0
Spillback Cap Reductn	0		0	0
Storage Cap Reductn	0		0	0
Reduced v/c Ratio	0.22		0.12	0.56

Intersection Summary

Cycle Length: 88.6
 Actuated Cycle Length: 83.2
 Natural Cycle: 60
 Control Type: Semi Act-Uncoord

Splits and Phases: 6: Airport Road & Olde Base Line Rd



HCM Signalized Intersection Capacity Analysis

6: Airport Road & Olde Base Line Rd

AM Peak Hour
FB 2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	37	64	12	120	649	168
Future Volume (vph)	37	64	12	120	649	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.5	3.7	3.5
Total Lost time (s)	6.6			6.0	6.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.91			1.00	0.97	
Flt Protected	0.98			1.00	1.00	
Satd. Flow (prot)	1693			1459	1821	
Flt Permitted	0.98			0.93	1.00	
Satd. Flow (perm)	1693			1367	1821	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	37	64	12	120	649	168
RTOR Reduction (vph)	59	0	0	0	7	0
Lane Group Flow (vph)	42	0	0	132	810	0
Heavy Vehicles (%)	0%	3%	0%	31%	3%	1%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	7.1			64.8	64.8	
Effective Green, g (s)	7.1			64.8	64.8	
Actuated g/C Ratio	0.08			0.77	0.77	
Clearance Time (s)	6.6			6.0	6.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	142			1048	1396	
v/s Ratio Prot	c0.03				c0.45	
v/s Ratio Perm				0.10		
v/c Ratio	0.30			0.13	0.58	
Uniform Delay, d1	36.4			2.5	4.1	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.2			0.2	1.8	
Delay (s)	37.5			2.8	5.9	
Level of Service	D			A	A	
Approach Delay (s)	37.5			2.8	5.9	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	84.5	Sum of lost time (s)	12.6
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
7: Airport Road & Caledon Trail Pathway

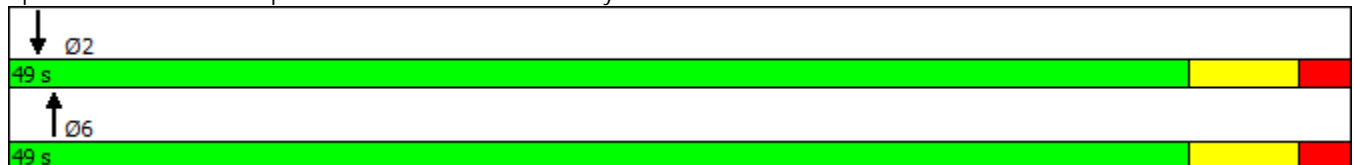
AM Peak Hour
FB 2022

	↑	↓
Lane Group	NBT	SBT
Lane Configurations	↑	↑
Traffic Volume (vph)	143	731
Future Volume (vph)	143	731
Lane Group Flow (vph)	143	731
Turn Type	NA	NA
Protected Phases	6	2
Permitted Phases		
Detector Phase	6	2
Switch Phase		
Minimum Initial (s)	8.0	8.0
Minimum Split (s)	24.0	24.0
Total Split (s)	49.0	49.0
Total Split (%)	100.0%	100.0%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	2.0	2.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	6.0	6.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Max	Max
v/c Ratio	0.09	0.39
Control Delay	0.1	0.6
Queue Delay	0.0	0.0
Total Delay	0.1	0.6
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	0.0	0.0
Internal Link Dist (m)	16.1	214.0
Turn Bay Length (m)		
Base Capacity (vph)	1671	1883
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.09	0.39

Intersection Summary

Cycle Length: 49
Actuated Cycle Length: 64
Natural Cycle: 40
Control Type: Semi Act-Uncoord

Splits and Phases: 7: Airport Road & Caledon Trail Pathway



HCM Signalized Intersection Capacity Analysis

7: Airport Road & Caledon Trail Pathway

AM Peak Hour
FB 2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations								↑			↑		
Traffic Volume (vph)	0	0	0	0	0	0	0	143	0	0	731	0	
Future Volume (vph)	0	0	0	0	0	0	0	143	0	0	731	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)								6.0			6.0		
Lane Util. Factor								1.00			1.00		
Frt								1.00			1.00		
Flt Protected								1.00			1.00		
Satd. Flow (prot)								1671			1883		
Flt Permitted								1.00			1.00		
Satd. Flow (perm)								1671			1883		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	0	0	0	0	0	0	143	0	0	731	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	0	0	0	143	0	0	731	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	15%	0%	0%	2%	0%	
Turn Type								NA			NA		
Protected Phases								6			2		
Permitted Phases													
Actuated Green, G (s)								64.0			64.0		
Effective Green, g (s)								64.0			64.0		
Actuated g/C Ratio								1.00			1.00		
Clearance Time (s)								6.0			6.0		
Vehicle Extension (s)								3.0			3.0		
Lane Grp Cap (vph)								1671			1883		
v/s Ratio Prot								0.09			0.39		
v/s Ratio Perm													
v/c Ratio								0.09			0.39		
Uniform Delay, d1								0.0			0.0		
Progression Factor								1.00			1.00		
Incremental Delay, d2								0.1			0.6		
Delay (s)								0.1			0.6		
Level of Service								A			A		
Approach Delay (s)		0.0				0.0		0.1			0.6		
Approach LOS		A				A		A			A		
Intersection Summary													
HCM 2000 Control Delay			0.5					HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.43										
Actuated Cycle Length (s)			64.0					Sum of lost time (s)			6.0		
Intersection Capacity Utilization			43.5%					ICU Level of Service			A		
Analysis Period (min)			15										
c Critical Lane Group													

Queues

PM Peak Hour

1: Airport Road & LCBO Driveway/Old Church Road

FB 2022



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕	↗	↘		↖	↗		↕
Traffic Volume (vph)	16	7	147	12	11	521	330	39	201
Future Volume (vph)	16	7	147	12	11	521	330	39	201
Lane Group Flow (vph)	0	31	147	129	0	532	330	0	246
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		2		2		1			1
Permitted Phases	2		2		1		1	1	
Detector Phase	2	2	2	2	1	1	1	1	1
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.6	24.6	24.6	24.6	32.1	32.1	32.1	32.1	32.1
Total Split (s)	28.0	28.0	28.0	28.0	42.0	42.0	42.0	42.0	42.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	2.6	3.1	3.1	3.1	3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)		6.6	6.6	6.6		7.1	7.1		7.1
Lead/Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio		0.06	0.35	0.22		0.58	0.34		0.32
Control Delay		14.5	21.9	6.0		15.6	2.4		11.7
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		14.5	21.9	6.0		15.6	2.4		11.7
Queue Length 50th (m)		2.2	15.6	1.2		48.5	0.0		18.7
Queue Length 95th (m)		7.9	30.6	12.3		77.3	11.5		33.1
Internal Link Dist (m)		54.2		143.8		214.0			592.7
Turn Bay Length (m)							45.0		
Base Capacity (vph)		488	419	579		914	961		777
Starvation Cap Reductn		0	0	0		0	0		0
Spillback Cap Reductn		0	0	0		0	0		0
Storage Cap Reductn		0	0	0		0	0		0
Reduced v/c Ratio		0.06	0.35	0.22		0.58	0.34		0.32

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 70

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Splits and Phases: 1: Airport Road & LCBO Driveway/Old Church Road



HCM Signalized Intersection Capacity Analysis
 1: Airport Road & LCBO Driveway/Old Church Road

PM Peak Hour
 FB 2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (vph)	16	7	8	147	12	117	11	521	330	39	201	6
Future Volume (vph)	16	7	8	147	12	117	11	521	330	39	201	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.97		1.00	0.86			1.00	0.85		1.00	
Flt Protected		0.97		0.95	1.00			1.00	1.00		0.99	
Satd. Flow (prot)		1808		1767	1630			1847	1597		1770	
Flt Permitted		0.85		0.74	1.00			0.99	1.00		0.87	
Satd. Flow (perm)		1579		1371	1630			1835	1597		1555	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	16	7	8	147	12	117	11	521	330	39	201	6
RTOR Reduction (vph)	0	6	0	0	81	0	0	0	165	0	2	0
Lane Group Flow (vph)	0	25	0	147	48	0	0	532	165	0	244	0
Heavy Vehicles (%)	0%	0%	0%	1%	0%	2%	0%	4%	0%	0%	9%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1		1	1		
Actuated Green, G (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Effective Green, g (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Actuated g/C Ratio		0.31		0.31	0.31			0.50	0.50		0.50	
Clearance Time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		482		419	498			914	796		775	
v/s Ratio Prot					0.03							
v/s Ratio Perm		0.02		c0.11				c0.29	0.10		0.16	
v/c Ratio		0.05		0.35	0.10			0.58	0.21		0.32	
Uniform Delay, d1		17.1		18.9	17.4			12.4	9.8		10.4	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.2		2.3	0.4			2.7	0.6		1.1	
Delay (s)		17.4		21.2	17.8			15.1	10.4		11.5	
Level of Service		B		C	B			B	B		B	
Approach Delay (s)		17.4			19.6			13.3			11.5	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

2: Airport Road & Mountcrest Rd

PM Peak Hour
FB 2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑	↗		↖
Traffic Volume (veh/h)	1	5	939	13	7	374
Future Volume (Veh/h)	1	5	939	13	7	374
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	5	939	13	7	374
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh	2					
Upstream signal (m)				40		
pX, platoon unblocked						
vC, conflicting volume	1327	939			952	
vC1, stage 1 conf vol	939					
vC2, stage 2 conf vol	388					
vCu, unblocked vol	1327	939			952	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			99	
cM capacity (veh/h)	352	323			730	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	6	939	13	381
Volume Left	1	0	0	7
Volume Right	5	0	13	0
cSH	327	1700	1700	730
Volume to Capacity	0.02	0.55	0.01	0.01
Queue Length 95th (m)	0.4	0.0	0.0	0.2
Control Delay (s)	16.2	0.0	0.0	0.3
Lane LOS	C			A
Approach Delay (s)	16.2	0.0		0.3
Approach LOS	C			

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		59.4%	ICU Level of Service B
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

3: Airport Road & Hiltop Dr

PM Peak Hour
FB 2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	7	29	944	366	0
Future Volume (Veh/h)	3	7	29	944	366	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	7	29	944	366	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
				TWLTL	TWLTL	
Median storage veh				2	2	
Upstream signal (m)				345		
pX, platoon unblocked						
vC, conflicting volume	1368	366	366			
vC1, stage 1 conf vol	366					
vC2, stage 2 conf vol	1002					
vCu, unblocked vol	1368	366	366			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	98			
cM capacity (veh/h)	326	684	1204			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	10	29	944	366		
Volume Left	3	29	0	0		
Volume Right	7	0	0	0		
cSH	514	1204	1700	1700		
Volume to Capacity	0.02	0.02	0.56	0.22		
Queue Length 95th (m)	0.5	0.6	0.0	0.0		
Control Delay (s)	12.1	8.1	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	12.1	0.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			59.7%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Airport Road & School Driveway - R/L out

PM Peak Hour
FB 2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙			↑	↑	
Traffic Volume (veh/h)	29	19	0	939	374	0
Future Volume (Veh/h)	29	19	0	939	374	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	29	19	0	939	374	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
TWLTL TWLTL						
Median storage veh						
2 2						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1313	374	374			
vC1, stage 1 conf vol	374					
vC2, stage 2 conf vol	939					
vCu, unblocked vol	1313	374	374			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	97	100			
cM capacity (veh/h)	354	677	1196			
Direction, Lane #						
	EB 1	NB 1	SB 1			
Volume Total	48	939	374			
Volume Left	29	0	0			
Volume Right	19	0	0			
cSH	436	1700	1700			
Volume to Capacity	0.11	0.55	0.22			
Queue Length 95th (m)	2.9	0.0	0.0			
Control Delay (s)	14.3	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	14.3	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization		59.4%		ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: Airport Road & Cranston Dr

PM Peak Hour
FB 2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	4	21	933	392	4
Future Volume (Veh/h)	5	4	21	933	392	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	4	21	933	392	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None TWLTL		
Median storage (veh)				2		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1367	392	396			
vC1, stage 1 conf vol	392					
vC2, stage 2 conf vol	975					
vCu, unblocked vol	1367	392	396			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	98			
cM capacity (veh/h)	335	661	1174			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	9	21	933	392	4	
Volume Left	5	21	0	0	0	
Volume Right	4	0	0	0	4	
cSH	429	1174	1700	1700	1700	
Volume to Capacity	0.02	0.02	0.55	0.23	0.00	
Queue Length 95th (m)	0.5	0.4	0.0	0.0	0.0	
Control Delay (s)	13.6	8.1	0.0	0.0	0.0	
Lane LOS	B	A				
Approach Delay (s)	13.6	0.2		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			59.1%	ICU Level of Service	B	
Analysis Period (min)			15			

Queues
6: Airport Road & Olde Base Line Rd

PM Peak Hour
FB 2022



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	204	81	721	305
Future Volume (vph)	204	81	721	305
Lane Group Flow (vph)	226	0	802	384
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	2
Permitted Phases		2		
Detector Phase	4	2	2	2
Switch Phase				
Minimum Initial (s)	8.0	12.0	12.0	12.0
Minimum Split (s)	19.6	20.0	20.0	20.0
Total Split (s)	26.6	62.0	62.0	62.0
Total Split (%)	30.0%	70.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	6.6		6.0	6.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
v/c Ratio	0.69		0.71	0.32
Control Delay	43.3		13.9	6.7
Queue Delay	0.0		0.0	0.0
Total Delay	43.3		13.9	6.7
Queue Length 50th (m)	34.9		74.9	21.8
Queue Length 95th (m)	58.4		142.1	42.0
Internal Link Dist (m)	373.9		480.2	717.9
Turn Bay Length (m)				
Base Capacity (vph)	426		1136	1186
Starvation Cap Reductn	0		0	0
Spillback Cap Reductn	0		0	0
Storage Cap Reductn	0		0	0
Reduced v/c Ratio	0.53		0.71	0.32

Intersection Summary

Cycle Length: 88.6
 Actuated Cycle Length: 85.7
 Natural Cycle: 60
 Control Type: Semi Act-Uncoord

Splits and Phases: 6: Airport Road & Olde Base Line Rd



HCM Signalized Intersection Capacity Analysis

6: Airport Road & Olde Base Line Rd

PM Peak Hour
FB 2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	204	22	81	721	305	79
Future Volume (vph)	204	22	81	721	305	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.5	3.7	3.5
Total Lost time (s)	6.6			6.0	6.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.99			1.00	0.97	
Flt Protected	0.96			0.99	1.00	
Satd. Flow (prot)	1805			1820	1743	
Flt Permitted	0.96			0.92	1.00	
Satd. Flow (perm)	1805			1684	1743	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	204	22	81	721	305	79
RTOR Reduction (vph)	5	0	0	0	9	0
Lane Group Flow (vph)	221	0	0	802	375	0
Heavy Vehicles (%)	0%	5%	0%	3%	9%	0%
Turn Type	Prot		Perm		NA	NA
Protected Phases	4				2	2
Permitted Phases			2			
Actuated Green, G (s)	15.2				57.9	57.9
Effective Green, g (s)	15.2				57.9	57.9
Actuated g/C Ratio	0.18				0.68	0.68
Clearance Time (s)	6.6				6.0	6.0
Vehicle Extension (s)	3.0				3.0	3.0
Lane Grp Cap (vph)	320				1137	1177
v/s Ratio Prot	c0.12					0.21
v/s Ratio Perm					c0.48	
v/c Ratio	0.69				0.71	0.32
Uniform Delay, d1	33.0				8.6	5.7
Progression Factor	1.00				1.00	1.00
Incremental Delay, d2	6.3				3.7	0.7
Delay (s)	39.3				12.3	6.5
Level of Service	D				B	A
Approach Delay (s)	39.3				12.3	6.5
Approach LOS	D				B	A

Intersection Summary

HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	85.7	Sum of lost time (s)	12.6
Intersection Capacity Utilization	91.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
7: Airport Road & Caledon Trail Pathway

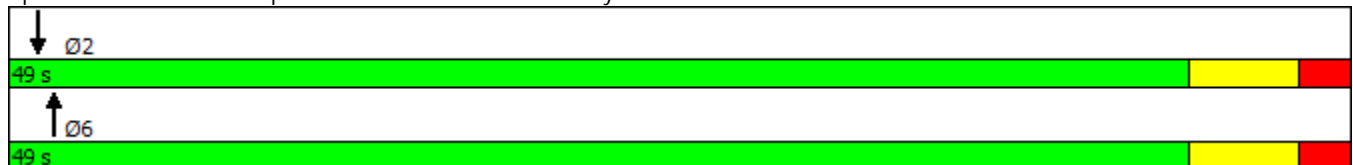
PM Peak Hour
FB 2022

	↑	↓
Lane Group	NBT	SBT
Lane Configurations	↑	↑
Traffic Volume (vph)	648	253
Future Volume (vph)	648	253
Lane Group Flow (vph)	648	253
Turn Type	NA	NA
Protected Phases	6	2
Permitted Phases		
Detector Phase	6	2
Switch Phase		
Minimum Initial (s)	8.0	8.0
Minimum Split (s)	24.0	24.0
Total Split (s)	49.0	49.0
Total Split (%)	100.0%	100.0%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	2.0	2.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	6.0	6.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Max	Max
v/c Ratio	0.34	0.14
Control Delay	0.5	0.2
Queue Delay	0.0	0.0
Total Delay	0.5	0.2
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	0.0	0.0
Internal Link Dist (m)	16.1	214.0
Turn Bay Length (m)		
Base Capacity (vph)	1883	1762
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.34	0.14

Intersection Summary

Cycle Length: 49
 Actuated Cycle Length: 64
 Natural Cycle: 40
 Control Type: Semi Act-Uncoord

Splits and Phases: 7: Airport Road & Caledon Trail Pathway



HCM Signalized Intersection Capacity Analysis

7: Airport Road & Caledon Trail Pathway

PM Peak Hour
FB 2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations								↑			↑		
Traffic Volume (vph)	0	0	0	0	0	0	0	648	0	0	253	0	
Future Volume (vph)	0	0	0	0	0	0	0	648	0	0	253	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)								6.0			6.0		
Lane Util. Factor								1.00			1.00		
Frt								1.00			1.00		
Flt Protected								1.00			1.00		
Satd. Flow (prot)								1883			1762		
Flt Permitted								1.00			1.00		
Satd. Flow (perm)								1883			1762		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	0	0	0	0	0	0	648	0	0	253	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	0	0	0	648	0	0	253	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	9%	0%	
Turn Type								NA			NA		
Protected Phases								6			2		
Permitted Phases													
Actuated Green, G (s)								64.0			64.0		
Effective Green, g (s)								64.0			64.0		
Actuated g/C Ratio								1.00			1.00		
Clearance Time (s)								6.0			6.0		
Vehicle Extension (s)								3.0			3.0		
Lane Grp Cap (vph)								1883			1762		
v/s Ratio Prot								0.34			0.14		
v/s Ratio Perm													
v/c Ratio								0.34			0.14		
Uniform Delay, d1								0.0			0.0		
Progression Factor								1.00			1.00		
Incremental Delay, d2								0.5			0.2		
Delay (s)								0.5			0.2		
Level of Service								A			A		
Approach Delay (s)		0.0				0.0		0.5			0.2		
Approach LOS		A				A		A			A		
Intersection Summary													
HCM 2000 Control Delay			0.4					HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.38										
Actuated Cycle Length (s)			64.0					Sum of lost time (s)			6.0		
Intersection Capacity Utilization			39.1%					ICU Level of Service			A		
Analysis Period (min)			15										
c Critical Lane Group													



APPENDIX E
Future (2033) Background Traffic - Level of Service Outputs

Queues
1: Airport Road & LCBO Driveway/Old Church Road

AM Peak Hour
FB 2032



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	1	237	0	106	71	45	557
Future Volume (vph)	1	237	0	106	71	45	557
Lane Group Flow (vph)	2	237	30	106	71	0	603
Turn Type	NA	Perm	NA	NA	Perm	Perm	NA
Protected Phases	2		2	1			1
Permitted Phases		2			1	1	
Detector Phase	2	2	2	1	1	1	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.6	24.6	24.6	32.1	32.1	32.1	32.1
Total Split (s)	28.0	28.0	28.0	42.0	42.0	42.0	42.0
Total Split (%)	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	3.1	3.1	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.6	6.6	6.6	7.1	7.1		7.1
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.00	0.55	0.03	0.13	0.09		0.67
Control Delay	15.0	25.9	0.0	10.0	3.0		17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	15.0	25.9	0.0	10.0	3.0		17.7
Queue Length 50th (m)	0.1	26.9	0.0	7.3	0.0		58.5
Queue Length 95th (m)	1.5	48.6	0.0	15.1	5.6		93.5
Internal Link Dist (m)	54.2		143.8	214.0			592.7
Turn Bay Length (m)					45.0		
Base Capacity (vph)	547	434	1076	811	779		904
Starvation Cap Reductn	0	0	0	0	0		0
Spillback Cap Reductn	0	0	0	0	0		0
Storage Cap Reductn	0	0	0	0	0		0
Reduced v/c Ratio	0.00	0.55	0.03	0.13	0.09		0.67

Intersection Summary

Cycle Length: 70
 Actuated Cycle Length: 70
 Natural Cycle: 60
 Control Type: Semi Act-Uncoord

Splits and Phases: 1: Airport Road & LCBO Driveway/Old Church Road



HCM Signalized Intersection Capacity Analysis

1: Airport Road & LCBO Driveway/Old Church Road

AM Peak Hour
FB 2032



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (vph)	0	1	1	237	0	30	0	106	71	45	557	1
Future Volume (vph)	0	1	1	237	0	30	0	106	71	45	557	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.93		1.00	0.85			1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00			1.00	1.00		1.00	
Satd. Flow (prot)		1791		1785	1633			1628	1493		1862	
Flt Permitted		1.00		0.76	1.00			1.00	1.00		0.97	
Satd. Flow (perm)		1791		1421	1633			1628	1493		1815	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1	1	237	0	30	0	106	71	45	557	1
RTOR Reduction (vph)	0	1	0	0	21	0	0	0	36	0	0	0
Lane Group Flow (vph)	0	1	0	237	9	0	0	106	35	0	603	0
Heavy Vehicles (%)	4%	0%	0%	0%	0%	0%	0%	18%	7%	0%	3%	0%
Turn Type		NA		Perm	NA			NA	Perm	Perm	NA	
Protected Phases		2			2			1		1		1
Permitted Phases	2			2			1		1	1		
Actuated Green, G (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Effective Green, g (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Actuated g/C Ratio		0.31		0.31	0.31			0.50	0.50		0.50	
Clearance Time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		547		434	499			811	744		904	
v/s Ratio Prot		0.00			0.01			0.07				
v/s Ratio Perm				c0.17					0.02		c0.33	
v/c Ratio		0.00		0.55	0.02			0.13	0.05		0.67	
Uniform Delay, d1		16.9		20.3	17.0			9.4	9.0		13.2	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.0		4.9	0.1			0.3	0.1		3.9	
Delay (s)		16.9		25.1	17.0			9.7	9.1		17.1	
Level of Service		B		C	B			A	A		B	
Approach Delay (s)		16.9			24.2			9.5			17.1	
Approach LOS		B			C			A			B	

Intersection Summary

HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

2: Airport Road & Mountcrest Rd

AM Peak Hour
FB 2032



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	2	189	0	0	897
Future Volume (Veh/h)	12	2	189	0	0	897
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	12	2	189	0	0	897
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage (veh)	2					
Upstream signal (m)				40		
pX, platoon unblocked						
vC, conflicting volume	1086	189			189	
vC1, stage 1 conf vol	189					
vC2, stage 2 conf vol	897					
vCu, unblocked vol	1086	189			189	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	384	858			1397	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1		
Volume Total	14	189	0	897		
Volume Left	12	0	0	0		
Volume Right	2	0	0	0		
cSH	417	1700	1700	1397		
Volume to Capacity	0.03	0.11	0.00	0.00		
Queue Length 95th (m)	0.8	0.0	0.0	0.0		
Control Delay (s)	13.9	0.0	0.0	0.0		
Lane LOS	B					
Approach Delay (s)	13.9	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			57.2%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Airport Road & Hiltop Dr

AM Peak Hour
FB 2032



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	8	5	183	909	0
Future Volume (Veh/h)	1	8	5	183	909	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	8	5	183	909	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
				TWLTL	TWLTL	
Median storage veh				2	2	
Upstream signal (m)				345		
pX, platoon unblocked						
vC, conflicting volume	1102	909	909			
vC1, stage 1 conf vol	909					
vC2, stage 2 conf vol	193					
vCu, unblocked vol	1102	909	909			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	99			
cM capacity (veh/h)	378	336	757			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	9	5	183	909		
Volume Left	1	5	0	0		
Volume Right	8	0	0	0		
cSH	340	757	1700	1700		
Volume to Capacity	0.03	0.01	0.11	0.53		
Queue Length 95th (m)	0.7	0.2	0.0	0.0		
Control Delay (s)	15.9	9.8	0.0	0.0		
Lane LOS	C	A				
Approach Delay (s)	15.9	0.3	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			57.8%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Airport Road & School Driveway - R/L out

AM Peak Hour
FB 2032



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	44	45	0	185	920	0
Future Volume (Veh/h)	44	45	0	185	920	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	44	45	0	185	920	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
TWLTL TWLTL						
Median storage veh						
2 2						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1105	920	920			
vC1, stage 1 conf vol	920					
vC2, stage 2 conf vol	185					
vCu, unblocked vol	1105	920	920			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	86	100			
cM capacity (veh/h)	375	331	750			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	89	185	920			
Volume Left	44	0	0			
Volume Right	45	0	0			
cSH	351	1700	1700			
Volume to Capacity	0.25	0.11	0.54			
Queue Length 95th (m)	7.9	0.0	0.0			
Control Delay (s)	18.7	0.0	0.0			
Lane LOS	C					
Approach Delay (s)	18.7	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization		60.3%		ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: Airport Road & Cranston Dr

AM Peak Hour
FB 2032



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	22	4	182	985	0
Future Volume (Veh/h)	3	22	4	182	985	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	22	4	182	985	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None TWLTL		
Median storage (veh)				2		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1175	985	985			
vC1, stage 1 conf vol	985					
vC2, stage 2 conf vol	190					
vCu, unblocked vol	1175	985	985			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.4			
p0 queue free %	99	93	99			
cM capacity (veh/h)	349	304	618			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	25	4	182	985	0	
Volume Left	3	4	0	0	0	
Volume Right	22	0	0	0	0	
cSH	309	618	1700	1700	1700	
Volume to Capacity	0.08	0.01	0.11	0.58	0.00	
Queue Length 95th (m)	2.1	0.2	0.0	0.0	0.0	
Control Delay (s)	17.7	10.9	0.0	0.0	0.0	
Lane LOS	C	B				
Approach Delay (s)	17.7	0.2		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			61.8%	ICU Level of Service	B	
Analysis Period (min)			15			

Queues
6: Airport Road & Olde Base Line Rd

AM Peak Hour
FB 2032



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	37	12	136	780
Future Volume (vph)	37	12	136	780
Lane Group Flow (vph)	101	0	148	948
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	2
Permitted Phases		2		
Detector Phase	4	2	2	2
Switch Phase				
Minimum Initial (s)	8.0	12.0	12.0	12.0
Minimum Split (s)	19.6	20.0	20.0	20.0
Total Split (s)	26.6	62.0	62.0	62.0
Total Split (%)	30.0%	70.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	6.6		6.0	6.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
v/c Ratio	0.43		0.14	0.65
Control Delay	21.1		3.5	8.0
Queue Delay	0.0		0.0	0.0
Total Delay	21.1		3.5	8.0
Queue Length 50th (m)	6.1		5.4	61.6
Queue Length 95th (m)	19.1		12.3	121.5
Internal Link Dist (m)	373.9		480.2	717.9
Turn Bay Length (m)				
Base Capacity (vph)	456		1079	1457
Starvation Cap Reductn	0		0	0
Spillback Cap Reductn	0		0	0
Storage Cap Reductn	0		0	0
Reduced v/c Ratio	0.22		0.14	0.65

Intersection Summary

Cycle Length: 88.6
 Actuated Cycle Length: 83.2
 Natural Cycle: 60
 Control Type: Semi Act-Uncoord

Splits and Phases: 6: Airport Road & Olde Base Line Rd



HCM Signalized Intersection Capacity Analysis

6: Airport Road & Olde Base Line Rd

AM Peak Hour
FB 2032



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	37	64	12	136	780	168
Future Volume (vph)	37	64	12	136	780	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.5	3.7	3.5
Total Lost time (s)	6.6			6.0	6.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.91			1.00	0.98	
Flt Protected	0.98			1.00	1.00	
Satd. Flow (prot)	1693			1456	1827	
Flt Permitted	0.98			0.93	1.00	
Satd. Flow (perm)	1693			1359	1827	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	37	64	12	136	780	168
RTOR Reduction (vph)	59	0	0	0	6	0
Lane Group Flow (vph)	42	0	0	148	942	0
Heavy Vehicles (%)	0%	3%	0%	31%	3%	1%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	7.1			64.8	64.8	
Effective Green, g (s)	7.1			64.8	64.8	
Actuated g/C Ratio	0.08			0.77	0.77	
Clearance Time (s)	6.6			6.0	6.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	142			1042	1401	
v/s Ratio Prot	c0.03				c0.52	
v/s Ratio Perm				0.11		
v/c Ratio	0.30			0.14	0.67	
Uniform Delay, d1	36.4			2.6	4.7	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.2			0.3	2.6	
Delay (s)	37.5			2.9	7.3	
Level of Service	D			A	A	
Approach Delay (s)	37.5			2.9	7.3	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	84.5	Sum of lost time (s)	12.6
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
7: Airport Road & Caledon Trail Pathway

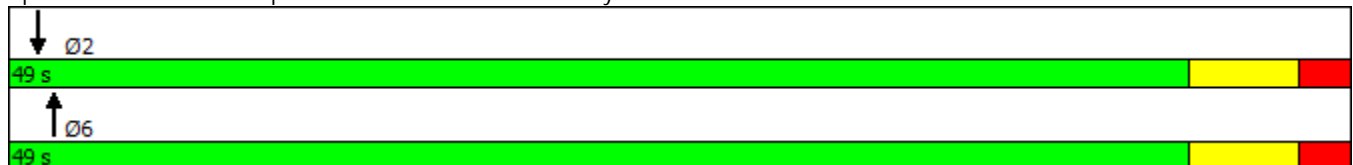
AM Peak Hour
FB 2032

	↑	↓
Lane Group	NBT	SBT
Lane Configurations	↑	↑
Traffic Volume (vph)	154	800
Future Volume (vph)	154	800
Lane Group Flow (vph)	154	800
Turn Type	NA	NA
Protected Phases	6	2
Permitted Phases		
Detector Phase	6	2
Switch Phase		
Minimum Initial (s)	8.0	8.0
Minimum Split (s)	24.0	24.0
Total Split (s)	49.0	49.0
Total Split (%)	100.0%	100.0%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	2.0	2.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	6.0	6.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Max	Max
v/c Ratio	0.09	0.42
Control Delay	0.1	0.7
Queue Delay	0.0	0.0
Total Delay	0.1	0.7
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	0.0	0.0
Internal Link Dist (m)	16.1	214.0
Turn Bay Length (m)		
Base Capacity (vph)	1671	1883
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.09	0.42

Intersection Summary

Cycle Length: 49
 Actuated Cycle Length: 64
 Natural Cycle: 40
 Control Type: Semi Act-Uncoord

Splits and Phases: 7: Airport Road & Caledon Trail Pathway



HCM Signalized Intersection Capacity Analysis

7: Airport Road & Caledon Trail Pathway

AM Peak Hour
FB 2032



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								↑			↑	
Traffic Volume (vph)	0	0	0	0	0	0	0	154	0	0	800	0
Future Volume (vph)	0	0	0	0	0	0	0	154	0	0	800	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)								6.0			6.0	
Lane Util. Factor								1.00			1.00	
Frt								1.00			1.00	
Flt Protected								1.00			1.00	
Satd. Flow (prot)								1671			1883	
Flt Permitted								1.00			1.00	
Satd. Flow (perm)								1671			1883	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	0	0	0	154	0	0	800	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	154	0	0	800	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	15%	0%	0%	2%	0%
Turn Type								NA			NA	
Protected Phases								6			2	
Permitted Phases												
Actuated Green, G (s)								64.0			64.0	
Effective Green, g (s)								64.0			64.0	
Actuated g/C Ratio								1.00			1.00	
Clearance Time (s)								6.0			6.0	
Vehicle Extension (s)								3.0			3.0	
Lane Grp Cap (vph)								1671			1883	
v/s Ratio Prot								0.09			0.42	
v/s Ratio Perm												
v/c Ratio								0.09			0.42	
Uniform Delay, d1								0.0			0.0	
Progression Factor								1.00			1.00	
Incremental Delay, d2								0.1			0.7	
Delay (s)								0.1			0.7	
Level of Service								A			A	
Approach Delay (s)		0.0			0.0			0.1			0.7	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			0.6					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			64.0					Sum of lost time (s)			6.0	
Intersection Capacity Utilization			47.1%					ICU Level of Service			A	
Analysis Period (min)			15									
c Critical Lane Group												

Queues

PM Peak Hour

1: Airport Road & LCBO Driveway/Old Church Road

FB 2032



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕	↗	↖		↖	↗		↕
Traffic Volume (vph)	16	7	147	12	11	611	330	39	231
Future Volume (vph)	16	7	147	12	11	611	330	39	231
Lane Group Flow (vph)	0	31	147	129	0	622	330	0	276
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		2		2		1			1
Permitted Phases	2		2		1		1	1	
Detector Phase	2	2	2	2	1	1	1	1	1
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.6	24.6	24.6	24.6	32.1	32.1	32.1	32.1	32.1
Total Split (s)	28.0	28.0	28.0	28.0	42.0	42.0	42.0	42.0	42.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	2.6	3.1	3.1	3.1	3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)		6.6	6.6	6.6		7.1	7.1		7.1
Lead/Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio		0.06	0.35	0.22		0.68	0.34		0.37
Control Delay		14.5	21.9	6.0		18.0	2.4		12.6
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		14.5	21.9	6.0		18.0	2.4		12.6
Queue Length 50th (m)		2.2	15.6	1.2		60.9	0.0		21.8
Queue Length 95th (m)		7.9	30.6	12.3		96.8	11.5		38.3
Internal Link Dist (m)		54.2		143.8		214.0			592.7
Turn Bay Length (m)							45.0		
Base Capacity (vph)		488	419	579		915	961		738
Starvation Cap Reductn		0	0	0		0	0		0
Spillback Cap Reductn		0	0	0		0	0		0
Storage Cap Reductn		0	0	0		0	0		0
Reduced v/c Ratio		0.06	0.35	0.22		0.68	0.34		0.37

Intersection Summary

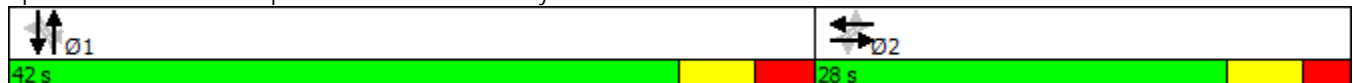
Cycle Length: 70

Actuated Cycle Length: 70

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Splits and Phases: 1: Airport Road & LCBO Driveway/Old Church Road



HCM Signalized Intersection Capacity Analysis
 1: Airport Road & LCBO Driveway/Old Church Road

PM Peak Hour
 FB 2032



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (vph)	16	7	8	147	12	117	11	611	330	39	231	6
Future Volume (vph)	16	7	8	147	12	117	11	611	330	39	231	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.97		1.00	0.86			1.00	0.85		1.00	
Flt Protected		0.97		0.95	1.00			1.00	1.00		0.99	
Satd. Flow (prot)		1808		1767	1630			1847	1597		1769	
Flt Permitted		0.85		0.74	1.00			0.99	1.00		0.83	
Satd. Flow (perm)		1579		1371	1630			1836	1597		1480	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	16	7	8	147	12	117	11	611	330	39	231	6
RTOR Reduction (vph)	0	6	0	0	81	0	0	0	165	0	1	0
Lane Group Flow (vph)	0	25	0	147	48	0	0	622	165	0	275	0
Heavy Vehicles (%)	0%	0%	0%	1%	0%	2%	0%	4%	0%	0%	9%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1		1	1		
Actuated Green, G (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Effective Green, g (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Actuated g/C Ratio		0.31		0.31	0.31			0.50	0.50		0.50	
Clearance Time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		482		419	498			915	796		737	
v/s Ratio Prot					0.03							
v/s Ratio Perm		0.02		c0.11				c0.34	0.10		0.19	
v/c Ratio		0.05		0.35	0.10			0.68	0.21		0.37	
Uniform Delay, d1		17.1		18.9	17.4			13.3	9.8		10.8	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.2		2.3	0.4			4.1	0.6		1.4	
Delay (s)		17.4		21.2	17.8			17.4	10.4		12.3	
Level of Service		B		C	B			B	B		B	
Approach Delay (s)		17.4			19.6			15.0			12.3	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

2: Airport Road & Mountcrest Rd

PM Peak Hour
FB 2032



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	5	1103	13	7	437
Future Volume (Veh/h)	1	5	1103	13	7	437
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	5	1103	13	7	437
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh	2					
Upstream signal (m)				40		
pX, platoon unblocked						
vC, conflicting volume	1554	1103			1116	
vC1, stage 1 conf vol	1103					
vC2, stage 2 conf vol	451					
vCu, unblocked vol	1554	1103			1116	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			99	
cM capacity (veh/h)	295	259			633	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1		
Volume Total	6	1103	13	444		
Volume Left	1	0	0	7		
Volume Right	5	0	13	0		
cSH	265	1700	1700	633		
Volume to Capacity	0.02	0.65	0.01	0.01		
Queue Length 95th (m)	0.6	0.0	0.0	0.3		
Control Delay (s)	18.9	0.0	0.0	0.3		
Lane LOS	C			A		
Approach Delay (s)	18.9	0.0		0.3		
Approach LOS	C					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			68.1%		ICU Level of Service	C
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Airport Road & Hiltop Dr

PM Peak Hour
FB 2032



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	7	29	1109	427	0
Future Volume (Veh/h)	3	7	29	1109	427	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	7	29	1109	427	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
				TWLTL	TWLTL	
Median storage veh				2	2	
Upstream signal (m)				345		
pX, platoon unblocked						
vC, conflicting volume	1594	427	427			
vC1, stage 1 conf vol	427					
vC2, stage 2 conf vol	1167					
vCu, unblocked vol	1594	427	427			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	97			
cM capacity (veh/h)	272	632	1143			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	10	29	1109	427		
Volume Left	3	29	0	0		
Volume Right	7	0	0	0		
cSH	452	1143	1700	1700		
Volume to Capacity	0.02	0.03	0.65	0.25		
Queue Length 95th (m)	0.5	0.6	0.0	0.0		
Control Delay (s)	13.1	8.2	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	13.1	0.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	0.2					
Intersection Capacity Utilization	68.4%			ICU Level of Service	C	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
4: Airport Road & School Driveway - R/L out

PM Peak Hour
FB 2032



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙			↑	↑	
Traffic Volume (veh/h)	29	19	0	1103	437	0
Future Volume (Veh/h)	29	19	0	1103	437	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	29	19	0	1103	437	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
TWLTL TWLTL						
Median storage veh						
2 2						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1540	437	437			
vC1, stage 1 conf vol	437					
vC2, stage 2 conf vol	1103					
vCu, unblocked vol	1540	437	437			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	97	100			
cM capacity (veh/h)	296	624	1134			
Direction, Lane #						
	EB 1	NB 1	SB 1			
Volume Total	48	1103	437			
Volume Left	29	0	0			
Volume Right	19	0	0			
cSH	374	1700	1700			
Volume to Capacity	0.13	0.65	0.26			
Queue Length 95th (m)	3.5	0.0	0.0			
Control Delay (s)	16.0	0.0	0.0			
Lane LOS	C					
Approach Delay (s)	16.0	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization		68.1%		ICU Level of Service		C
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
5: Airport Road & Cranston Dr

PM Peak Hour
FB 2032



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	4	21	1096	459	4
Future Volume (Veh/h)	5	4	21	1096	459	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	4	21	1096	459	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None TWLTL		
Median storage (veh)				2		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1597	459	463			
vC1, stage 1 conf vol	459					
vC2, stage 2 conf vol	1138					
vCu, unblocked vol	1597	459	463			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	98			
cM capacity (veh/h)	280	606	1109			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	9	21	1096	459	4	
Volume Left	5	21	0	0	0	
Volume Right	4	0	0	0	4	
cSH	368	1109	1700	1700	1700	
Volume to Capacity	0.02	0.02	0.64	0.27	0.00	
Queue Length 95th (m)	0.6	0.5	0.0	0.0	0.0	
Control Delay (s)	15.0	8.3	0.0	0.0	0.0	
Lane LOS	C	A				
Approach Delay (s)	15.0	0.2		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			67.7%		ICU Level of Service	C
Analysis Period (min)			15			

Queues
6: Airport Road & Olde Base Line Rd

PM Peak Hour
FB 2032



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	204	81	838	353
Future Volume (vph)	204	81	838	353
Lane Group Flow (vph)	226	0	919	432
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	2
Permitted Phases		2		
Detector Phase	4	2	2	2
Switch Phase				
Minimum Initial (s)	8.0	12.0	12.0	12.0
Minimum Split (s)	19.6	20.0	20.0	20.0
Total Split (s)	26.6	62.0	62.0	62.0
Total Split (%)	30.0%	70.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	6.6		6.0	6.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
v/c Ratio	0.69		0.81	0.36
Control Delay	43.3		18.4	7.2
Queue Delay	0.0		0.0	0.0
Total Delay	43.3		18.4	7.2
Queue Length 50th (m)	34.9		98.5	26.0
Queue Length 95th (m)	58.4		#217.8	49.4
Internal Link Dist (m)	373.9		480.2	717.9
Turn Bay Length (m)				
Base Capacity (vph)	426		1140	1186
Starvation Cap Reductn	0		0	0
Spillback Cap Reductn	0		0	0
Storage Cap Reductn	0		0	0
Reduced v/c Ratio	0.53		0.81	0.36

Intersection Summary

Cycle Length: 88.6
 Actuated Cycle Length: 85.7
 Natural Cycle: 65
 Control Type: Semi Act-Uncoord
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Airport Road & Olde Base Line Rd



HCM Signalized Intersection Capacity Analysis

6: Airport Road & Olde Base Line Rd

PM Peak Hour
FB 2032



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	204	22	81	838	353	79
Future Volume (vph)	204	22	81	838	353	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.5	3.7	3.5
Total Lost time (s)	6.6			6.0	6.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.99			1.00	0.98	
Flt Protected	0.96			1.00	1.00	
Satd. Flow (prot)	1805			1821	1745	
Flt Permitted	0.96			0.92	1.00	
Satd. Flow (perm)	1805			1689	1745	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	204	22	81	838	353	79
RTOR Reduction (vph)	5	0	0	0	8	0
Lane Group Flow (vph)	221	0	0	919	424	0
Heavy Vehicles (%)	0%	5%	0%	3%	9%	0%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	15.2			57.9	57.9	
Effective Green, g (s)	15.2			57.9	57.9	
Actuated g/C Ratio	0.18			0.68	0.68	
Clearance Time (s)	6.6			6.0	6.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	320			1141	1178	
v/s Ratio Prot	c0.12				0.24	
v/s Ratio Perm				c0.54		
v/c Ratio	0.69			0.81	0.36	
Uniform Delay, d1	33.0			9.9	6.0	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	6.3			6.1	0.9	
Delay (s)	39.3			16.0	6.8	
Level of Service	D			B	A	
Approach Delay (s)	39.3			16.0	6.8	
Approach LOS	D			B	A	

Intersection Summary

HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	85.7	Sum of lost time (s)	12.6
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Queues
7: Airport Road & Caledon Trail Pathway

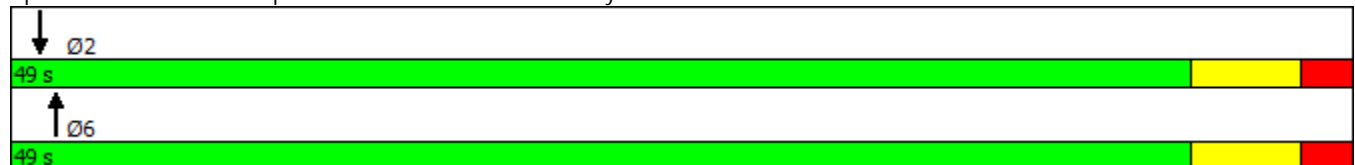
PM Peak Hour
FB 2032

	↑	↓
Lane Group	NBT	SBT
Lane Configurations	↑	↑
Traffic Volume (vph)	648	253
Future Volume (vph)	648	253
Lane Group Flow (vph)	648	253
Turn Type	NA	NA
Protected Phases	6	2
Permitted Phases		
Detector Phase	6	2
Switch Phase		
Minimum Initial (s)	8.0	8.0
Minimum Split (s)	24.0	24.0
Total Split (s)	49.0	49.0
Total Split (%)	100.0%	100.0%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	2.0	2.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	6.0	6.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Max	Max
v/c Ratio	0.34	0.14
Control Delay	0.5	0.2
Queue Delay	0.0	0.0
Total Delay	0.5	0.2
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	0.0	0.0
Internal Link Dist (m)	16.1	214.0
Turn Bay Length (m)		
Base Capacity (vph)	1883	1762
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.34	0.14

Intersection Summary

Cycle Length: 49
 Actuated Cycle Length: 64
 Natural Cycle: 40
 Control Type: Semi Act-Uncoord

Splits and Phases: 7: Airport Road & Caledon Trail Pathway




HCM Signalized Intersection Capacity Analysis

7: Airport Road & Caledon Trail Pathway

PM Peak Hour
FB 2032



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations								↑			↑		
Traffic Volume (vph)	0	0	0	0	0	0	0	648	0	0	253	0	
Future Volume (vph)	0	0	0	0	0	0	0	648	0	0	253	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)								6.0			6.0		
Lane Util. Factor								1.00			1.00		
Frt								1.00			1.00		
Flt Protected								1.00			1.00		
Satd. Flow (prot)								1883			1762		
Flt Permitted								1.00			1.00		
Satd. Flow (perm)								1883			1762		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	0	0	0	0	0	0	648	0	0	253	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	0	0	0	648	0	0	253	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	9%	0%	
Turn Type								NA			NA		
Protected Phases								6			2		
Permitted Phases													
Actuated Green, G (s)								64.0			64.0		
Effective Green, g (s)								64.0			64.0		
Actuated g/C Ratio								1.00			1.00		
Clearance Time (s)								6.0			6.0		
Vehicle Extension (s)								3.0			3.0		
Lane Grp Cap (vph)								1883			1762		
v/s Ratio Prot								0.34			0.14		
v/s Ratio Perm													
v/c Ratio								0.34			0.14		
Uniform Delay, d1								0.0			0.0		
Progression Factor								1.00			1.00		
Incremental Delay, d2								0.5			0.2		
Delay (s)								0.5			0.2		
Level of Service								A			A		
Approach Delay (s)		0.0			0.0			0.5			0.2		
Approach LOS		A			A			A			A		
Intersection Summary													
HCM 2000 Control Delay			0.4					HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.38										
Actuated Cycle Length (s)			64.0					Sum of lost time (s)			6.0		
Intersection Capacity Utilization			39.1%					ICU Level of Service			A		
Analysis Period (min)			15										
c Critical Lane Group													



APPENDIX F
TTS Data

Filters:
 (2006 GTA zone of household - gta06_hhld ln 3197
 and
 Age of person - age ln 18-98)

Trip 2011
 Table:

,3197
 PD 1 of Toronto,114
 PD 3 of Toronto,28
 PD 7 of Toronto,18
 PD 8 of Toronto,61
 PD 9 of Toronto,56
 PD 10 of Toronto,119
 PD 12 of Toronto,23
 PD 16 of Toronto,18
 Newmarket,48
 Markham,18
 King,23
 Vaughan,358
 Caledon,3738
 Brampton,998
 Mississauga,517
 Oakville,84
 City of Guelph,18
 Orangeville,186
 Barrie,18
 New Tecumseth,13
 Muskoka,28
 Ramara,13
 Shelburne,26
 Mono Township,45
 External,23

Zones	Subject Zone 3197	Percent	North		South		East		West	
			#	%	#	%	#	%	#	%
PD 1 of Toronto	114	2%			114	100%				
PD 3 of Toronto	28	0%			28	100%				
PD 7 of Toronto	18	0%			18	100%				
PD 8 of Toronto	61	1%			61	100%				
PD 9 of Toronto	56	1%			56	100%				
PD 10 of Toronto	119	2%			119	100%				
PD 12 of Toronto	23	0%			23	100%				
PD 16 of Toronto	18	0%			18	100%				
Newmarket	48	1%							48	100%
Markham	18	0%			18	100%				
King	23	0%			23	100%				
Vaughan	358	5%			358	100%				
Caledon	3738	57%	1495	40%	1121	30%	561	15%	561	15%
Brampton	998	15%			998	100%				
Mississauga	517	8%			517	100%				
Oakville	84	1%			84	100%				
City of Guelph	18	0%							18	100%
Orangeville	186	3%							186	100%
Barrie	18	0%					18	100%		
New Tecumseth	13	0%	13	100%						
Muskoka	28	0%					28			
Ramara	13	0%	13	100%						
Shelburne	26	0%	26	100%						
Mono Township	45	1%	45	100%						
Total	6568	100%	1592	24%	3556	54%	607	9%	813	12%

TTS Analysis for 15717 Airport Road

	Transit excluding GO rail	Auto driver	GO rail only	Joint GO rail and local transit	Auto passenger	School bus	Walk
3197	117	5317	35	0	987	0	134
3386	1352	15018	206	62	1938	0	31
3442	263	5697	118	242	949	57	0
3447	295	6122	47	47	806	57	57
TOTAL	2027	32154	406	351	4680	114	222
	5%	80%	1%	1%	12%	0%	1%

8%

Wed Jan 04 2017 13:22:29 GMT-0500 (Eastern Standard Time) - Run Time: 2352ms

Cross Tabulation Query Form - Trip - 2011

Row: 2006 GTA zone of household - gta06_hhld

Column: Primary travel mode of trip - mode_prime

Filters:

Age of person - age In 18-99

and

2006 GTA zone of household - gta06_hhld In 3197,3442,3386,3447

Trip 2011

Table:

,Transit excluding GO rail,Auto driver,GO rail only,Joint GO rail and local transit,Auto passenger,School bus,Walk

3197,117,5317,35,0,987,0,134

3386,1352,15018,206,62,1938,0,31

3442,263,5697,118,242,949,57,0

3447,295,6122,47,47,806,57,57

TOTAL
6590
18607
7326
7431
39954
100%



APPENDIX G
Future (2023) Total Traffic - Level of Service Outputs

Queues
1: Airport Road & LCBO Driveway/Old Church Road

AM Peak Hour
FT 2023



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	1	242	0	147	94	45	473
Future Volume (vph)	1	242	0	147	94	45	473
Lane Group Flow (vph)	2	242	30	147	94	0	519
Turn Type	NA	Perm	NA	NA	Perm	Perm	NA
Protected Phases	2		2	1			1
Permitted Phases		2			1	1	
Detector Phase	2	2	2	1	1	1	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.6	24.6	24.6	32.1	32.1	32.1	32.1
Total Split (s)	28.0	28.0	28.0	42.0	42.0	42.0	42.0
Total Split (%)	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	3.1	3.1	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.6	6.6	6.6	7.1	7.1		7.1
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.00	0.56	0.03	0.18	0.12		0.58
Control Delay	15.0	26.2	0.1	10.4	2.8		15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	15.0	26.2	0.1	10.4	2.8		15.6
Queue Length 50th (m)	0.1	27.6	0.0	10.4	0.0		47.2
Queue Length 95th (m)	1.5	49.7	0.0	20.2	6.4		75.7
Internal Link Dist (m)	54.2		143.8	214.0			592.7
Turn Bay Length (m)					45.0		
Base Capacity (vph)	547	434	1019	811	791		896
Starvation Cap Reductn	0	0	0	0	0		0
Spillback Cap Reductn	0	0	0	0	0		0
Storage Cap Reductn	0	0	0	0	0		0
Reduced v/c Ratio	0.00	0.56	0.03	0.18	0.12		0.58

Intersection Summary

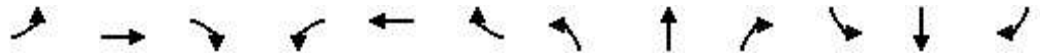
Cycle Length: 70
 Actuated Cycle Length: 70
 Natural Cycle: 60
 Control Type: Semi Act-Uncoord

Splits and Phases: 1: Airport Road & LCBO Driveway/Old Church Road



HCM Signalized Intersection Capacity Analysis
 1: Airport Road & LCBO Driveway/Old Church Road

AM Peak Hour
 FT 2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (vph)	0	1	1	242	0	30	0	147	94	45	473	1
Future Volume (vph)	0	1	1	242	0	30	0	147	94	45	473	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Fr _t		0.93		1.00	0.85			1.00	0.85		1.00	
Fl _t Protected		1.00		0.95	1.00			1.00	1.00		1.00	
Satd. Flow (prot)		1791		1785	1633			1628	1493		1861	
Fl _t Permitted		1.00		0.76	1.00			1.00	1.00		0.96	
Satd. Flow (perm)		1791		1421	1633			1628	1493		1799	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1	1	242	0	30	0	147	94	45	473	1
RTOR Reduction (vph)	0	1	0	0	21	0	0	0	47	0	0	0
Lane Group Flow (vph)	0	1	0	242	9	0	0	147	47	0	519	0
Heavy Vehicles (%)	4%	0%	0%	0%	0%	0%	0%	18%	7%	0%	3%	0%
Turn Type		NA		Perm	NA			NA	Perm	Perm	NA	
Protected Phases		2			2			1		1		1
Permitted Phases	2			2			1		1	1		
Actuated Green, G (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Effective Green, g (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Actuated g/C Ratio		0.31		0.31	0.31			0.50	0.50		0.50	
Clearance Time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		547		434	499			811	744		896	
v/s Ratio Prot		0.00			0.01			0.09				
v/s Ratio Perm				c0.17					0.03		c0.29	
v/c Ratio		0.00		0.56	0.02			0.18	0.06		0.58	
Uniform Delay, d ₁		16.9		20.3	17.0			9.7	9.1		12.4	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d ₂		0.0		5.1	0.1			0.5	0.2		2.7	
Delay (s)		16.9		25.4	17.0			10.2	9.2		15.1	
Level of Service		B		C	B			B	A		B	
Approach Delay (s)		16.9			24.5			9.8			15.1	
Approach LOS		B			C			A			B	

Intersection Summary

HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

2: Airport Road & Mountcrest Rd

AM Peak Hour
FT 2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	13	5	240	0	2	761
Future Volume (Veh/h)	13	5	240	0	2	761
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	5	240	0	2	761
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh	2					
Upstream signal (m)				40		
pX, platoon unblocked						
vC, conflicting volume	1005	240			240	
vC1, stage 1 conf vol	240					
vC2, stage 2 conf vol	765					
vCu, unblocked vol	1005	240			240	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			100	
cM capacity (veh/h)	435	804			1339	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1		
Volume Total	18	240	0	763		
Volume Left	13	0	0	2		
Volume Right	5	0	0	0		
cSH	498	1700	1700	1339		
Volume to Capacity	0.04	0.14	0.00	0.00		
Queue Length 95th (m)	0.9	0.0	0.0	0.0		
Control Delay (s)	12.5	0.0	0.0	0.0		
Lane LOS	B			A		
Approach Delay (s)	12.5	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			51.6%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Airport Road & Hiltop Dr

AM Peak Hour
FT 2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	8	5	235	772	0
Future Volume (Veh/h)	1	8	5	235	772	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	8	5	235	772	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL	TWLTL		
Median storage veh			2	2		
Upstream signal (m)			206	345		
pX, platoon unblocked						
vC, conflicting volume	1017	772	772			
vC1, stage 1 conf vol	772					
vC2, stage 2 conf vol	245					
vCu, unblocked vol	1017	772	772			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	99			
cM capacity (veh/h)	431	403	852			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	9	5	235	772		
Volume Left	1	5	0	0		
Volume Right	8	0	0	0		
cSH	406	852	1700	1700		
Volume to Capacity	0.02	0.01	0.14	0.45		
Queue Length 95th (m)	0.5	0.1	0.0	0.0		
Control Delay (s)	14.1	9.3	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	14.1	0.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			50.6%	ICU Level of Service	A	
Analysis Period (min)			15			

Queues

AM Peak Hour

4: Airport Road & School Driveway - R/L out/North Site Access - Street A

FT 2023



Lane Group	EBT	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↕	↙	↘	↑	↗	↖	↑
Traffic Volume (vph)	0	95	59	178	5	12	769
Future Volume (vph)	0	95	59	178	5	12	769
Lane Group Flow (vph)	89	95	59	178	5	12	769
Turn Type	NA	Perm	Perm	NA	NA	Perm	NA
Protected Phases	4			2			6
Permitted Phases		8	8			6	
Detector Phase	4	8	8	2		6	6
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0	8.0
Minimum Split (s)	24.0	24.0	24.0	31.0		31.0	31.0
Total Split (s)	25.0	25.0	25.0	45.0		45.0	45.0
Total Split (%)	35.7%	35.7%	35.7%	64.3%		64.3%	64.3%
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0		6.0	6.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	Max		Max	Max
v/c Ratio	0.27	0.43	0.19	0.16	0.04	0.01	0.58
Control Delay	14.7	29.5	8.4	5.2	0.4	4.9	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	29.5	8.4	5.2	0.4	4.9	8.9
Queue Length 50th (m)	4.3	10.2	0.0	6.9	0.0	0.4	44.9
Queue Length 95th (m)	14.9	22.5	8.3	17.0	0.0	2.3	94.3
Internal Link Dist (m)	191.8			290.2			182.0
Turn Bay Length (m)		22.0			30.0	40.0	
Base Capacity (vph)	568	411	541	1120	140	879	1336
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.23	0.11	0.16	0.04	0.01	0.58

Intersection Summary

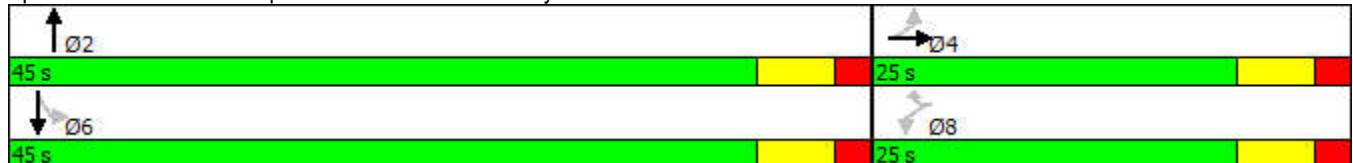
Cycle Length: 70

Actuated Cycle Length: 62

Natural Cycle: 60

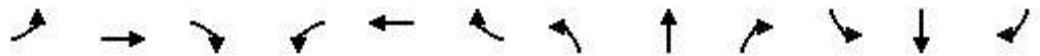
Control Type: Semi Act-Uncoord

Splits and Phases: 4: Airport Road & School Driveway - R/L out/North Site Access - Street A



HCM Signalized Intersection Capacity Analysis
 4: Airport Road & School Driveway - R/L out/North Site Access - Street A

AM Peak Hour
 FT 2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔		↑	↔	↔	↑	
Traffic Volume (vph)	44	0	45	95	0	59	0	178	5	12	769	0
Future Volume (vph)	44	0	45	95	0	59	0	178	5	12	769	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.7	3.5
Total Lost time (s)		6.0		6.0		6.0		6.0	4.0	6.0	6.0	
Lane Util. Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Fr _t		0.93		1.00		0.85		1.00	0.85	1.00	1.00	
Fl _t Protected		0.98		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1747		1825		1633		1579	1633	1825	1883	
Fl _t Permitted		0.98		0.70		1.00		1.00	1.00	0.64	1.00	
Satd. Flow (perm)		1747		1343		1633		1579	1633	1239	1883	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	0	45	95	0	59	0	178	5	12	769	0
RTOR Reduction (vph)	0	41	0	0	0	51	0	0	5	0	0	0
Lane Group Flow (vph)	0	48	0	95	0	8	0	178	0	12	769	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	19%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm		Perm		NA	NA	Perm	NA	
Protected Phases		4						2				6
Permitted Phases	4			8		8				6		
Actuated Green, G (s)		8.5		8.5		8.5		42.8	0.0	42.8	42.8	
Effective Green, g (s)		8.5		8.5		8.5		42.8	0.0	42.8	42.8	
Actuated g/C Ratio		0.13		0.13		0.13		0.68	0.00	0.68	0.68	
Clearance Time (s)		6.0		6.0		6.0		6.0		6.0	6.0	
Vehicle Extension (s)		3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		234		180		219		1067	0	837	1273	
v/s Ratio Prot								0.11			c0.41	
v/s Ratio Perm		0.03		c0.07		0.00				0.01		
v/c Ratio		0.21		0.53		0.04		0.17	0.00	0.01	0.60	
Uniform Delay, d ₁		24.4		25.5		23.8		3.7	31.6	3.4	5.6	
Progression Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d ₂		0.4		2.8		0.1		0.3	0.0	0.0	2.1	
Delay (s)		24.8		28.3		23.9		4.1	31.6	3.4	7.7	
Level of Service		C		C		C		A	C	A	A	
Approach Delay (s)		24.8			26.6			4.8			7.7	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	63.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

5: Airport Road & Cranston Dr/South Site Access -Street A

AM Peak Hour
FT 2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	3	0	22	63	0	17	4	163	28	3	914	0
Future Volume (Veh/h)	3	0	22	63	0	17	4	163	28	3	914	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	0	22	63	0	17	4	163	28	3	914	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLT	
Median storage veh												2
Upstream signal (m)												314
pX, platoon unblocked	0.72	0.72	0.72	0.72	0.72		0.72					
vC, conflicting volume	1108	1119	914	1113	1091	163	914			191		
vC1, stage 1 conf vol	920	920		171	171							
vC2, stage 2 conf vol	188	199		942	920							
vCu, unblocked vol	953	968	682	960	929	163	682			191		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	93	76	100	98	99			100		
cM capacity (veh/h)	300	307	325	267	305	887	582			1395		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	25	80	4	163	28	3	914	0
Volume Left	3	63	4	0	0	3	0	0
Volume Right	22	17	0	0	28	0	0	0
cSH	322	314	582	1700	1700	1395	1700	1700
Volume to Capacity	0.08	0.25	0.01	0.10	0.02	0.00	0.54	0.00
Queue Length 95th (m)	2.0	7.9	0.2	0.0	0.0	0.1	0.0	0.0
Control Delay (s)	17.1	20.3	11.2	0.0	0.0	7.6	0.0	0.0
Lane LOS	C	C	B			A		
Approach Delay (s)	17.1	20.3	0.2			0.0		
Approach LOS	C	C						

Intersection Summary		
Average Delay		1.7
Intersection Capacity Utilization	66.0%	ICU Level of Service
Analysis Period (min)	15	C

Queues
6: Airport Road & Olde Base Line Rd

AM Peak Hour
FT 2023



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	43	12	147	779
Future Volume (vph)	43	12	147	779
Lane Group Flow (vph)	107	0	159	976
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	2
Permitted Phases		2		
Detector Phase	4	2	2	2
Switch Phase				
Minimum Initial (s)	8.0	12.0	12.0	12.0
Minimum Split (s)	19.6	20.0	20.0	20.0
Total Split (s)	26.6	62.0	62.0	62.0
Total Split (%)	30.0%	70.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	6.6		6.0	6.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
v/c Ratio	0.44		0.15	0.67
Control Delay	22.2		3.6	8.7
Queue Delay	0.0		0.0	0.0
Total Delay	22.2		3.6	8.7
Queue Length 50th (m)	7.0		5.9	65.6
Queue Length 95th (m)	20.4		13.5	133.9
Internal Link Dist (m)	373.9		480.2	717.9
Turn Bay Length (m)				
Base Capacity (vph)	460		1077	1449
Starvation Cap Reductn	0		0	0
Spillback Cap Reductn	0		0	0
Storage Cap Reductn	0		0	0
Reduced v/c Ratio	0.23		0.15	0.67

Intersection Summary

Cycle Length: 88.6
 Actuated Cycle Length: 82.8
 Natural Cycle: 60
 Control Type: Semi Act-Uncoord

Splits and Phases: 6: Airport Road & Olde Base Line Rd



HCM Signalized Intersection Capacity Analysis
6: Airport Road & Olde Base Line Rd

AM Peak Hour
FT 2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	43	64	12	147	779	197
Future Volume (vph)	43	64	12	147	779	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.5	3.7	3.5
Total Lost time (s)	6.6			6.0	6.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.92			1.00	0.97	
Flt Protected	0.98			1.00	1.00	
Satd. Flow (prot)	1701			1455	1821	
Flt Permitted	0.98			0.93	1.00	
Satd. Flow (perm)	1701			1360	1821	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	43	64	12	147	779	197
RTOR Reduction (vph)	58	0	0	0	7	0
Lane Group Flow (vph)	49	0	0	159	969	0
Heavy Vehicles (%)	0%	3%	0%	31%	3%	1%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	7.3			64.4	64.4	
Effective Green, g (s)	7.3			64.4	64.4	
Actuated g/C Ratio	0.09			0.76	0.76	
Clearance Time (s)	6.6			6.0	6.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	147			1038	1391	
v/s Ratio Prot	c0.03				c0.53	
v/s Ratio Perm				0.12		
v/c Ratio	0.33			0.15	0.70	
Uniform Delay, d1	36.2			2.7	5.0	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.3			0.3	2.9	
Delay (s)	37.5			3.0	7.9	
Level of Service	D			A	A	
Approach Delay (s)	37.5			3.0	7.9	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	84.3	Sum of lost time (s)	12.6
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

PM Peak Hour

1: Airport Road & LCBO Driveway/Old Church Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕	↕	↕		↕	↕		↕
Traffic Volume (vph)	16	7	169	12	11	548	341	39	256
Future Volume (vph)	16	7	169	12	11	548	341	39	256
Lane Group Flow (vph)	0	31	169	129	0	559	341	0	301
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		2		2		1			1
Permitted Phases	2		2		1		1	1	
Detector Phase	2	2	2	2	1	1	1	1	1
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.6	24.6	24.6	24.6	32.1	32.1	32.1	32.1	32.1
Total Split (s)	28.0	28.0	28.0	28.0	42.0	42.0	42.0	42.0	42.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	2.6	3.1	3.1	3.1	3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)		6.6	6.6	6.6		7.1	7.1		7.1
Lead/Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio		0.06	0.40	0.22		0.61	0.35		0.38
Control Delay		14.5	22.8	6.0		16.3	2.4		12.6
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		14.5	22.8	6.0		16.3	2.4		12.6
Queue Length 50th (m)		2.2	18.3	1.2		52.0	0.0		23.9
Queue Length 95th (m)		7.9	34.9	12.3		83.0	11.6		41.2
Internal Link Dist (m)		54.2		143.8		214.0			592.7
Turn Bay Length (m)							45.0		
Base Capacity (vph)		488	419	579		914	967		787
Starvation Cap Reductn		0	0	0		0	0		0
Spillback Cap Reductn		0	0	0		0	0		0
Storage Cap Reductn		0	0	0		0	0		0
Reduced v/c Ratio		0.06	0.40	0.22		0.61	0.35		0.38

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 70

Natural Cycle: 60

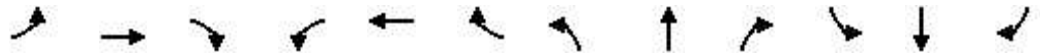
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Airport Road & LCBO Driveway/Old Church Road



HCM Signalized Intersection Capacity Analysis
 1: Airport Road & LCBO Driveway/Old Church Road

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (vph)	16	7	8	169	12	117	11	548	341	39	256	6
Future Volume (vph)	16	7	8	169	12	117	11	548	341	39	256	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.97		1.00	0.86			1.00	0.85		1.00	
Flt Protected		0.97		0.95	1.00			1.00	1.00		0.99	
Satd. Flow (prot)		1808		1767	1630			1847	1597		1768	
Flt Permitted		0.85		0.74	1.00			0.99	1.00		0.89	
Satd. Flow (perm)		1579		1371	1630			1833	1597		1579	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	16	7	8	169	12	117	11	548	341	39	256	6
RTOR Reduction (vph)	0	6	0	0	81	0	0	0	171	0	1	0
Lane Group Flow (vph)	0	25	0	169	48	0	0	559	170	0	300	0
Heavy Vehicles (%)	0%	0%	0%	1%	0%	2%	0%	4%	0%	0%	9%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			2			1		1		1
Permitted Phases	2			2			1		1	1		
Actuated Green, G (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Effective Green, g (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Actuated g/C Ratio		0.31		0.31	0.31			0.50	0.50		0.50	
Clearance Time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		482		419	498			913	796		787	
v/s Ratio Prot					0.03							
v/s Ratio Perm		0.02		c0.12				c0.30	0.11		0.19	
v/c Ratio		0.05		0.40	0.10			0.61	0.21		0.38	
Uniform Delay, d1		17.1		19.2	17.4			12.7	9.8		10.9	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.2		2.9	0.4			3.1	0.6		1.4	
Delay (s)		17.4		22.1	17.8			15.7	10.5		12.3	
Level of Service		B		C	B			B	B		B	
Approach Delay (s)		17.4			20.2			13.7			12.3	
Approach LOS		B			C			B			B	

Intersection Summary

HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

2: Airport Road & Mountcrest Rd

PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	7	975	13	15	443
Future Volume (Veh/h)	2	7	975	13	15	443
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	7	975	13	15	443
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh	2					
Upstream signal (m)				40		
pX, platoon unblocked						
vC, conflicting volume	1448	975			988	
vC1, stage 1 conf vol	975					
vC2, stage 2 conf vol	473					
vCu, unblocked vol	1448	975			988	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	98			98	
cM capacity (veh/h)	331	308			708	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1		
Volume Total	9	975	13	458		
Volume Left	2	0	0	15		
Volume Right	7	0	13	0		
cSH	313	1700	1700	708		
Volume to Capacity	0.03	0.57	0.01	0.02		
Queue Length 95th (m)	0.7	0.0	0.0	0.5		
Control Delay (s)	16.9	0.0	0.0	0.6		
Lane LOS	C			A		
Approach Delay (s)	16.9	0.0		0.6		
Approach LOS	C					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			61.3%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Airport Road & Hiltop Dr

PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	7	29	980	436	0
Future Volume (Veh/h)	3	7	29	980	436	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	7	29	980	436	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL	TWLTL		
Median storage veh			2	2		
Upstream signal (m)			206	345		
pX, platoon unblocked	0.61					
vC, conflicting volume	1474	436	436			
vC1, stage 1 conf vol	436					
vC2, stage 2 conf vol	1038					
vCu, unblocked vol	1457	436	436			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	97			
cM capacity (veh/h)	259	625	1134			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	10	29	980	436		
Volume Left	3	29	0	0		
Volume Right	7	0	0	0		
cSH	439	1134	1700	1700		
Volume to Capacity	0.02	0.03	0.58	0.26		
Queue Length 95th (m)	0.6	0.6	0.0	0.0		
Control Delay (s)	13.4	8.3	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	13.4	0.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			61.6%	ICU Level of Service	B	
Analysis Period (min)			15			

Queues

PM Peak Hour

4: Airport Road & School Driveway - R/L out/North Site Access - Street A



Lane Group	EBT	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↕	↙	↘	↑	↘	↙	↑
Traffic Volume (vph)	0	55	29	946	18	62	382
Future Volume (vph)	0	55	29	946	18	62	382
Lane Group Flow (vph)	48	55	29	946	18	62	382
Turn Type	NA	Perm	custom	NA	NA	Perm	NA
Protected Phases	4			2			6
Permitted Phases		8				6	
Detector Phase	4	8		2		6	6
Switch Phase							
Minimum Initial (s)	8.0	8.0		8.0		8.0	8.0
Minimum Split (s)	24.0	24.0		31.0		31.0	31.0
Total Split (s)	25.0	25.0		45.0		45.0	45.0
Total Split (%)	35.7%	35.7%		64.3%		64.3%	64.3%
Yellow Time (s)	4.0	4.0		4.0		4.0	4.0
All-Red Time (s)	2.0	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0		6.0	6.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None		Max		Max	Max
v/c Ratio	0.17	0.28	0.21	0.64	0.13	0.18	0.26
Control Delay	9.7	27.6	3.3	9.1	1.9	5.7	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	27.6	3.3	9.1	1.9	5.7	4.1
Queue Length 50th (m)	0.1	7.0	0.0	60.9	0.0	2.2	15.1
Queue Length 95th (m)	7.9	14.7	0.0	#138.6	0.0	8.0	30.2
Internal Link Dist (m)	191.8			290.2			182.0
Turn Bay Length (m)		22.0			30.0	40.0	
Base Capacity (vph)	572	435	140	1473	140	350	1464
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.13	0.21	0.64	0.13	0.18	0.26

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 62.3

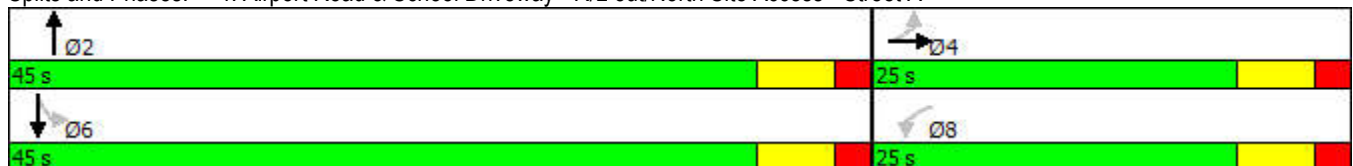
Natural Cycle: 70

Control Type: Semi Act-Uncoord

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.





















Splits and Phases: 4: Airport Road & School Driveway - R/L out/North Site Access - Street A



HCM Signalized Intersection Capacity Analysis





















PM Peak Hour

4: Airport Road & School Driveway - R/L out/North Site Access - Street A

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	29	0	19	55	0	29	0	946	18	62	382	0		
Future Volume (vph)	29	0	19	55	0	29	0	946	18	62	382	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.7	3.5		
Total Lost time (s)		6.0		6.0		4.0		6.0	4.0	6.0	6.0			
Lane Util. Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00			
Frt		0.95		1.00		0.85		1.00	0.85	1.00	1.00			
Flt Protected		0.97		0.95		1.00		1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1765		1825		1633		1842	1633	1825	1830			
Flt Permitted		0.97		0.74		1.00		1.00	1.00	0.23	1.00			
Satd. Flow (perm)		1765		1423		1633		1842	1633	438	1830			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Adj. Flow (vph)	29	0	19	55	0	29	0	946	18	62	382	0		
RTOR Reduction (vph)	0	43	0	0	0	29	0	0	18	0	0	0		
Lane Group Flow (vph)	0	5	0	55	0	0	0	946	0	62	382	0		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	5%	0%		
Turn Type	Perm	NA		Perm		custom		NA	NA	Perm	NA			
Protected Phases		4						2			6			
Permitted Phases	4			8							6			
Actuated Green, G (s)		5.4		5.4		0.0		47.3	0.0	47.3	47.3			
Effective Green, g (s)		5.4		5.4		0.0		47.3	0.0	47.3	47.3			
Actuated g/C Ratio		0.08		0.08		0.00		0.73	0.00	0.73	0.73			
Clearance Time (s)		6.0		6.0				6.0		6.0	6.0			
Vehicle Extension (s)		3.0		3.0				3.0		3.0	3.0			
Lane Grp Cap (vph)		147		118		0		1346	0	320	1337			
v/s Ratio Prot								c0.51			0.21			
v/s Ratio Perm		0.00		c0.04						0.14				
v/c Ratio		0.03		0.47		0.00		0.70	0.00	0.19	0.29			
Uniform Delay, d1		27.3		28.3		32.4		4.8	32.4	2.7	3.0			
Progression Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.1		2.9		0.0		3.1	0.0	1.3	0.5			
Delay (s)		27.3		31.2		32.4		7.9	32.4	4.1	3.5			
Level of Service		C		C		C		A	C	A	A			
Approach Delay (s)		27.3			31.6			8.4			3.6			
Approach LOS		C			C			A			A			
Intersection Summary														
HCM 2000 Control Delay			8.8									HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio			0.68											
Actuated Cycle Length (s)			64.7								12.0		Sum of lost time (s)	
Intersection Capacity Utilization			73.1%										ICU Level of Service	D
Analysis Period (min)			15											

HCM Unsignalized Intersection Capacity Analysis
 5: Airport Road & Cranston Dr/South Site Access -Street A

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	4	20	0	7	21	951	132	7	448	4
Future Volume (Veh/h)	5	0	4	20	0	7	21	951	132	7	448	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	0	4	20	0	7	21	951	132	7	448	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
								None			TWLTL	
Median storage veh												2
Upstream signal (m)												314
pX, platoon unblocked												
vC, conflicting volume	1462	1587	448	1459	1459	951	452			1083		
vC1, stage 1 conf vol	462	462		993	993							
vC2, stage 2 conf vol	1000	1125		466	466							
vCu, unblocked vol	1462	1587	448	1459	1459	951	452			1083		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	99	92	100	98	98			99		
cM capacity (veh/h)	255	250	615	265	288	318	1119			652		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	9	27	21	951	132	7	448	4				
Volume Left	5	20	21	0	0	7	0	0				
Volume Right	4	7	0	0	132	0	0	4				
cSH	345	277	1119	1700	1700	652	1700	1700				
Volume to Capacity	0.03	0.10	0.02	0.56	0.08	0.01	0.26	0.00				
Queue Length 95th (m)	0.6	2.6	0.5	0.0	0.0	0.3	0.0	0.0				
Control Delay (s)	15.7	19.4	8.3	0.0	0.0	10.6	0.0	0.0				
Lane LOS	C	C	A			B						
Approach Delay (s)	15.7	19.4	0.2			0.2						
Approach LOS	C	C										
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			60.1%	ICU Level of Service						B		
Analysis Period (min)			15									

Queues

PM Peak Hour

6: Airport Road & Olde Base Line Rd



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	231	81	844	367
Future Volume (vph)	231	81	844	367
Lane Group Flow (vph)	253	0	925	460
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	2
Permitted Phases		2		
Detector Phase	4	2	2	2
Switch Phase				
Minimum Initial (s)	8.0	12.0	12.0	12.0
Minimum Split (s)	19.6	20.0	20.0	20.0
Total Split (s)	26.6	62.0	62.0	62.0
Total Split (%)	30.0%	70.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	6.6		6.0	6.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
v/c Ratio	0.73		0.83	0.39
Control Delay	45.0		20.1	7.8
Queue Delay	0.0		0.0	0.0
Total Delay	45.0		20.1	7.8
Queue Length 50th (m)	40.0		107.0	30.0
Queue Length 95th (m)	65.6		#221.3	53.4
Internal Link Dist (m)	373.9		480.2	717.9
Turn Bay Length (m)				
Base Capacity (vph)	424		1118	1168
Starvation Cap Reductn	0		0	0
Spillback Cap Reductn	0		0	0
Storage Cap Reductn	0		0	0
Reduced v/c Ratio	0.60		0.83	0.39

Intersection Summary

Cycle Length: 88.6
 Actuated Cycle Length: 86
 Natural Cycle: 65
 Control Type: Semi Act-Uncoord
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Airport Road & Olde Base Line Rd



HCM Signalized Intersection Capacity Analysis

6: Airport Road & Olde Base Line Rd

PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	231	22	81	844	367	93
Future Volume (vph)	231	22	81	844	367	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.5	3.7	3.5
Total Lost time (s)	6.6			6.0	6.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.99			1.00	0.97	
Flt Protected	0.96			1.00	1.00	
Satd. Flow (prot)	1808			1821	1743	
Flt Permitted	0.96			0.92	1.00	
Satd. Flow (perm)	1808			1683	1743	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	231	22	81	844	367	93
RTOR Reduction (vph)	4	0	0	0	9	0
Lane Group Flow (vph)	249	0	0	925	451	0
Heavy Vehicles (%)	0%	5%	0%	3%	9%	0%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	16.2			57.1	57.1	
Effective Green, g (s)	16.2			57.1	57.1	
Actuated g/C Ratio	0.19			0.66	0.66	
Clearance Time (s)	6.6			6.0	6.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	340			1118	1158	
v/s Ratio Prot	c0.14				0.26	
v/s Ratio Perm				c0.55		
v/c Ratio	0.73			0.83	0.39	
Uniform Delay, d1	32.8			10.7	6.5	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	7.9			7.1	1.0	
Delay (s)	40.7			17.8	7.5	
Level of Service	D			B	A	
Approach Delay (s)	40.7			17.8	7.5	
Approach LOS	D			B	A	

Intersection Summary

HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	85.9	Sum of lost time (s)	12.6
Intersection Capacity Utilization	103.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



APPENDIX H
Future (2033) Total Traffic - Level of Service Outputs

Queues
1: Airport Road & LCBO Driveway/Old Church Road

AM Peak Hour
FT 2033



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	1	242	0	162	94	45	569
Future Volume (vph)	1	242	0	162	94	45	569
Lane Group Flow (vph)	2	242	30	162	94	0	615
Turn Type	NA	Perm	NA	NA	Perm	Perm	NA
Protected Phases	2		2	1			1
Permitted Phases		2			1	1	
Detector Phase	2	2	2	1	1	1	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.6	24.6	24.6	32.1	32.1	32.1	32.1
Total Split (s)	28.0	28.0	28.0	42.0	42.0	42.0	42.0
Total Split (%)	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	3.1	3.1	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.6	6.6	6.6	7.1	7.1		7.1
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.00	0.56	0.03	0.20	0.12		0.68
Control Delay	15.0	26.2	0.1	10.6	2.8		18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	15.0	26.2	0.1	10.6	2.8		18.2
Queue Length 50th (m)	0.1	27.6	0.0	11.6	0.0		60.2
Queue Length 95th (m)	1.5	49.7	0.0	22.0	6.4		96.5
Internal Link Dist (m)	54.2		143.8	214.0			592.7
Turn Bay Length (m)					45.0		
Base Capacity (vph)	547	434	999	811	791		901
Starvation Cap Reductn	0	0	0	0	0		0
Spillback Cap Reductn	0	0	0	0	0		0
Storage Cap Reductn	0	0	0	0	0		0
Reduced v/c Ratio	0.00	0.56	0.03	0.20	0.12		0.68

Intersection Summary

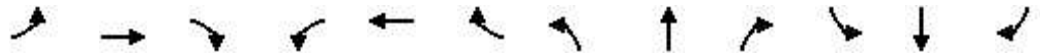
Cycle Length: 70
 Actuated Cycle Length: 70
 Natural Cycle: 60
 Control Type: Semi Act-Uncoord

Splits and Phases: 1: Airport Road & LCBO Driveway/Old Church Road



HCM Signalized Intersection Capacity Analysis
 1: Airport Road & LCBO Driveway/Old Church Road

AM Peak Hour
 FT 2033



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (vph)	0	1	1	242	0	30	0	162	94	45	569	1
Future Volume (vph)	0	1	1	242	0	30	0	162	94	45	569	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Fr _t		0.93		1.00	0.85			1.00	0.85		1.00	
Fl _t Protected		1.00		0.95	1.00			1.00	1.00		1.00	
Satd. Flow (prot)		1791		1785	1633			1628	1493		1862	
Fl _t Permitted		1.00		0.76	1.00			1.00	1.00		0.97	
Satd. Flow (perm)		1791		1421	1633			1628	1493		1807	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1	1	242	0	30	0	162	94	45	569	1
RTOR Reduction (vph)	0	1	0	0	21	0	0	0	47	0	0	0
Lane Group Flow (vph)	0	1	0	242	9	0	0	162	47	0	615	0
Heavy Vehicles (%)	4%	0%	0%	0%	0%	0%	0%	18%	7%	0%	3%	0%
Turn Type		NA		Perm	NA			NA	Perm	Perm	NA	
Protected Phases		2			2			1		1		1
Permitted Phases	2			2			1		1	1		
Actuated Green, G (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Effective Green, g (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Actuated g/C Ratio		0.31		0.31	0.31			0.50	0.50		0.50	
Clearance Time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		547		434	499			811	744		900	
v/s Ratio Prot		0.00			0.01			0.10				
v/s Ratio Perm				c0.17					0.03		c0.34	
v/c Ratio		0.00		0.56	0.02			0.20	0.06		0.68	
Uniform Delay, d ₁		16.9		20.3	17.0			9.8	9.1		13.3	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d ₂		0.0		5.1	0.1			0.6	0.2		4.2	
Delay (s)		16.9		25.4	17.0			10.3	9.2		17.5	
Level of Service		B		C	B			B	A		B	
Approach Delay (s)		16.9			24.5			9.9			17.5	
Approach LOS		B			C			A			B	

Intersection Summary

HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

2: Airport Road & Mountcrest Rd

AM Peak Hour
FT 2033



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	13	5	265	0	2	912
Future Volume (Veh/h)	13	5	265	0	2	912
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	5	265	0	2	912
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh	2					
Upstream signal (m)				40		
pX, platoon unblocked						
vC, conflicting volume	1181	265			265	
vC1, stage 1 conf vol	265					
vC2, stage 2 conf vol	916					
vCu, unblocked vol	1181	265			265	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	99			100	
cM capacity (veh/h)	371	779			1311	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1		
Volume Total	18	265	0	914		
Volume Left	13	0	0	2		
Volume Right	5	0	0	0		
cSH	434	1700	1700	1311		
Volume to Capacity	0.04	0.16	0.00	0.00		
Queue Length 95th (m)	1.0	0.0	0.0	0.0		
Control Delay (s)	13.7	0.0	0.0	0.0		
Lane LOS	B			A		
Approach Delay (s)	13.7	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			59.6%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Airport Road & Hiltop Dr

AM Peak Hour
FT 2033



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	8	5	259	925	0
Future Volume (Veh/h)	1	8	5	259	925	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	8	5	259	925	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
				TWLTL	TWLTL	
Median storage veh				2	2	
Upstream signal (m)				206	345	
pX, platoon unblocked						
vC, conflicting volume	1194	925	925			
vC1, stage 1 conf vol	925					
vC2, stage 2 conf vol	269					
vCu, unblocked vol	1194	925	925			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	99			
cM capacity (veh/h)	367	329	747			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	9	5	259	925		
Volume Left	1	5	0	0		
Volume Right	8	0	0	0		
cSH	333	747	1700	1700		
Volume to Capacity	0.03	0.01	0.15	0.54		
Queue Length 95th (m)	0.7	0.2	0.0	0.0		
Control Delay (s)	16.1	9.9	0.0	0.0		
Lane LOS	C	A				
Approach Delay (s)	16.1	0.2		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			58.7%	ICU Level of Service	B	
Analysis Period (min)			15			

Queues

AM Peak Hour

4: Airport Road & School Driveway - R/L out/North Site Access - Street A

FT 2033



Lane Group	EBT	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↙	↘	↑	↘	↙	↑
Traffic Volume (vph)	0	95	59	202	5	12	924
Future Volume (vph)	0	95	59	202	5	12	924
Lane Group Flow (vph)	89	95	59	202	5	12	924
Turn Type	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	4			2			6
Permitted Phases		8	8		2	6	
Detector Phase	4	8	8	2	2	6	6
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.0	24.0	24.0	31.0	31.0	31.0	31.0
Total Split (s)	25.0	25.0	25.0	45.0	45.0	45.0	45.0
Total Split (%)	35.7%	35.7%	35.7%	64.3%	64.3%	64.3%	64.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	Max	Max	Max	Max
v/c Ratio	0.27	0.43	0.19	0.18	0.00	0.01	0.69
Control Delay	14.7	29.5	8.4	5.3	0.0	4.9	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	29.5	8.4	5.3	0.0	4.9	11.9
Queue Length 50th (m)	4.3	10.2	0.0	8.0	0.0	0.4	62.7
Queue Length 95th (m)	14.9	22.5	8.3	19.1	0.0	2.3	#147.9
Internal Link Dist (m)	191.8			290.2			182.0
Turn Bay Length (m)		22.0			30.0	40.0	
Base Capacity (vph)	568	411	541	1120	1172	860	1336
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.23	0.11	0.18	0.00	0.01	0.69

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 62

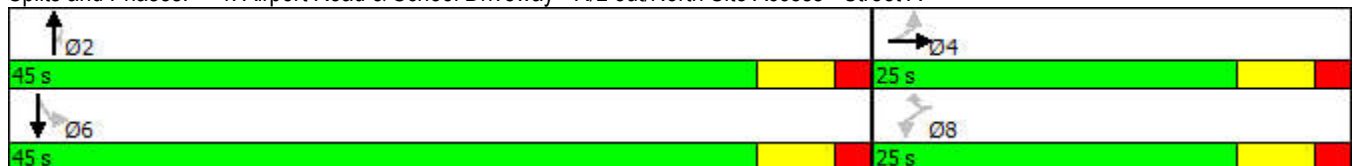
Natural Cycle: 65

Control Type: Semi Act-Uncoord

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Airport Road & School Driveway - R/L out/North Site Access - Street A



HCM Signalized Intersection Capacity Analysis

AM Peak Hour

4: Airport Road & School Driveway - R/L out/North Site Access - Street A

FT 2033



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖		↗		↑	↗	↖	↑	
Traffic Volume (vph)	44	0	45	95	0	59	0	202	5	12	924	0
Future Volume (vph)	44	0	45	95	0	59	0	202	5	12	924	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.7	3.5
Total Lost time (s)		6.0		6.0		6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Fr _t		0.93		1.00		0.85		1.00	0.85	1.00	1.00	
Fl _t Protected		0.98		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1747		1825		1633		1579	1633	1825	1883	
Fl _t Permitted		0.98		0.70		1.00		1.00	1.00	0.63	1.00	
Satd. Flow (perm)		1747		1343		1633		1579	1633	1212	1883	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	0	45	95	0	59	0	202	5	12	924	0
RTOR Reduction (vph)	0	41	0	0	0	51	0	0	2	0	0	0
Lane Group Flow (vph)	0	48	0	95	0	8	0	202	3	12	924	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	19%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm		Perm		NA	Perm	Perm	NA	
Protected Phases		4						2				6
Permitted Phases	4			8		8			2		6	
Actuated Green, G (s)		8.5		8.5		8.5		42.8	42.8	42.8	42.8	
Effective Green, g (s)		8.5		8.5		8.5		42.8	42.8	42.8	42.8	
Actuated g/C Ratio		0.13		0.13		0.13		0.68	0.68	0.68	0.68	
Clearance Time (s)		6.0		6.0		6.0		6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		234		180		219		1067	1104	819	1273	
v/s Ratio Prot								0.13				c0.49
v/s Ratio Perm		0.03		c0.07		0.00			0.00	0.01		
v/c Ratio		0.21		0.53		0.04		0.19	0.00	0.01	0.73	
Uniform Delay, d ₁		24.4		25.5		23.8		3.8	3.3	3.4	6.5	
Progression Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d ₂		0.4		2.8		0.1		0.4	0.0	0.0	3.6	
Delay (s)		24.8		28.3		23.9		4.2	3.3	3.4	10.2	
Level of Service		C		C		C		A	A	A	B	
Approach Delay (s)		24.8			26.6			4.2			10.1	
Approach LOS		C			C			A			B	





















Intersection Summary

HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	63.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 5: Airport Road & Cranston Dr/South Site Access -Street A

AM Peak Hour
 FT 2033

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	22	63	0	17	4	187	28	3	1081	0
Future Volume (Veh/h)	3	0	22	63	0	17	4	187	28	3	1081	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	0	22	63	0	17	4	187	28	3	1081	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh												2
Upstream signal (m)												314
pX, platoon unblocked	0.51	0.51	0.51	0.51	0.51		0.51					
vC, conflicting volume	1299	1310	1081	1304	1282	187	1081			215		
vC1, stage 1 conf vol	1087	1087		195	195							
vC2, stage 2 conf vol	212	223		1109	1087							
vCu, unblocked vol	1106	1128	679	1116	1073	187	679			215		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	91	65	100	98	99			100		
cM capacity (veh/h)	214	219	232	181	216	860	416			1367		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	25	80	4	187	28	3	1081	0				
Volume Left	3	63	4	0	0	3	0	0				
Volume Right	22	17	0	0	28	0	0	0				
cSH	230	218	416	1700	1700	1367	1700	1700				
Volume to Capacity	0.11	0.37	0.01	0.11	0.02	0.00	0.64	0.00				
Queue Length 95th (m)	2.9	12.8	0.2	0.0	0.0	0.1	0.0	0.0				
Control Delay (s)	22.6	30.9	13.7	0.0	0.0	7.6	0.0	0.0				
Lane LOS	C	D	B			A						
Approach Delay (s)	22.6	30.9	0.3			0.0						
Approach LOS	C	D										
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			74.8%	ICU Level of Service	D							
Analysis Period (min)			15									

Queues
6: Airport Road & Olde Base Line Rd

AM Peak Hour
FT 2033



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	43	12	163	910
Future Volume (vph)	43	12	163	910
Lane Group Flow (vph)	107	0	175	1107
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	2
Permitted Phases		2		
Detector Phase	4	2	2	2
Switch Phase				
Minimum Initial (s)	8.0	12.0	12.0	12.0
Minimum Split (s)	19.6	20.0	20.0	20.0
Total Split (s)	26.6	62.0	62.0	62.0
Total Split (%)	30.0%	70.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	6.6		6.0	6.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
v/c Ratio	0.44		0.16	0.76
Control Delay	22.2		3.7	11.8
Queue Delay	0.0		0.0	0.0
Total Delay	22.2		3.7	11.8
Queue Length 50th (m)	7.0		6.5	88.6
Queue Length 95th (m)	20.4		14.8	#230.8
Internal Link Dist (m)	373.9		480.2	717.9
Turn Bay Length (m)				
Base Capacity (vph)	460		1070	1452
Starvation Cap Reductn	0		0	0
Spillback Cap Reductn	0		0	0
Storage Cap Reductn	0		0	0
Reduced v/c Ratio	0.23		0.16	0.76

Intersection Summary

Cycle Length: 88.6
 Actuated Cycle Length: 82.8
 Natural Cycle: 75
 Control Type: Semi Act-Uncoord
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Airport Road & Olde Base Line Rd



HCM Signalized Intersection Capacity Analysis
6: Airport Road & Olde Base Line Rd

AM Peak Hour
FT 2033



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	43	64	12	163	910	197
Future Volume (vph)	43	64	12	163	910	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.5	3.7	3.5
Total Lost time (s)	6.6			6.0	6.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.92			1.00	0.98	
Flt Protected	0.98			1.00	1.00	
Satd. Flow (prot)	1701			1453	1827	
Flt Permitted	0.98			0.93	1.00	
Satd. Flow (perm)	1701			1351	1827	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	43	64	12	163	910	197
RTOR Reduction (vph)	58	0	0	0	6	0
Lane Group Flow (vph)	49	0	0	175	1101	0
Heavy Vehicles (%)	0%	3%	0%	31%	3%	1%
Turn Type	Prot		Perm		NA	NA
Protected Phases	4				2	2
Permitted Phases			2			
Actuated Green, G (s)	7.3				64.4	64.4
Effective Green, g (s)	7.3				64.4	64.4
Actuated g/C Ratio	0.09				0.76	0.76
Clearance Time (s)	6.6				6.0	6.0
Vehicle Extension (s)	3.0				3.0	3.0
Lane Grp Cap (vph)	147				1032	1395
v/s Ratio Prot	c0.03					c0.60
v/s Ratio Perm					0.13	
v/c Ratio	0.33				0.17	0.79
Uniform Delay, d1	36.2				2.7	5.9
Progression Factor	1.00				1.00	1.00
Incremental Delay, d2	1.3				0.4	4.6
Delay (s)	37.5				3.1	10.5
Level of Service	D				A	B
Approach Delay (s)	37.5				3.1	10.5
Approach LOS	D				A	B

Intersection Summary

HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	84.3	Sum of lost time (s)	12.6
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
6: Airport Road & Olde Base Line Rd

PM Peak Hour
FT 2033 Optimized



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	231	81	961	415
Future Volume (vph)	231	81	961	415
Lane Group Flow (vph)	253	0	1042	508
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	2
Permitted Phases		2		
Detector Phase	4	2	2	2
Switch Phase				
Minimum Initial (s)	8.0	12.0	12.0	12.0
Minimum Split (s)	19.6	20.0	20.0	20.0
Total Split (s)	21.0	67.6	67.6	67.6
Total Split (%)	23.7%	76.3%	76.3%	76.3%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	6.6		6.0	6.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
v/c Ratio	0.88		0.88	0.41
Control Delay	66.5		21.7	6.5
Queue Delay	0.0		0.0	0.0
Total Delay	66.5		21.7	6.5
Queue Length 50th (m)	43.6		127.2	31.0
Queue Length 95th (m)	#86.1		#246.5	47.9
Internal Link Dist (m)	373.9		480.2	717.9
Turn Bay Length (m)				
Base Capacity (vph)	295		1183	1232
Starvation Cap Reductn	0		0	0
Spillback Cap Reductn	0		0	0
Storage Cap Reductn	0		0	0
Reduced v/c Ratio	0.86		0.88	0.41

Intersection Summary

Cycle Length: 88.6
 Actuated Cycle Length: 89.4
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Airport Road & Olde Base Line Rd



HCM Signalized Intersection Capacity Analysis
6: Airport Road & Olde Base Line Rd

PM Peak Hour
FT 2033 Optimized



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	231	22	81	961	415	93
Future Volume (vph)	231	22	81	961	415	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.5	3.7	3.5
Total Lost time (s)	6.6			6.0	6.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.99			1.00	0.98	
Flt Protected	0.96			1.00	1.00	
Satd. Flow (prot)	1808			1821	1745	
Flt Permitted	0.96			0.92	1.00	
Satd. Flow (perm)	1808			1687	1745	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	231	22	81	961	415	93
RTOR Reduction (vph)	4	0	0	0	9	0
Lane Group Flow (vph)	249	0	0	1042	499	0
Heavy Vehicles (%)	0%	5%	0%	3%	9%	0%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	14.1			62.7	62.7	
Effective Green, g (s)	14.1			62.7	62.7	
Actuated g/C Ratio	0.16			0.70	0.70	
Clearance Time (s)	6.6			6.0	6.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	285			1183	1223	
v/s Ratio Prot	c0.14				0.29	
v/s Ratio Perm				c0.62		
v/c Ratio	0.87			0.88	0.41	
Uniform Delay, d1	36.8			10.4	5.6	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	24.2			9.5	1.0	
Delay (s)	60.9			20.0	6.6	
Level of Service	E			B	A	
Approach Delay (s)	60.9			20.0	6.6	
Approach LOS	E			B	A	

Intersection Summary

HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	89.4	Sum of lost time (s)	12.6
Intersection Capacity Utilization	112.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Queues
1: Airport Road & LCBO Driveway/Old Church Road

PM Peak Hour
FT 2033



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕	↗	↖		↖	↗		↕
Traffic Volume (vph)	16	7	169	12	11	638	341	39	286
Future Volume (vph)	16	7	169	12	11	638	341	39	286
Lane Group Flow (vph)	0	31	169	129	0	649	341	0	331
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		2		2		1			1
Permitted Phases	2		2		1		1	1	
Detector Phase	2	2	2	2	1	1	1	1	1
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.6	24.6	24.6	24.6	32.1	32.1	32.1	32.1	32.1
Total Split (s)	28.0	28.0	28.0	28.0	42.0	42.0	42.0	42.0	42.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	2.6	3.1	3.1	3.1	3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)		6.6	6.6	6.6		7.1	7.1		7.1
Lead/Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio		0.06	0.40	0.22		0.71	0.35		0.46
Control Delay		14.5	22.8	6.0		19.0	2.4		13.9
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		14.5	22.8	6.0		19.0	2.4		13.9
Queue Length 50th (m)		2.2	18.3	1.2		65.0	0.0		27.5
Queue Length 95th (m)		7.9	34.9	12.3		103.9	11.6		47.9
Internal Link Dist (m)		54.2		143.8		214.0			592.7
Turn Bay Length (m)							45.0		
Base Capacity (vph)		488	419	579		914	967		722
Starvation Cap Reductn		0	0	0		0	0		0
Spillback Cap Reductn		0	0	0		0	0		0
Storage Cap Reductn		0	0	0		0	0		0
Reduced v/c Ratio		0.06	0.40	0.22		0.71	0.35		0.46

Intersection Summary

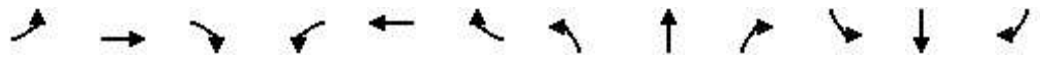
Cycle Length: 70
 Actuated Cycle Length: 70
 Natural Cycle: 60
 Control Type: Semi Act-Uncoord

Splits and Phases: 1: Airport Road & LCBO Driveway/Old Church Road



HCM Signalized Intersection Capacity Analysis
 1: Airport Road & LCBO Driveway/Old Church Road

PM Peak Hour
 FT 2033



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (vph)	16	7	8	169	12	117	11	638	341	39	286	6
Future Volume (vph)	16	7	8	169	12	117	11	638	341	39	286	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.97		1.00	0.86			1.00	0.85		1.00	
Flt Protected		0.97		0.95	1.00			1.00	1.00		0.99	
Satd. Flow (prot)		1808		1767	1630			1847	1597		1768	
Flt Permitted		0.85		0.74	1.00			0.99	1.00		0.81	
Satd. Flow (perm)		1579		1371	1630			1834	1597		1448	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	16	7	8	169	12	117	11	638	341	39	286	6
RTOR Reduction (vph)	0	6	0	0	81	0	0	0	171	0	1	0
Lane Group Flow (vph)	0	25	0	169	48	0	0	649	170	0	330	0
Heavy Vehicles (%)	0%	0%	0%	1%	0%	2%	0%	4%	0%	0%	9%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1		1	1		
Actuated Green, G (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Effective Green, g (s)		21.4		21.4	21.4			34.9	34.9		34.9	
Actuated g/C Ratio		0.31		0.31	0.31			0.50	0.50		0.50	
Clearance Time (s)		6.6		6.6	6.6			7.1	7.1		7.1	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		482		419	498			914	796		721	
v/s Ratio Prot					0.03							
v/s Ratio Perm		0.02		c0.12				c0.35	0.11		0.23	
v/c Ratio		0.05		0.40	0.10			0.71	0.21		0.46	
Uniform Delay, d1		17.1		19.2	17.4			13.6	9.8		11.4	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.2		2.9	0.4			4.7	0.6		2.1	
Delay (s)		17.4		22.1	17.8			18.3	10.5		13.5	
Level of Service		B		C	B			B	B		B	
Approach Delay (s)		17.4			20.2			15.6			13.5	
Approach LOS		B			C			B			B	

Intersection Summary

HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Airport Road & Mountcrest Rd

PM Peak Hour
FT 2033



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	S	T
Traffic Volume (veh/h)	2	7	1139	13	15	506
Future Volume (Veh/h)	2	7	1139	13	15	506
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	7	1139	13	15	506
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh	2					
Upstream signal (m)				40		
pX, platoon unblocked						
vC, conflicting volume	1675	1139			1152	
vC1, stage 1 conf vol	1139					
vC2, stage 2 conf vol	536					
vCu, unblocked vol	1675	1139			1152	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	97			98	
cM capacity (veh/h)	278	247			614	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1		
Volume Total	9	1139	13	521		
Volume Left	2	0	0	15		
Volume Right	7	0	13	0		
cSH	253	1700	1700	614		
Volume to Capacity	0.04	0.67	0.01	0.02		
Queue Length 95th (m)	0.9	0.0	0.0	0.6		
Control Delay (s)	19.7	0.0	0.0	0.7		
Lane LOS	C			A		
Approach Delay (s)	19.7	0.0		0.7		
Approach LOS	C					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			69.9%	ICU Level of Service	C	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Airport Road & Hiltop Dr

PM Peak Hour
FT 2033



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	7	29	1145	497	0
Future Volume (Veh/h)	3	7	29	1145	497	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	7	29	1145	497	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL	TWLTL		
Median storage veh			2	2		
Upstream signal (m)			206	345		
pX, platoon unblocked	0.33					
vC, conflicting volume	1700	497	497			
vC1, stage 1 conf vol	497					
vC2, stage 2 conf vol	1203					
vCu, unblocked vol	2109	497	497			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	97			
cM capacity (veh/h)	165	577	1077			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	10	29	1145	497		
Volume Left	3	29	0	0		
Volume Right	7	0	0	0		
cSH	330	1077	1700	1700		
Volume to Capacity	0.03	0.03	0.67	0.29		
Queue Length 95th (m)	0.7	0.7	0.0	0.0		
Control Delay (s)	16.3	8.4	0.0	0.0		
Lane LOS	C	A				
Approach Delay (s)	16.3	0.2	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			70.3%	ICU Level of Service	C	
Analysis Period (min)			15			

Queues

PM Peak Hour

4: Airport Road & School Driveway - R/L out/North Site Access - Street A

FT 2033



Lane Group	EBT	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↙	↘	↑	↘	↙	↑
Traffic Volume (vph)	0	55	29	1110	18	62	445
Future Volume (vph)	0	55	29	1110	18	62	445
Lane Group Flow (vph)	48	55	29	1110	18	62	445
Turn Type	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	4			2			6
Permitted Phases		8	8		2	6	
Detector Phase	4	8	8	2	2	6	6
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.0	24.0	24.0	31.0	31.0	31.0	31.0
Total Split (s)	25.0	25.0	25.0	45.0	45.0	45.0	45.0
Total Split (%)	35.7%	35.7%	35.7%	64.3%	64.3%	64.3%	64.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	Max	Max	Max	Max
v/c Ratio	0.16	0.27	0.11	0.76	0.01	0.29	0.31
Control Delay	9.6	26.8	5.8	13.4	0.5	9.3	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	26.8	5.8	13.4	0.5	9.3	4.5
Queue Length 50th (m)	0.1	6.3	0.0	87.2	0.0	2.5	18.4
Queue Length 95th (m)	7.9	14.7	4.1	#203.2	0.6	11.5	36.3
Internal Link Dist (m)	191.8			290.2			182.0
Turn Bay Length (m)		22.0			30.0	40.0	
Base Capacity (vph)	583	443	541	1462	1306	216	1453
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.12	0.05	0.76	0.01	0.29	0.31

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 61

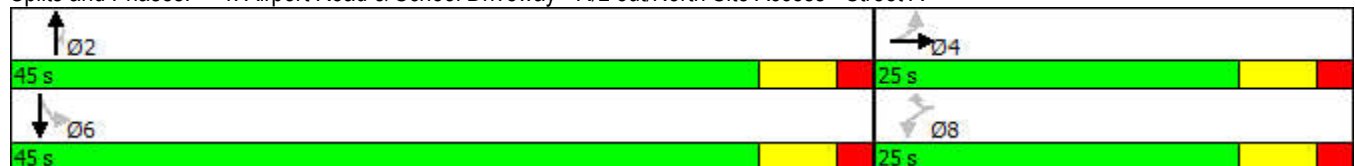
Natural Cycle: 80

Control Type: Semi Act-Uncoord

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Airport Road & School Driveway - R/L out/North Site Access - Street A



HCM Signalized Intersection Capacity Analysis
 4: Airport Road & School Driveway - R/L out/North Site Access - Street A

PM Peak Hour
 FT 2033



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖		↗		↑	↗	↖	↑	
Traffic Volume (vph)	29	0	19	55	0	29	0	1110	18	62	445	0
Future Volume (vph)	29	0	19	55	0	29	0	1110	18	62	445	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.7	3.5
Total Lost time (s)		6.0		6.0		6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frt		0.95		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		0.97		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1765		1825		1633		1842	1633	1825	1830	
Flt Permitted		0.97		0.74		1.00		1.00	1.00	0.14	1.00	
Satd. Flow (perm)		1765		1423		1633		1842	1633	272	1830	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	29	0	19	55	0	29	0	1110	18	62	445	0
RTOR Reduction (vph)	0	43	0	0	0	27	0	0	5	0	0	0
Lane Group Flow (vph)	0	5	0	55	0	2	0	1110	13	62	445	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	5%	0%
Turn Type	Perm	NA		Perm		Perm		NA	Perm	Perm	NA	
Protected Phases		4						2				6
Permitted Phases	4			8		8			2	6		
Actuated Green, G (s)		5.4		5.4		5.4		46.0	46.0	46.0	46.0	
Effective Green, g (s)		5.4		5.4		5.4		46.0	46.0	46.0	46.0	
Actuated g/C Ratio		0.09		0.09		0.09		0.73	0.73	0.73	0.73	
Clearance Time (s)		6.0		6.0		6.0		6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		150		121		139		1336	1184	197	1327	
v/s Ratio Prot								c0.60			0.24	
v/s Ratio Perm		0.00		c0.04		0.00			0.01	0.23		
v/c Ratio		0.03		0.45		0.02		0.83	0.01	0.31	0.34	
Uniform Delay, d1		26.6		27.6		26.6		6.0	2.4	3.1	3.2	
Progression Factor		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1		2.7		0.1		6.1	0.0	4.1	0.7	
Delay (s)		26.7		30.3		26.6		12.1	2.4	7.2	3.8	
Level of Service		C		C		C		B	A	A	A	
Approach Delay (s)		26.7			29.0			12.0			4.3	
Approach LOS		C			C			B			A	

Intersection Summary

HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	63.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 5: Airport Road & Cranston Dr/South Site Access -Street A

PM Peak Hour
 FT 2033



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	5	0	4	20	0	7	21	1114	132	7	515	4
Future Volume (Veh/h)	5	0	4	20	0	7	21	1114	132	7	515	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	0	4	20	0	7	21	1114	132	7	515	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh												2
Upstream signal (m)												314
pX, platoon unblocked												
vC, conflicting volume	1692	1817	515	1689	1689	1114	519			1246		
vC1, stage 1 conf vol	529	529		1156	1156							
vC2, stage 2 conf vol	1163	1288		533	533							
vCu, unblocked vol	1692	1817	515	1689	1689	1114	519			1246		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	99	91	100	97	98			99		
cM capacity (veh/h)	205	208	564	216	242	256	1057			566		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	9	27	21	1114	132	7	515	4
Volume Left	5	20	21	0	0	7	0	0
Volume Right	4	7	0	0	132	0	0	4
cSH	286	225	1057	1700	1700	566	1700	1700
Volume to Capacity	0.03	0.12	0.02	0.66	0.08	0.01	0.30	0.00
Queue Length 95th (m)	0.8	3.2	0.5	0.0	0.0	0.3	0.0	0.0
Control Delay (s)	18.0	23.2	8.5	0.0	0.0	11.4	0.0	0.0
Lane LOS	C	C	A			B		
Approach Delay (s)	18.0	23.2	0.1			0.2		
Approach LOS	C	C						

Intersection Summary		
Average Delay		0.6
Intersection Capacity Utilization	68.6%	ICU Level of Service C
Analysis Period (min)		15

Queues
6: Airport Road & Olde Base Line Rd

PM Peak Hour
FT 2033



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	231	81	961	415
Future Volume (vph)	231	81	961	415
Lane Group Flow (vph)	253	0	1042	508
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	2
Permitted Phases		2		
Detector Phase	4	2	2	2
Switch Phase				
Minimum Initial (s)	8.0	12.0	12.0	12.0
Minimum Split (s)	19.6	20.0	20.0	20.0
Total Split (s)	26.6	62.0	62.0	62.0
Total Split (%)	30.0%	70.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	6.6		6.0	6.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
v/c Ratio	0.73		0.93	0.43
Control Delay	45.0		30.1	8.4
Queue Delay	0.0		0.0	0.0
Total Delay	45.0		30.1	8.4
Queue Length 50th (m)	40.0		141.8	35.0
Queue Length 95th (m)	65.6		#266.6	61.4
Internal Link Dist (m)	373.9		480.2	717.9
Turn Bay Length (m)				
Base Capacity (vph)	424		1121	1168
Starvation Cap Reductn	0		0	0
Spillback Cap Reductn	0		0	0
Storage Cap Reductn	0		0	0
Reduced v/c Ratio	0.60		0.93	0.43

Intersection Summary

Cycle Length: 88.6
 Actuated Cycle Length: 86
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Airport Road & Olde Base Line Rd



HCM Signalized Intersection Capacity Analysis
6: Airport Road & Olde Base Line Rd

PM Peak Hour
FT 2033



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	231	22	81	961	415	93
Future Volume (vph)	231	22	81	961	415	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.5	3.7	3.5
Total Lost time (s)	6.6			6.0	6.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.99			1.00	0.98	
Flt Protected	0.96			1.00	1.00	
Satd. Flow (prot)	1808			1821	1745	
Flt Permitted	0.96			0.92	1.00	
Satd. Flow (perm)	1808			1687	1745	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	231	22	81	961	415	93
RTOR Reduction (vph)	4	0	0	0	8	0
Lane Group Flow (vph)	249	0	0	1042	500	0
Heavy Vehicles (%)	0%	5%	0%	3%	9%	0%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	16.2			57.1	57.1	
Effective Green, g (s)	16.2			57.1	57.1	
Actuated g/C Ratio	0.19			0.66	0.66	
Clearance Time (s)	6.6			6.0	6.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	340			1121	1159	
v/s Ratio Prot	c0.14				0.29	
v/s Ratio Perm				c0.62		
v/c Ratio	0.73			0.93	0.43	
Uniform Delay, d1	32.8			12.6	6.8	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	7.9			14.5	1.2	
Delay (s)	40.7			27.2	7.9	
Level of Service	D			C	A	
Approach Delay (s)	40.7			27.2	7.9	
Approach LOS	D			C	A	

Intersection Summary

HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	85.9	Sum of lost time (s)	12.6
Intersection Capacity Utilization	112.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



APPENDIX I
Queue Analysis

Queues

AM Peak Hour

4: Airport Road & School Driveway - R/L out/North Site Access - Street A

FT 2023



Lane Group	EBT	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↕	↙	↘	↑	↗	↖	↑
Traffic Volume (vph)	0	95	59	178	5	12	769
Future Volume (vph)	0	95	59	178	5	12	769
Lane Group Flow (vph)	89	95	59	178	5	12	769
Turn Type	NA	Perm	Perm	NA	NA	Perm	NA
Protected Phases	4			2			6
Permitted Phases		8	8			6	
Detector Phase	4	8	8	2		6	6
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0	8.0
Minimum Split (s)	24.0	24.0	24.0	31.0		31.0	31.0
Total Split (s)	25.0	25.0	25.0	45.0		45.0	45.0
Total Split (%)	35.7%	35.7%	35.7%	64.3%		64.3%	64.3%
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0		6.0	6.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	Max		Max	Max
v/c Ratio	0.27	0.43	0.19	0.16	0.04	0.01	0.58
Control Delay	14.7	29.5	8.4	5.2	0.4	4.9	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	29.5	8.4	5.2	0.4	4.9	8.9
Queue Length 50th (m)	4.3	10.2	0.0	6.9	0.0	0.4	44.9
Queue Length 95th (m)	14.9	22.5	8.3	17.0	0.0	2.3	94.3
Internal Link Dist (m)	191.8			290.2			182.0
Turn Bay Length (m)		22.0			30.0	40.0	
Base Capacity (vph)	568	411	541	1120	140	879	1336
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.23	0.11	0.16	0.04	0.01	0.58

Intersection Summary

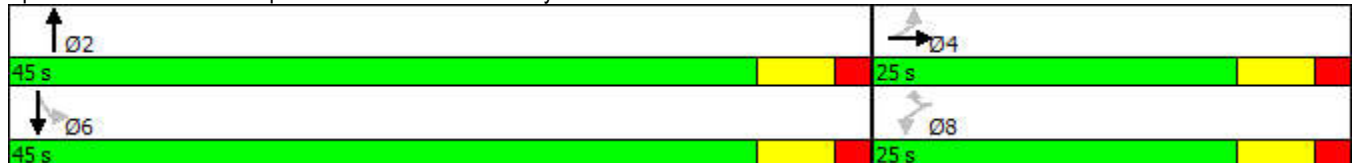
Cycle Length: 70

Actuated Cycle Length: 62

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Splits and Phases: 4: Airport Road & School Driveway - R/L out/North Site Access - Street A



Queues

AM Peak Hour

4: Airport Road & School Driveway - R/L out/North Site Access - Street A

FT 2033



Lane Group	EBT	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↙	↘	↑	↗	↘	↑
Traffic Volume (vph)	0	95	59	202	5	12	924
Future Volume (vph)	0	95	59	202	5	12	924
Lane Group Flow (vph)	89	95	59	202	5	12	924
Turn Type	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	4			2			6
Permitted Phases		8	8		2	6	
Detector Phase	4	8	8	2	2	6	6
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.0	24.0	24.0	31.0	31.0	31.0	31.0
Total Split (s)	25.0	25.0	25.0	45.0	45.0	45.0	45.0
Total Split (%)	35.7%	35.7%	35.7%	64.3%	64.3%	64.3%	64.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	Max	Max	Max	Max
v/c Ratio	0.27	0.43	0.19	0.18	0.00	0.01	0.69
Control Delay	14.7	29.5	8.4	5.3	0.0	4.9	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	29.5	8.4	5.3	0.0	4.9	11.9
Queue Length 50th (m)	4.3	10.2	0.0	8.0	0.0	0.4	62.7
Queue Length 95th (m)	14.9	22.5	8.3	19.1	0.0	2.3	#147.9
Internal Link Dist (m)	191.8			290.2			182.0
Turn Bay Length (m)		22.0			30.0	40.0	
Base Capacity (vph)	568	411	541	1120	1172	860	1336
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.23	0.11	0.18	0.00	0.01	0.69

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 62

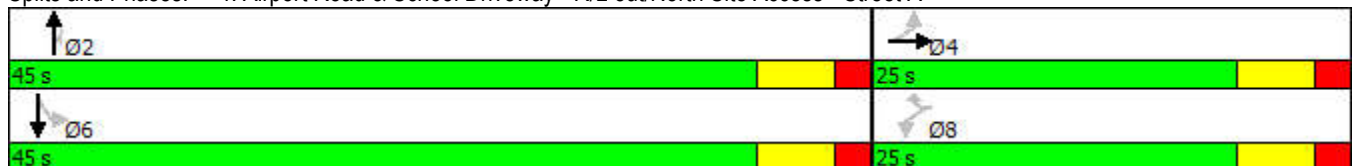
Natural Cycle: 65

Control Type: Semi Act-Uncoord

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Airport Road & School Driveway - R/L out/North Site Access - Street A



Queues

PM Peak Hour

4: Airport Road & School Driveway - R/L out/North Site Access - Street A



Lane Group	EBT	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↙	↘	↑	↘	↙	↑
Traffic Volume (vph)	0	55	29	946	18	62	382
Future Volume (vph)	0	55	29	946	18	62	382
Lane Group Flow (vph)	48	55	29	946	18	62	382
Turn Type	NA	Perm	custom	NA	NA	Perm	NA
Protected Phases	4			2			6
Permitted Phases		8				6	
Detector Phase	4	8		2		6	6
Switch Phase							
Minimum Initial (s)	8.0	8.0		8.0		8.0	8.0
Minimum Split (s)	24.0	24.0		31.0		31.0	31.0
Total Split (s)	25.0	25.0		45.0		45.0	45.0
Total Split (%)	35.7%	35.7%		64.3%		64.3%	64.3%
Yellow Time (s)	4.0	4.0		4.0		4.0	4.0
All-Red Time (s)	2.0	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0		6.0	6.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None		Max		Max	Max
v/c Ratio	0.17	0.28	0.21	0.64	0.13	0.18	0.26
Control Delay	9.7	27.6	3.3	9.1	1.9	5.7	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	27.6	3.3	9.1	1.9	5.7	4.1
Queue Length 50th (m)	0.1	7.0	0.0	60.9	0.0	2.2	15.1
Queue Length 95th (m)	7.9	14.7	0.0	#138.6	0.0	8.0	30.2
Internal Link Dist (m)	191.8			290.2			182.0
Turn Bay Length (m)		22.0			30.0	40.0	
Base Capacity (vph)	572	435	140	1473	140	350	1464
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.13	0.21	0.64	0.13	0.18	0.26

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 62.3

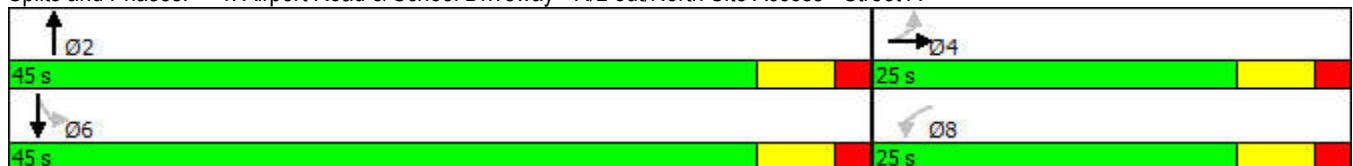
Natural Cycle: 70

Control Type: Semi Act-Uncoord

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Airport Road & School Driveway - R/L out/North Site Access - Street A



Queues

PM Peak Hour

4: Airport Road & School Driveway - R/L out/North Site Access - Street A

FT 2033



Lane Group	EBT	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↙	↘	↑	↘	↙	↑
Traffic Volume (vph)	0	55	29	1110	18	62	445
Future Volume (vph)	0	55	29	1110	18	62	445
Lane Group Flow (vph)	48	55	29	1110	18	62	445
Turn Type	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	4			2			6
Permitted Phases		8	8		2	6	
Detector Phase	4	8	8	2	2	6	6
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.0	24.0	24.0	31.0	31.0	31.0	31.0
Total Split (s)	25.0	25.0	25.0	45.0	45.0	45.0	45.0
Total Split (%)	35.7%	35.7%	35.7%	64.3%	64.3%	64.3%	64.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	Max	Max	Max	Max
v/c Ratio	0.16	0.27	0.11	0.76	0.01	0.29	0.31
Control Delay	9.6	26.8	5.8	13.4	0.5	9.3	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	26.8	5.8	13.4	0.5	9.3	4.5
Queue Length 50th (m)	0.1	6.3	0.0	87.2	0.0	2.5	18.4
Queue Length 95th (m)	7.9	14.7	4.1	#203.2	0.6	11.5	36.3
Internal Link Dist (m)	191.8			290.2			182.0
Turn Bay Length (m)		22.0			30.0	40.0	
Base Capacity (vph)	583	443	541	1462	1306	216	1453
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.12	0.05	0.76	0.01	0.29	0.31

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 61

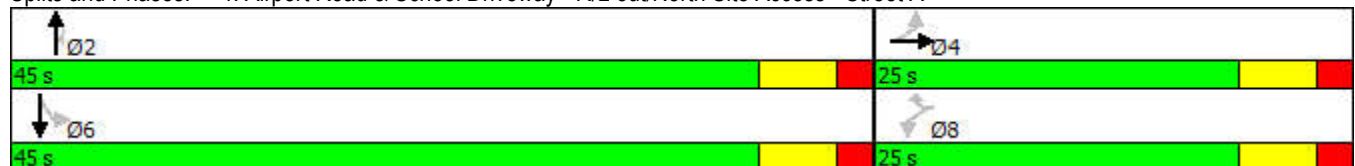
Natural Cycle: 80

Control Type: Semi Act-Uncoord

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Airport Road & School Driveway - R/L out/North Site Access - Street A





APPENDIX J
Signal Warrants

Signal Warrant Calculation



Justification 7 - Projected Volumes

Major Street: Airport Road

Minor Street: Street A - North

Traffic Condition: FT 2023

North/South

East/West

Number of Approaches: 1
 Tee Intersection: No
 Existing Intersection: Yes

Flow Condition: Restricted Flow (Urban)
 No. of Peak Hours: 2

Volume	1st Hour	2nd Hour	Factor	Average Hour
1A - All	1207	1540	4	687
1B - Minor	243	132	4	94
2A - Major	964	1408	4	593
2B - Crossing	139	84	4	56

WARRANT 1 - MINIMUM VEHICULAR VOLUME => 55% Satisfied

A.	Vehicle volume all approaches (average hour)	Restricted Flow	Average Hour	Percent Satisfied
		720	687	95%
B.	Vehicle volume, along minor streets (average hour)	Restricted Flow	Average Hour	Percent Satisfied
		170	94	55%

WARRANT 2 - DELAY TO CROSS TRAFFIC => 75% Satisfied

A.	Vehicle volume all approaches (average hour)	Restricted Flow	Average Hour	Percent Satisfied
		720	593	82%
B.	Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	Restricted Flow	Average Hour	Percent Satisfied
		75	56	75%

Overall Warrant => 75% Satisfied

Result => No signals are warranted nor provision for undergrounds needed.

Signal Warrant Calculation



Justification 7 - Projected Volumes

Major Street: Airport Road

Minor Street: Street A -North

Traffic Condition: FT 2033

North/South

East/West

Number of Lane: 1
 Tee Intersection: No
 Existing Intersection: Yes

Flow Condition: Restricted Flow (Urban)
 No. of Peak Hours: 2

Volume	1st Hour	2nd Hour	Factor	Average Hour
1A - All	1386	1767	4	789
1B - Minor	243	132	4	94
2A - Major	1143	1635	4	695
2B - Crossing	139	84	4	56

WARRANT 1 - MINIMUM VEHICULAR VOLUME => 55% Satisfied

A.	Vehicle volume all approaches (average hour)	Restricted Flow	Average Hour	Percent Satisfied
		720	789	110%
B.	Vehicle volume, along minor streets (average hour)	Restricted Flow	Average Hour	Percent Satisfied
		170	94	55%

WARRANT 2 - DELAY TO CROSS TRAFFIC => 75% Satisfied

A.	Vehicle volume all approaches (average hour)	Restricted Flow	Average Hour	Percent Satisfied
		720	695	97%
B.	Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	Restricted Flow	Average Hour	Percent Satisfied
		75	56	75%

Overall Warrant => 75% Satisfied

Result => No signals are warranted nor provision for undergrounds needed.

Signal Warrant Calculation



Justification 7 - Projected Volumes

Major Street: Airport Road

Minor Street: Street A - South

Traffic Condition: FT 2023

North/South

East/West

Number of Approaches: 1
 Tee Intersection: No
 Existing Intersection: Yes

Flow Condition: Restricted Flow (Urban)
 No. of Peak Hours: 2

Volume	1st Hour	2nd Hour	Factor	Average Hour
1A - All	1217	1599	4	704
1B - Minor	105	36	4	35
2A - Major	1112	1563	4	669
2B - Crossing	66	25	4	23

WARRANT 1 - MINIMUM VEHICULAR VOLUME => 21% Satisfied

A.	Vehicle volume all approaches (average hour)	Restricted Flow	Average Hour	Percent Satisfied
		720	704	98%
B.	Vehicle volume, along minor streets (average hour)	Restricted Flow	Average Hour	Percent Satisfied
		170	35	21%

WARRANT 2 - DELAY TO CROSS TRAFFIC => 31% Satisfied

A.	Vehicle volume all approaches (average hour)	Restricted Flow	Average Hour	Percent Satisfied
		720	669	93%
B.	Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	Restricted Flow	Average Hour	Percent Satisfied
		75	23	31%

Overall Warrant => 31% Satisfied

Result => No signals are warranted nor provision for undergrounds needed.

Signal Warrant Calculation



Justification 7 - Projected Volumes

Major Street: Airport Road

Minor Street: Street A - South

Traffic Condition: FT 2033

North/South

East/West

Number of Approaches: 1
 Tee Intersection: No
 Existing Intersection: Yes

Flow Condition: Restricted Flow (Urban)
 No. of Peak Hours: 2

Volume	1st Hour	2nd Hour	Factor	Average Hour
1A - All	1408	1839	4	812
1B - Minor	105	36	4	35
2A - Major	1303	1803	4	777
2B - Crossing	66	25	4	23

WARRANT 1 - MINIMUM VEHICULAR VOLUME => 21% Satisfied

A.	Vehicle volume all approaches (average hour)	Restricted Flow	Average Hour	Percent Satisfied
		720	812	113%
B.	Vehicle volume, along minor streets (average hour)	Restricted Flow	Average Hour	Percent Satisfied
		170	35	21%

WARRANT 2 - DELAY TO CROSS TRAFFIC => 31% Satisfied

A.	Vehicle volume all approaches (average hour)	Restricted Flow	Average Hour	Percent Satisfied
		720	777	108%
B.	Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	Restricted Flow	Average Hour	Percent Satisfied
		75	23	31%

Overall Warrant => 31% Satisfied

Result => No signals are warranted nor provision for undergrounds needed.



APPENDIX K
Peel School Board Response and Policy 39

TRANSPORTATION

This policy is aligned with and supports the principles and expectations of the Board's Human Rights policy (Policy 51) and the Equity and Inclusive Education policy (Policy 54). At all times, this policy should be interpreted to be consistent with the Board's policies and the *Human Rights Code*.

School bus services are managed by Student Transportation of Peel Region (STOPR), a consortium formed by agreement between the Peel District School Board and the Dufferin-Peel Catholic District School Board. STOPR is responsible for implementing the policies of each Board and for overseeing the daily operations and administration of student transportation services within the region. Safe transportation of students, operating procedures and additional information supporting this policy can be found at www.stopr.ca.

ADMINISTRATIVE REGULATION

1. **Eligibility to Regular Day Schools and Elementary Extended and French Immersion Programs**

- (a) The Board's eligibility distances for transportation are:

Kindergarten - Grade 1 students	1.0 km
Grades 2 – 4 students	1.6 km
Grades 5 – 6 students	2.0 km
Grades 7 – 8 students	3.2 km <u>2.0 km</u>
Secondary students	3.8 km

The eligibility distances measured are the shortest, safe walking route along sidewalks, roadways and paved pedestrian walkways from school property line to home property line. This measurement is made **exclusively** using the geographic information system (GIS) component of the Board's transportation management software. Additional information is outlined in [STOPR002 Transportation Eligibility](#).

- (b) The maximum distance a student may be required to walk to a bus stop is:

Kindergarten students	0.4 km
Grades 1 – 6 students	0.8 km
Grades 7 – 12 students	1.2 km

Additional information is outlined in [STOPR003 Walking Distance to the Bus Stop](#).

- (c) The Board does not provide bussing for ~~Regional Programs or the secondary Extended or French Immersion programs~~ **with the exception of students residing within the approved boundaries and enrolled in either of these programs at Humberview Secondary School.**
- (d) **The Board does not provide bussing for Regional Programs.**
- (e) Special Education students requiring bussing accommodation will be transported in accordance with [STOPR019 Special Education Transportation](#).

- (f) The Board will not accept responsibility for the transportation of students taking advantage of the flexible boundary policy. [Board Policy 19](#) provides additional information.

2. Courtesy Transportation

Students may be granted a courtesy seat if space is available on an existing bus route. Applications must be submitted in September, on an annual basis, to the home school principal and are subject to [STOPR013 Courtesy Transportation](#).

3. Bus Privilege Cards

The principal may issue bus privilege cards to students. Where bus privilege cards are issued, bus drivers are required to enforce the conditions printed on the back of each card, and may collect the card of any student who does not conform to the regulations. The bus drivers will report to the school principal, as soon as possible, any incident which required them to collect the card, and the principal will determine what action, if any, is to be taken.

4. Student Conduct

Students will not be removed from a school bus until they reach the school or their home. If student behaviour is endangering the safety of driver or other passengers, the bus driver will pull over and contact the police. Student(s) will be written up on a misconduct form, which is submitted to the school principal. Further information is outlined in [STOPR020 Student Code of Conduct](#).

5. Operational Functions

STOPR is responsible for all operations and service parameters pertaining to home to school student transportation including determination of student eligibility for transportation, route planning, bus stop changes and service complaints. An appeal process for parent(s)/guardian(s) in disagreement with operational issues is detailed in [STOPR028 Transportation Appeal Process](#).

6. Inclement Weather

Buses may be cancelled due to inclement weather. For further information, refer to [STOPR029 Service Cancellation Due To Inclement Weather](#).

7. Accidents

If the school bus is involved in an accident or incident, the driver will immediately contact dispatch and deploy appropriate procedures to ensure the safety of all passengers. Additional information is outlined in [STOPR025 Accident Procedures](#).

Approved March 11, 1969
Revised February 22, 1973
Revised March 12, 1974
Revised December 1974
Corrected February 1975
Revised February 1976
Revised July 27, 1976
Revised November 2, 1977
Revised November 28, 1977
Revised September 12, 1978

Revised April 8, 1980
Revised March 16, 1981
Revised February 26, 1985
Revised June 24, 1986
Revised September 8, 1987
Revised September 22, 1987
Revised September 7, 1988
Revised May 9, 1989
Revised January 23, 1996
Revised August 26, 1997

Revised January 1, 1998 *(to reflect change in Board name)*
Reviewed January 2000
Revised May 26, 2009
Revised August 24, 2010
Revised June 14, 2011
Approved February 25, 2014 *(replaces former Policy 39)*
Revised June 18, 2014
Revised August 31, 2016

March 3rd, 2017

Ms. Mary Nordstrom
Development Planner
Town of Caledon
6311 Old Church Road
Caledon, ON L7C 1J6

Dear Ms. Nordstrom:

**RE: Pre-Consultation Application for Official Plan and Zoning By-law
Amendment and Draft Plan of Subdivision – PRE 2016-0276
Design Plan Services Inc. – Triple Crown Line Developments Inc.
15717 Airport Road (McLeod Farm)
East side of Airport Road, south of Old Church Road
Town of Caledon (Ward 3)**

The Peel District School Board has reviewed the above noted application (604 detached dwellings) based on its School Accommodation Criteria and has the following comments:

The anticipated yield from this plan is as follows: 161 K-8
 71 9-12

The students are presently within the following attendance areas:

	<u>Enrolment</u>	<u>Capacity</u>	<u># of Portables</u>
Caledon East P.S.	261	254	1
Humberview S.S.	1,181	1,437	2

The Board requires the inclusion of the following conditions in the Development Agreement as well as the Engineering Agreement:

Trustees

Janet McDougald, Chair
Suzanne Nurse, Vice-Chair
Carrie Andrews
Stan Cameron
Robert Crocker
Nokha Dakroub

David Green
Sue Lawton
Brad MacDonald
Kathy McDonald
Harkirat Singh
Rick Williams

Director of Education and Secretary
Tony Pontes

**Associate Director,
Instructional Support Services**
Scott Moreash

**Associate Director,
Operational Support Services**
Jaspal Gill

1. Prior to final approval, the Town of Caledon shall be advised by the School Board(s) that satisfactory arrangements regarding the provision and distribution of educational facilities have been made between the developer/applicant and the School Board(s) for this plan.
2. The developer shall agree to erect and maintain signs at the entrances to the subdivision which shall advise prospective purchasers that due to present school facilities, some of the children from the subdivision may have to be accommodated in temporary facilities or bused to schools, according to the Board's Transportation Policy.
3. The Board requires that the following clause be placed in any agreement of purchase and sale entered into with respect to any units in this plan, within a period of five years from the date of registration of the development agreement:


“Whereas, despite the efforts of the Peel District School Board, sufficient accommodation may not be available for all anticipated students in the neighbourhood schools, you are hereby notified that some students may be accommodated in temporary facilities or bused to schools outside of the area, according to the Board's Transportation Policy. You are advised to contact the School Accommodation department of the Peel District School Board to determine the exact schools.”

An addition, portables, boundary change and/or school re-organization may be required at the affected school(s) to accommodate the anticipated number of students from this development.

The Board wishes to be notified of the decision of Council with respect to this proposed application.

If you require any further information please contact me at 905-890-1010, ext. 2217.

Yours truly,



Amar Singh, BURPI
Planner

Planning and Accommodation Dept.

- c. B. Bielski, Peel District School Board
K. Koops, Dufferin-Peel Catholic District School Board (email only)



APPENDIX L
Pedestrian Warrant / Volume Warrant – OTM Book 12 Figure 22

Figure 22 Justification 6 - Pedestrian Volume FT 2023

4.9 Justification 6 – Pedestrian Volume and Delay

Purpose

The minimum pedestrian volume conditions are intended for applications where the traffic volume on a main road is so heavy that pedestrians experience excessive delay or hazard in crossing the main road, or where high pedestrian crossing volumes produce the likelihood of such delays.

The justification is applicable to an unsignalized intersection or a mid-block location.

Once justification has been established, determination of the appropriate crossing protection device should be subject to site-specific engineering judgement (see Guideline 3 for options).

Standard

The need for a traffic control device at an intersection or mid-block location must be considered if both the following minimum pedestrian volume and delay criteria are met:

1. The total eight-hour pedestrian volume crossing the main road at an intersection or mid-block location during the highest eight hours of pedestrian traffic fulfils the

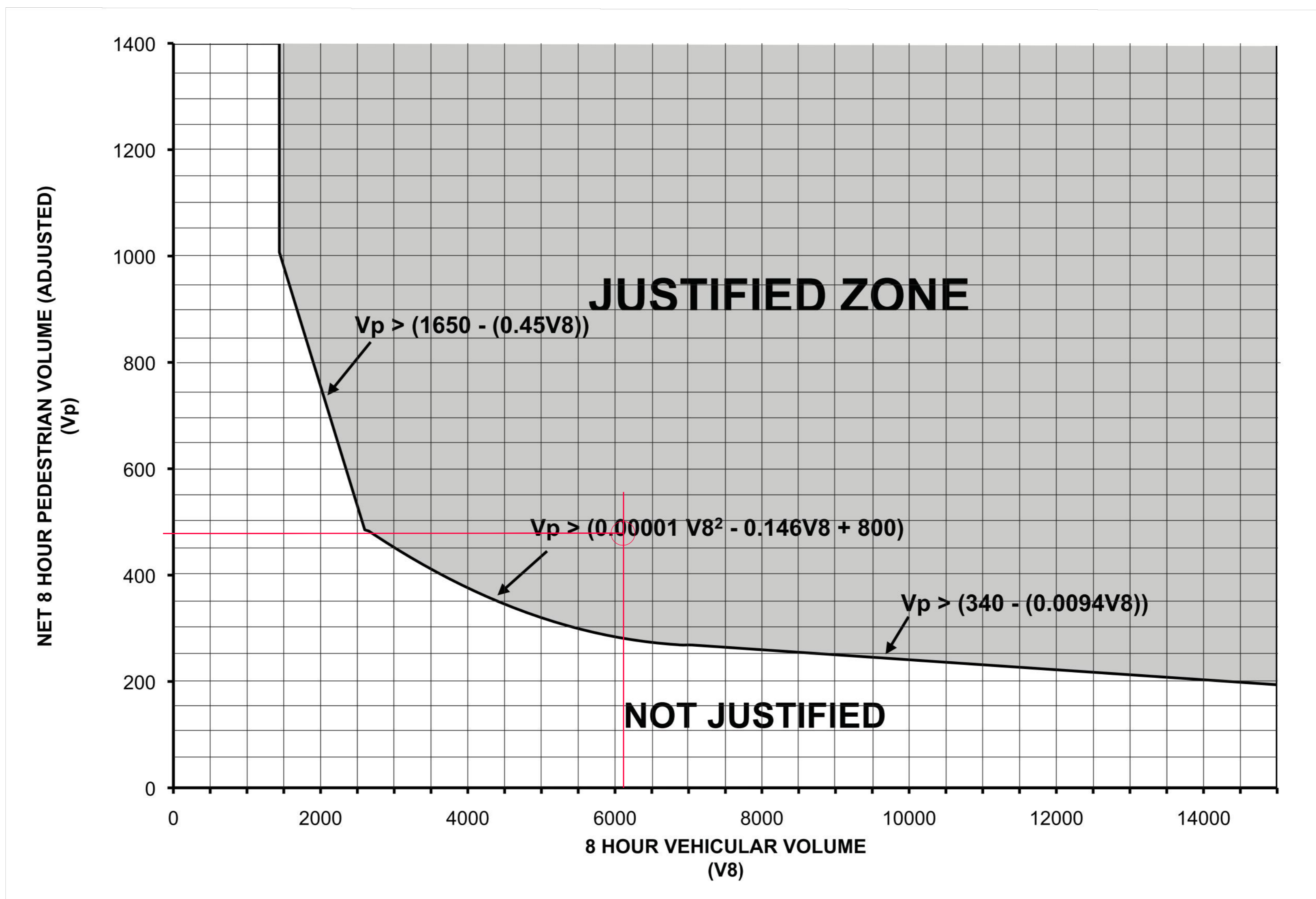


Figure 22 – Justification 6 – Pedestrian Volume



APPENDIX M
HCM 2010 Pedestrian Analysis Outputs

Approach

Approach Direction	NB	
Median Present?	Yes	
Approach Delay(s)	614698	
Level of Service	F	

Crosswalk

Length (ft)	48	48
Lanes Crossed	2	2
Veh Vol Crossed	946	946
Ped Vol Crossed	122	122
Yield Rate(%)	0	0
Ped Platooning	Yes	Yes
Critical Headway (s)	43.00	43.00
Prob of Delayed X-ing	1.00	1.00
Prob of Blocked Lane	1.00	1.00
Delay for adq Gap	307353.00	307353.00
Avg Ped Delay (s)	307349.00	307349.00

Approach

Approach Direction	SB	
Median Present?	Yes	
Approach Delay(s)	35606	
Level of Service	F	

Crosswalk

Length (ft)	35	35
Lanes Crossed	2	2
Veh Vol Crossed	946	946
Ped Vol Crossed	122	122
Yield Rate(%)	0	0
Ped Platooning	Yes	Yes
Critical Headway (s)	32.17	32.17
Prob of Delayed X-ing	1.00	1.00
Prob of Blocked Lane	0.99	0.99
Delay for adq Gap	17806.80	17806.80
Avg Ped Delay (s)	17803.00	17803.00

Approach

Approach Direction	NB
Median Present?	No
Approach Delay(s)	20754800
Level of Service	F

Crosswalk

Length (ft)	48
Lanes Crossed	2
Veh Vol Crossed	1327
Ped Vol Crossed	122
Yield Rate(%)	0
Ped Platooning	Yes
Critical Headway (s)	43.00
Prob of Delayed X-ing	1.00
Prob of Blocked Lane	1.00
Delay for adq Gap	20754800.00
Avg Ped Delay (s)	20754800.00

Approach

Approach Direction	SB
Median Present?	No
Approach Delay(s)	382668
Level of Service	F

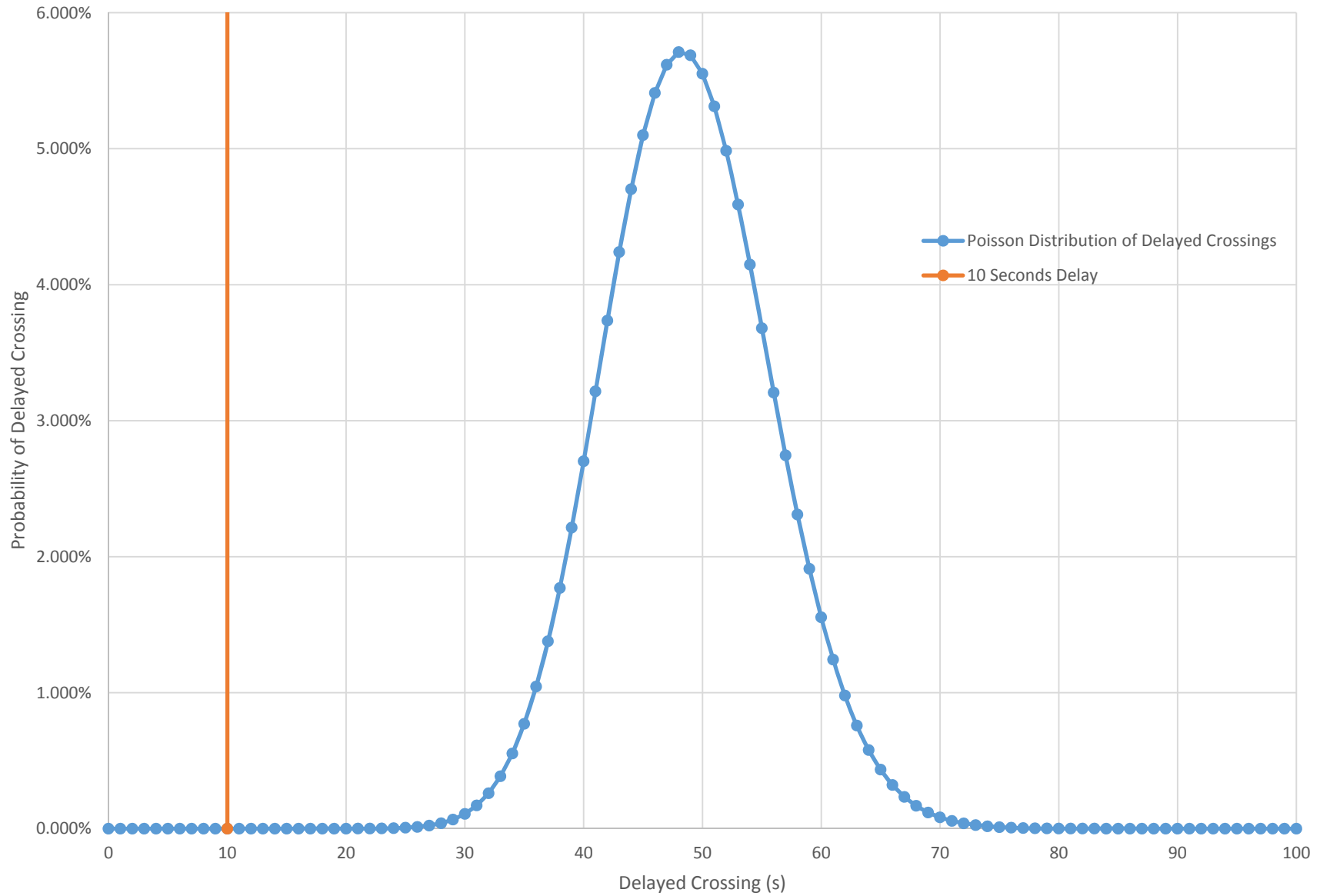
Crosswalk

Length (ft)	35
Lanes Crossed	2
Veh Vol Crossed	1327
Ped Vol Crossed	122
Yield Rate(%)	0
Ped Platooning	Yes
Critical Headway (s)	32.17
Prob of Delayed X-ing	1.00
Prob of Blocked Lane	1.00
Delay for adq Gap	382671.00
Avg Ped Delay (s)	382668.00

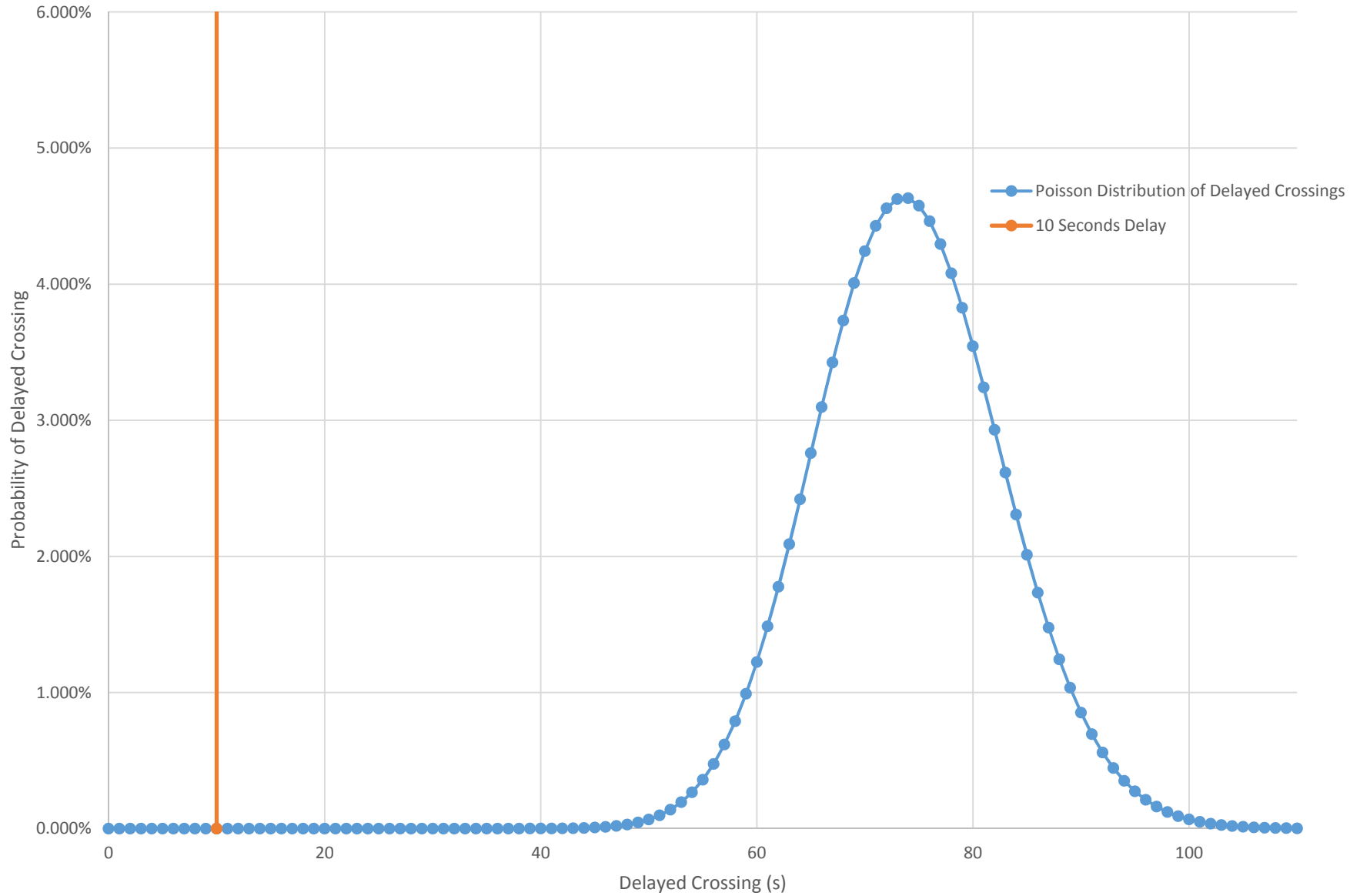


APPENDIX N
Poisson Distribution

Probability of Seconds of Delay experienced for Crossing
Future (2023) Total AM Peak Hour



Probability of Seconds of Delay experienced for Crossing Future (2023) Total AM Peak Hour





APPENDIX O
Pedestrian Warrant / Delay Warrant –
OTM Book 12 Figure 23 and MTO Results Sheet

Figure 23 Justification 6 - Pedestrian Delay

Book 12 • Traffic Signals

8 Hour Pedestrian Volume: 485 p

NET Pedestrian Delays > 10 Seconds (8 Hours): 485 p

8 Hour Projected Vehicle Volume: 6112 v

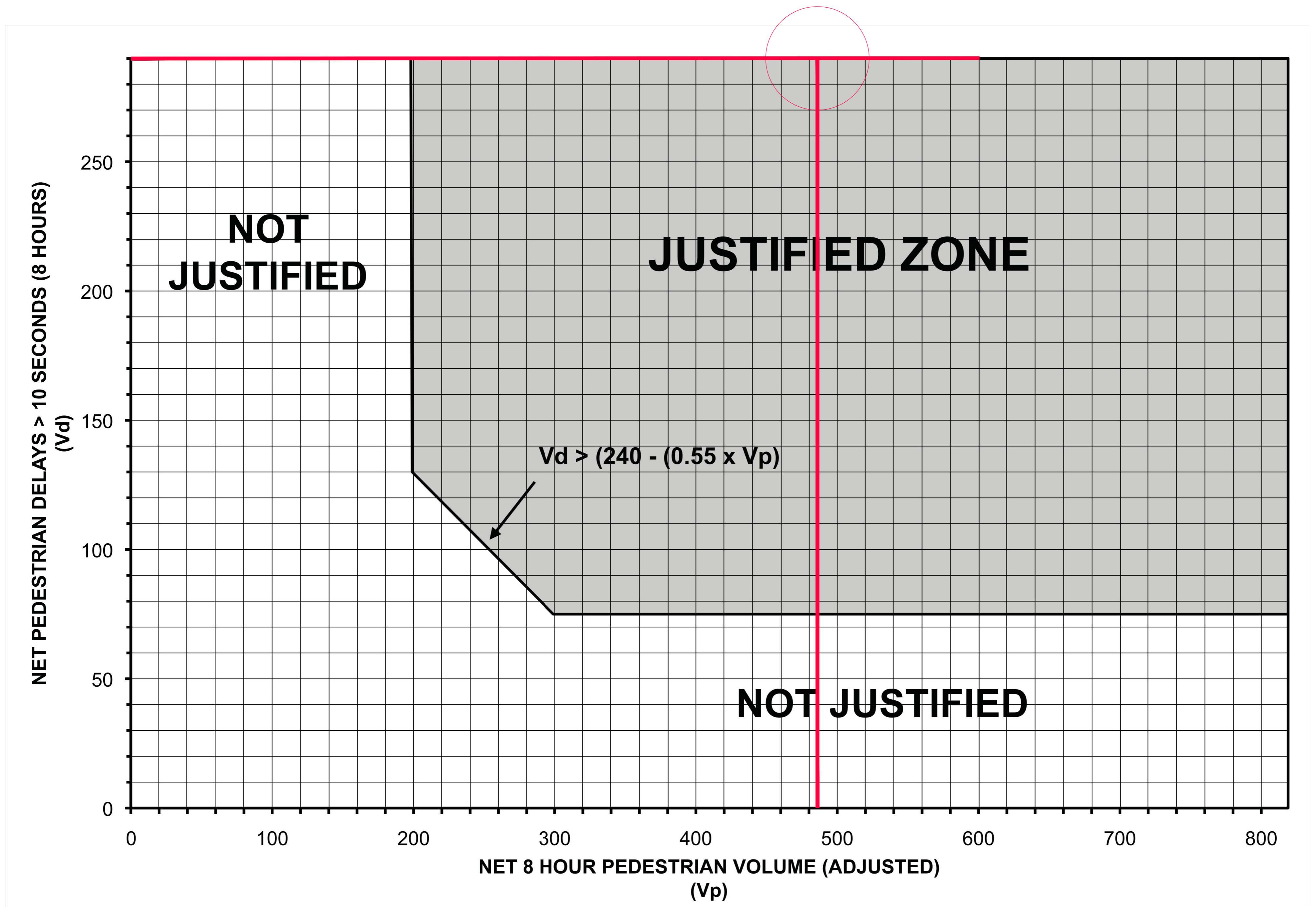


Figure 23 – Justification 6 – Pedestrian Delay

Results Sheet

[Input Sheet](#)

[Analysis Sheet](#)

[Proposed Collision](#)

[GO TO Justification:](#)

Intersection: Airport Road /Street A North Access

Count Date: Future Projected Volume 2022

Summary Results

Justification		Compliance		Signal Justified?	
				YES	NO
1. Minimum Vehicular Volume	A Total Volume	0	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Volume	0	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Delay to Cross Traffic	A Main Road	0	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Road	0	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Combination	A Justificaton 1	0	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Justification 2	0	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. 4-Hr Volume		0	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. Collision Experience	0	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
-------------------------	---	---	--------------------------	-------------------------------------

6. Pedestrians	A Volume	Justification met		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	B Delay	Justification met		<input checked="" type="checkbox"/>	<input type="checkbox"/>

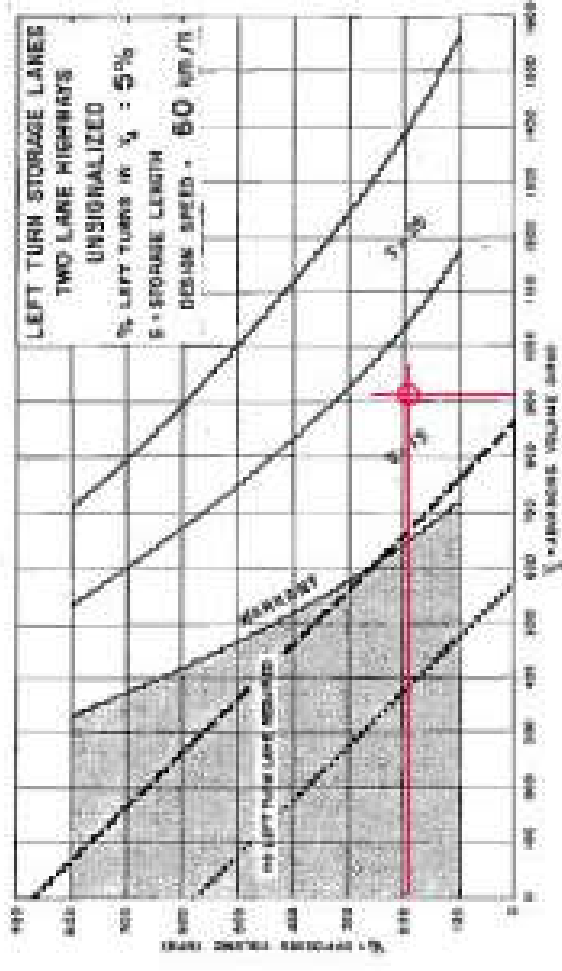


APPENDIX P
Left Turn Warrant Analysis and Left Turn Monographs

Airport Road/Street 'A' South Access

AM Peak Hour FT 2023 SBL

APPENDIX A
A1-GRADE INTERSECTIONS



----- TRAFFIC SIGNALS MAY BE INDICATED IN SIGNAL
 AREA OF CROSS SECTION WITH INDICATED FLAG
 TRAFFIC SIGNALS MAY BE INDICATED IN
 "LEFT TURN" CROSS SECTION

Va=917 vph

Vo=195 vph

S=15m

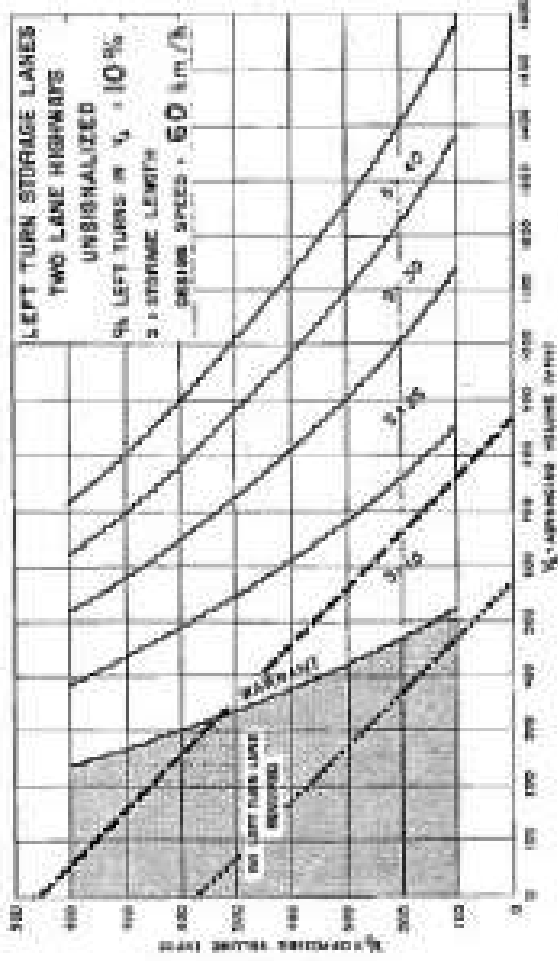


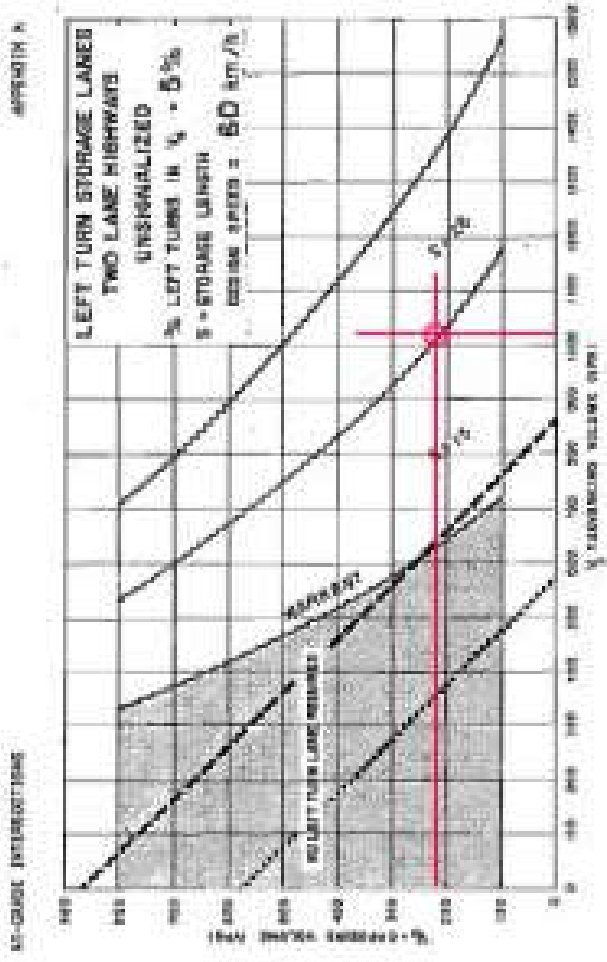
Figure SA-4

SA-7

SA-05

Airport Road/Street 'A' South Access

AM Peak Hour FT 2033 SBL



TRAFFIC SIGNALS NOT BE IMPLEMENTED IN LOCAL AREAS OR JARRA AREAS WITH RESTRICTED FLOW

TRAFFIC SIGNALS SHOULD BE DESIGNED IN "FREE FLOW" CROSS SECTIONS

$V_a = 1084$

$V_o = 219$

$S = 25m$

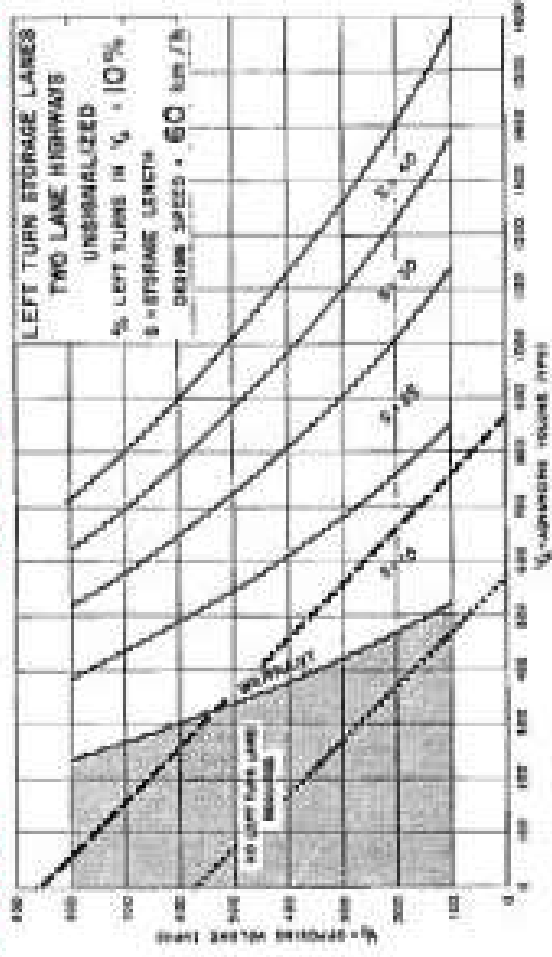


Figure 6-4

15717 Airport Road - SOUTH ACCESS STORAGE LEFT TURN WARRANT CALCULATIONS

AM Peak Hour FT 2023 WBL		PM Peak Hour FT 2023 WBL	
Airport Road at Cranston / Street A South		Airport Road at Cranston / Street A South	
Posted Speed:	60 km/h	Posted Speed:	60 km/h
Design Speed:	80 Km/h	Design Speed:	80 Km/h
Advancing Traffic Volume:	80	Advancing Traffic Volume:	27
Opposing Traffic Volume:	25	Opposing Traffic Volume:	9
Left Turn Volume:	63	Left Turn Volume:	20
Percentage of Left Turn Traffic:	78.75	Percentage of Left Turn Traffic:	74.07407
	79%		73%

AM Peak Hour FT 2033 WBL		PM Peak Hour FT 2033 WBL	
Airport Road at Cranston / Street A South		Airport Road at Cranston / Street A South	
Posted Speed:	60 km/h	Posted Speed:	60 km/h
Design Speed:	80 Km/h	Design Speed:	80 Km/h
Advancing Traffic Volume:	80	Advancing Traffic Volume:	27
Opposing Traffic Volume:	25	Opposing Traffic Volume:	9
Left Turn Volume:	63	Left Turn Volume:	20
Percentage of Left Turn Traffic:	78.75	Percentage of Left Turn Traffic:	74.07407
	79%		73%

AM Peak Hour FT 2023 SBL		PM Peak Hour FT 2023 SBL	
Airport Road at Cranston / Street A South		Airport Road at Cranston / Street A South	
Posted Speed:	60 km/h	Posted Speed:	60 km/h
Design Speed:	80 Km/h	Design Speed:	80 Km/h
Advancing Traffic Volume:	917	Advancing Traffic Volume:	459
Opposing Traffic Volume:	195	Opposing Traffic Volume:	1104
Left Turn Volume:	3	Left Turn Volume:	7
Percentage of Left Turn Traffic:	0.327154	Percentage of Left Turn Traffic:	1.525054
	1%		2%

AM Peak Hour FT 2033 SBL		PM Peak Hour FT 2033 SBL	
Airport Road at Cranston / Street A South		Airport Road at Cranston / Street A South	
Posted Speed:	60 km/h	Posted Speed:	60 km/h
Design Speed:	80 Km/h	Design Speed:	80 Km/h
Advancing Traffic Volume:	1084	Advancing Traffic Volume:	526
Opposing Traffic Volume:	219	Opposing Traffic Volume:	1267
Left Turn Volume:	3	Left Turn Volume:	7
Percentage of Left Turn Traffic:	0.276753	Percentage of Left Turn Traffic:	1.330798
	1%		2%

Airport Road/Street 'A' South Access

PM Peak Hour FT 2023 SBL

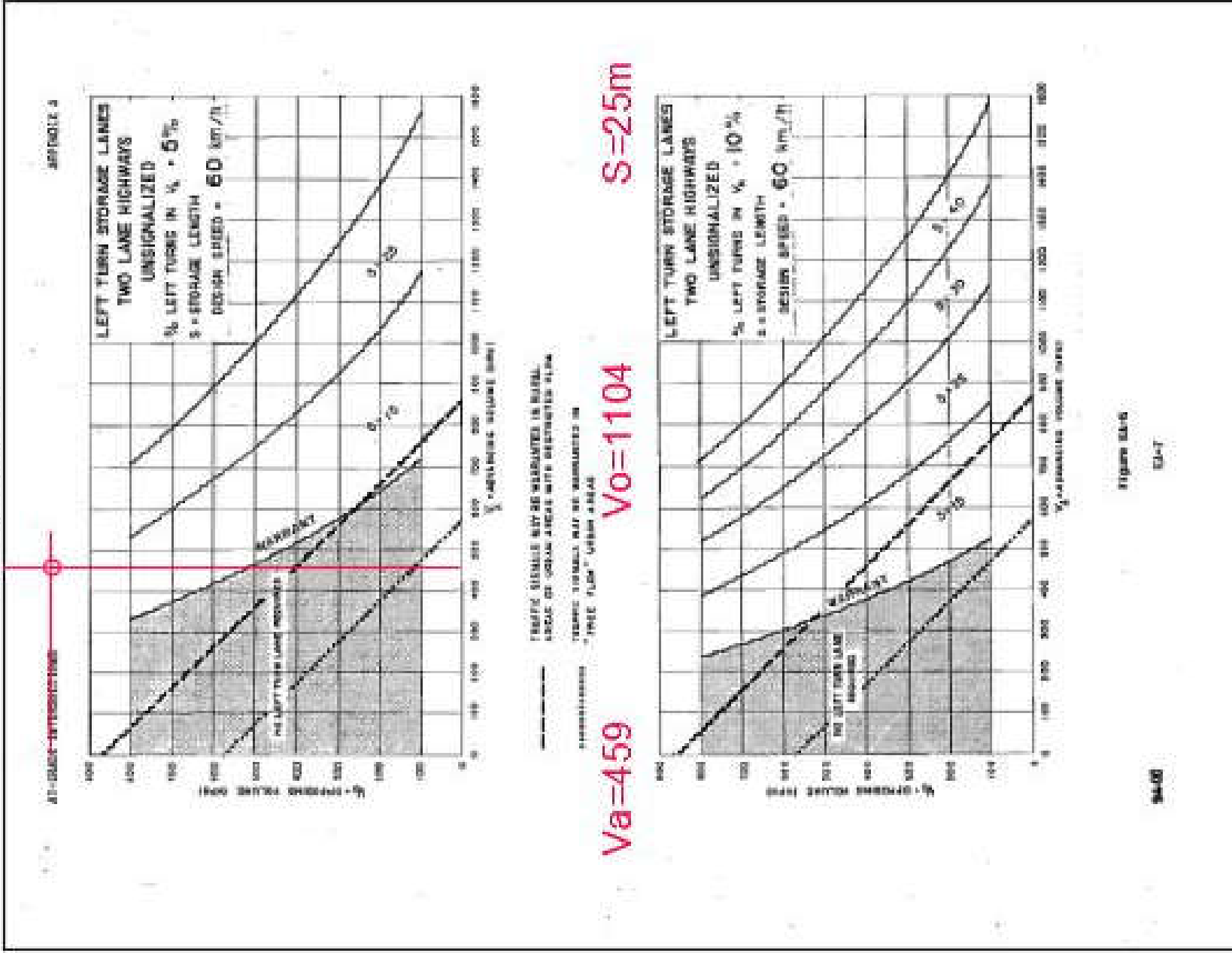


Figure 33-6

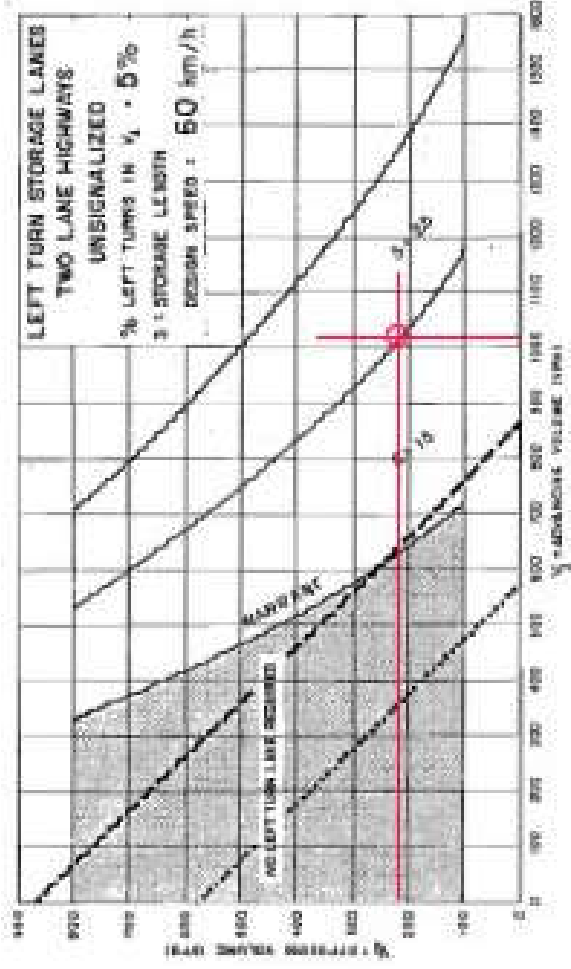
CU-7

Airport Road/Street 'A' South Access

AM Peak Hour FT 2033 SBL

AT-GRADE INTERSECTIONS

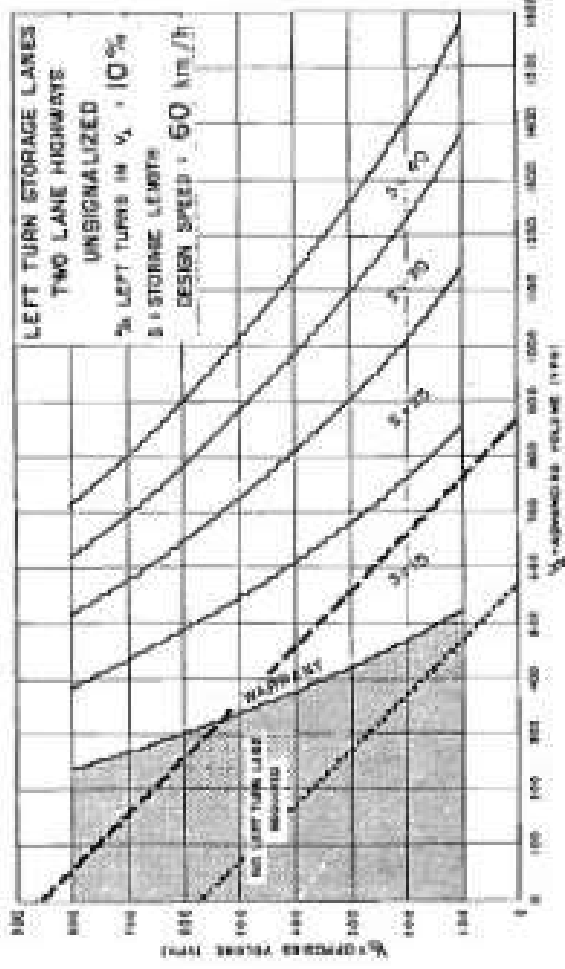
APPENDIX A



$V_a=1084$

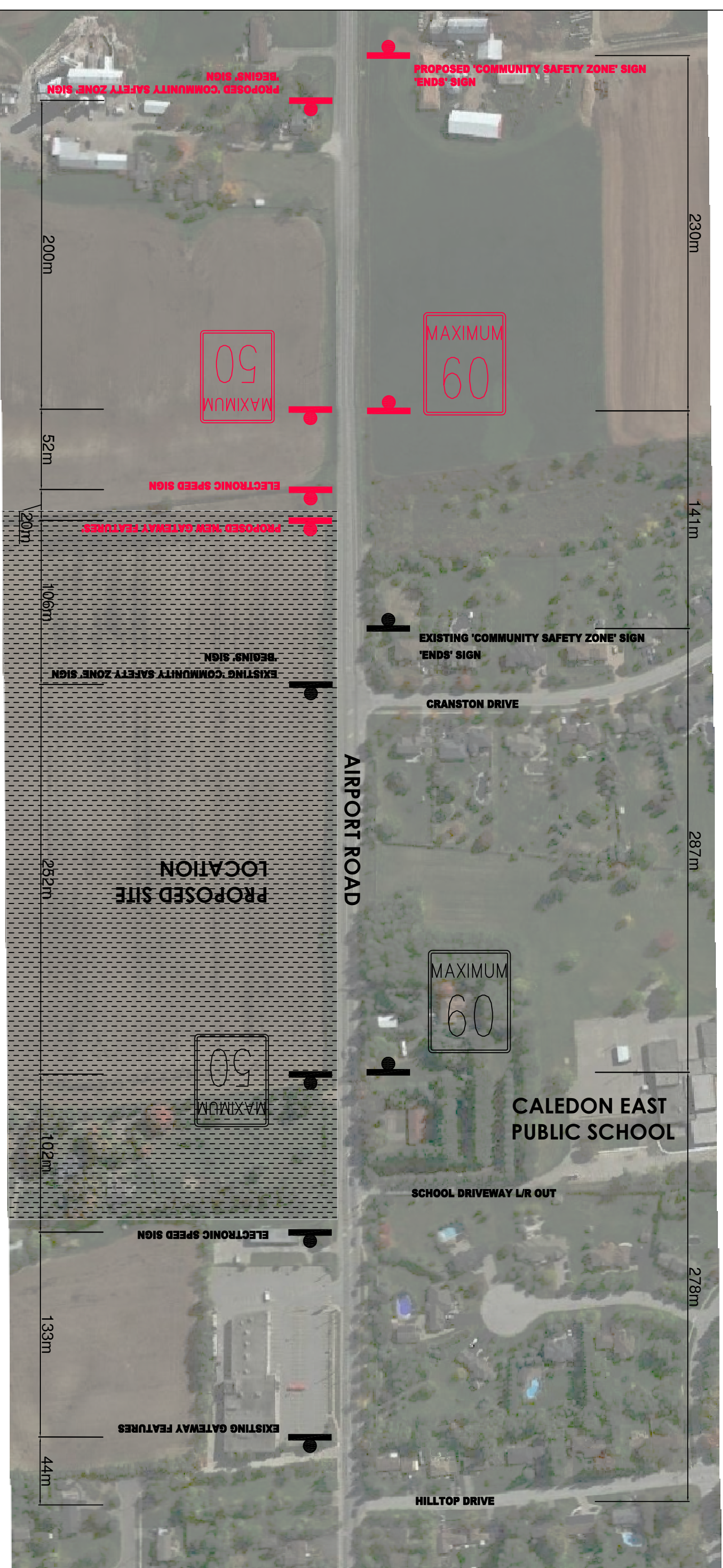
$V_o=219$

$S=25m$

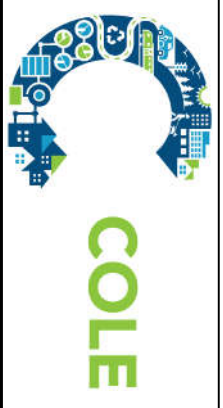




APPENDIX Q
Community Safety Zone Plan



PROPOSED COMMUNITY SAFETY ZONE ON AIRPORT ROAD (REGIONAL ROAD 7) IN THE VICINITY OF SUBJECT SITE
 PROPOSED SIGN LOCATIONS ARE APPROXIMATE.



COLE

LEGEND

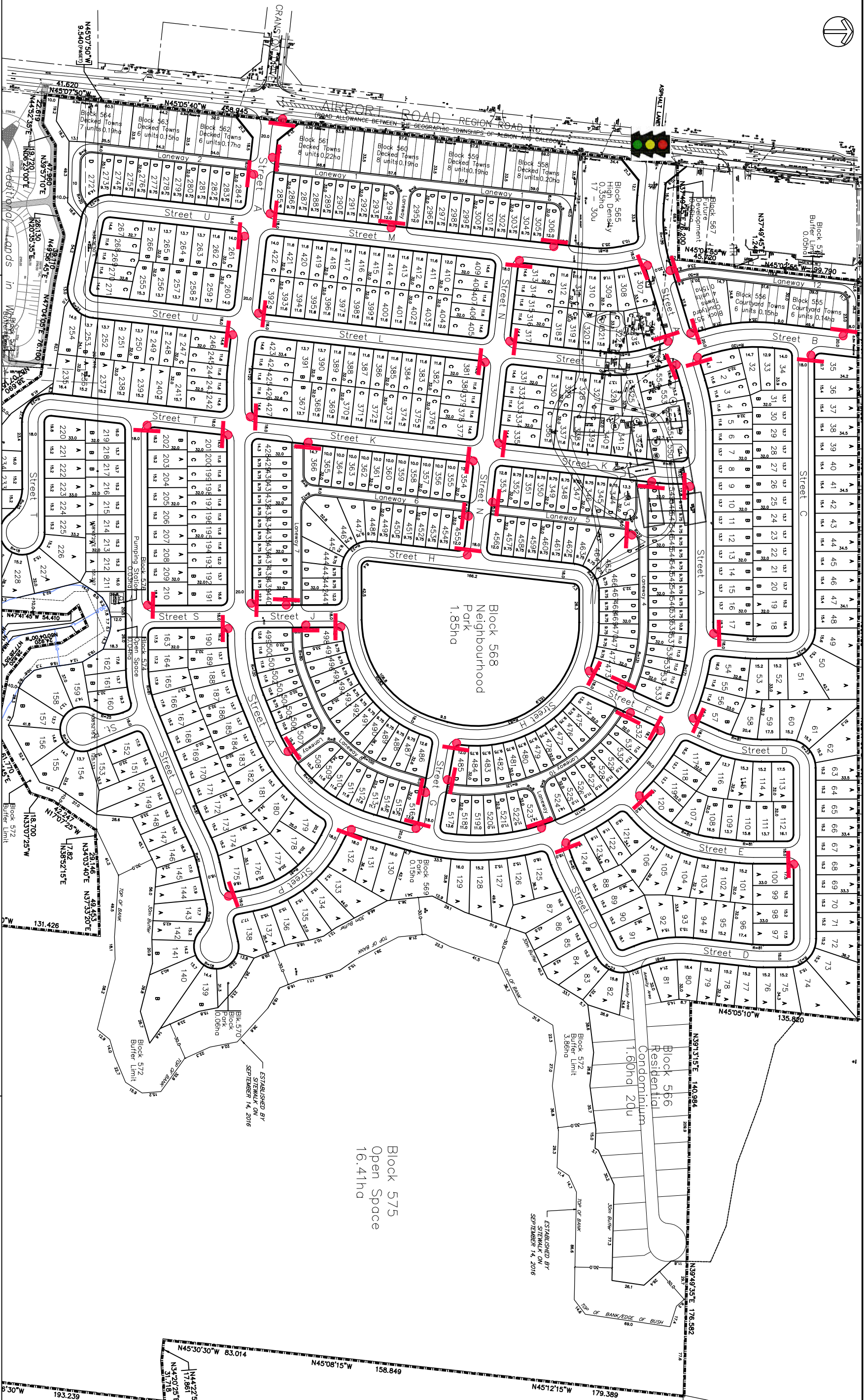
 EXISTING SIGN LOCATION

 PROPOSED SIGN LOCATION

PROPOSED COMMUNITY SAFETY ZONE PLAN PROPOSED RESIDENTIAL DEVELOPMENT 15717 AIRPORT ROAD TOWN OF CALEDON REGION OF PEELE	
DATE:	AUGUST 2018
SCALE:	NTS
PROJECT No.:	TR16-0619
FIGURE No.:	





APPENDIX R
Internal Traffic Control Plan



70 VALLEYWOOD DRIVE, MARKHAM, ON L3R 4T5
 T:416.987.6161 / 905.940.6161 F:905.940.2064

LEGEND

-  STOP SIGN (Ra-1)
-  PROPOSED TRAFFIC SIGNAL

Block 575
 Open Space
 16.41ha

INTERNAL TRAFFIC CONTROL PLAN
 PROPOSED RESIDENTIAL DEVELOPMENT
 15717 AIRPORT ROAD
 TOWN OF CALEDON
 REGION OF PEEL

DATE: AUGUST 2018
 SCALE: 1:3000
 PROJECT No.: TR16-0619
 FIGURE No.: ITCP-1

ESTABLISHED BY
 SITEWALK ON
 SEPTEMBER 14, 2016

ESTABLISHED BY
 SITEWALK ON
 SEPTEMBER 14, 2016

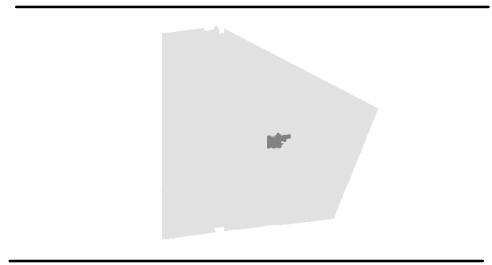


APPENDIX S
Caledon Conceptual Pedestrian Network



Figure 17 CALEDON EAST CONCEPTUAL PEDESTRIAN NETWORK

- Institutional
- Environmental Policy Area (revised November 1999)
- Open Space Policy Area
- Open Space/Institutional Policy Area
- 2021 Settlement Boundary
- Conceptual Pedestrian Linkage
- Caledon Trailway
- Regional Road
- Local Road



Base Data Source: Town of Caledon

